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 – Q1

Natural hazards pose major risks to people and property

What is a natural hazard?

_____

_____

_____

What is hazard risk?

_____

_____

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).

_____

_____

_____

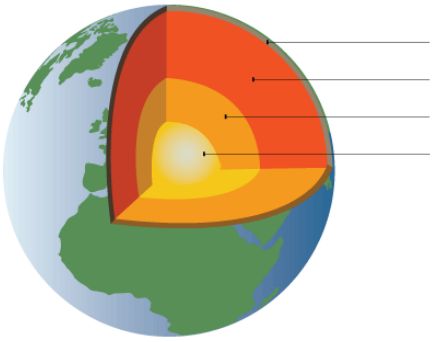
_____

_____

_____

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:

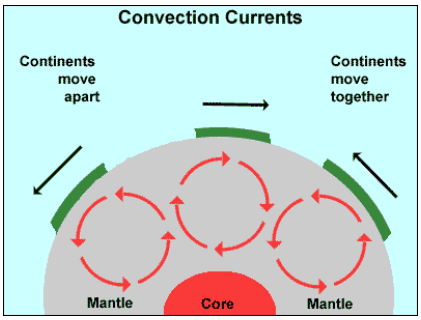


Oceanic crust	Continental crust

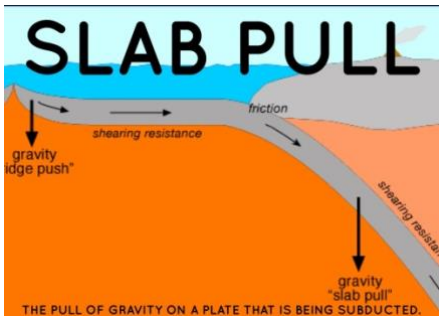
Outline the evidence that tectonic plates are moving.

What are the two theories behind why tectonic plates move?

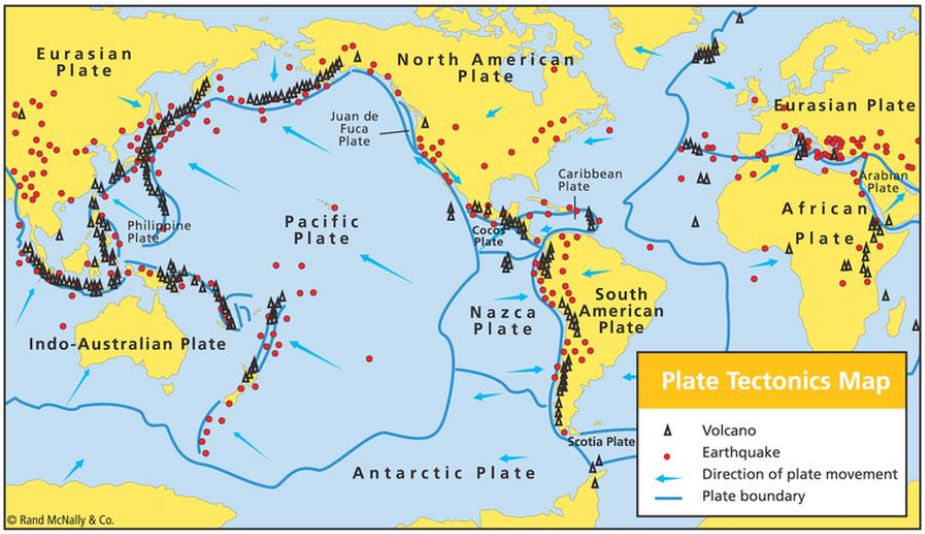
THEORY 1



THEORY 2



Describe the **global distribution** of volcanoes and earthquakes, i.e. where are they?



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.

Constructive Margin	**Destructive Margin**
Conservative Margin	**Collision Margin**

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?

_____

_____

_____

What are immediate and long-term responses?

_____

_____

_____

Complete the table below with 3 primary and 3 secondary effects of an earthquake and 3 immediate and 3 long-term responses to an earthquake:

Primary effects	Secondary effects
Immediate responses	**Long-term responses**

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

Outline the causes of the Christchurch earthquake.

_____

_____

_____

_____

_____

_____

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?

_____

_____

_____

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

_____

_____

_____

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

Outline the causes of the Haiti earthquake.

_____

_____

_____

_____

_____

_____

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?

_____

_____

_____

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

_____

_____

_____

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

The effects were so different because _____

_____

_____

_____

_____

_____

The responses were so different because _____

_____

_____

_____

_____

_____

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:

- _____
- _____
- _____
- _____

What are some of the benefits of living in Iceland near lots of volcanoes? Which is the biggest benefit and why?

_____

_____

_____

_____

_____

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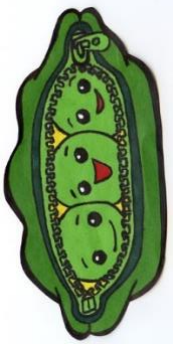
_____

What is monitoring and what are the 3 Ps used to reduce the effects of earthquakes?

Monitoring is _____

_____



Prediction is _____

_____

Protection is _____

_____

Planning is _____

_____

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

_____

_____

_____

_____

_____

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

_____

_____

_____

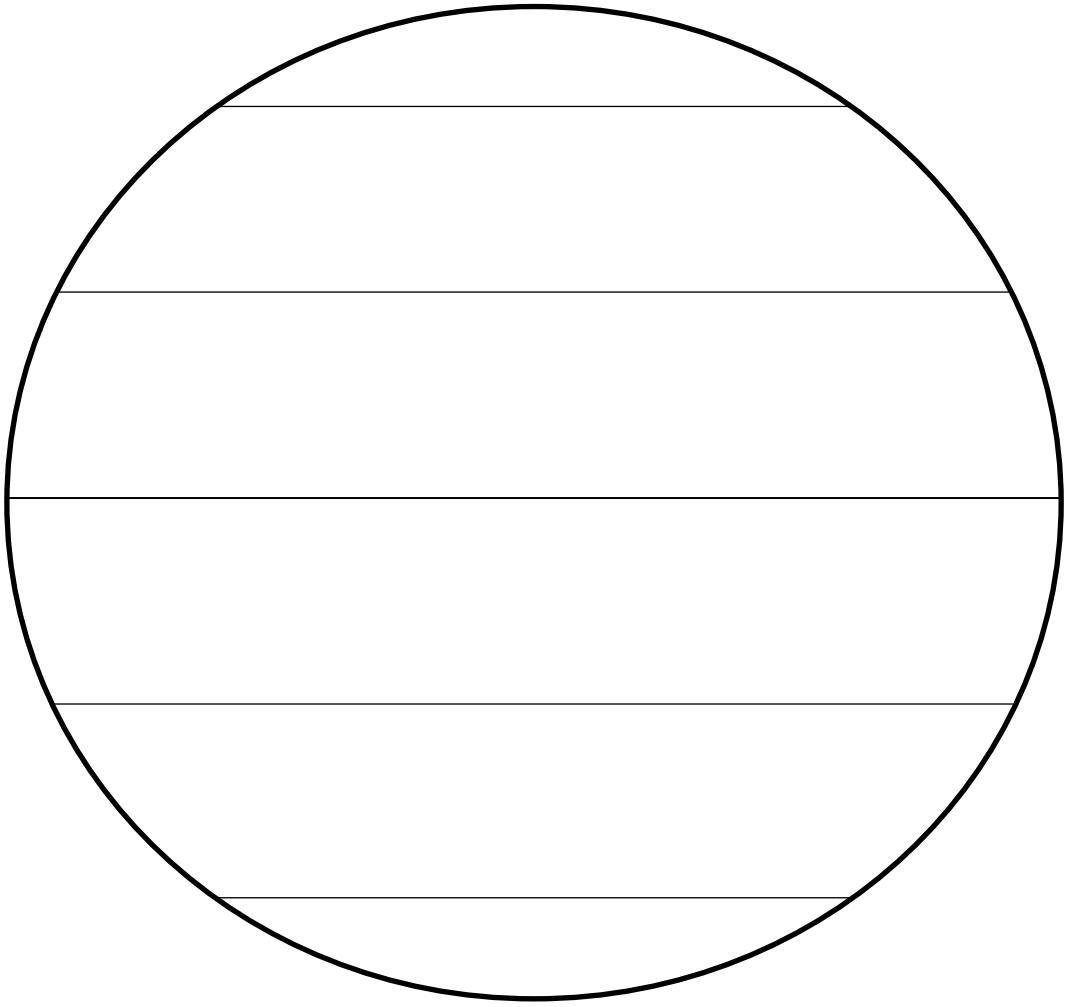
_____

_____

Global atmospheric circulation helps to determine patterns of weather and climate

On the model below, add the following features:

- 0° (equator), 30°N and S, 60°N and S and 90°N and 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?

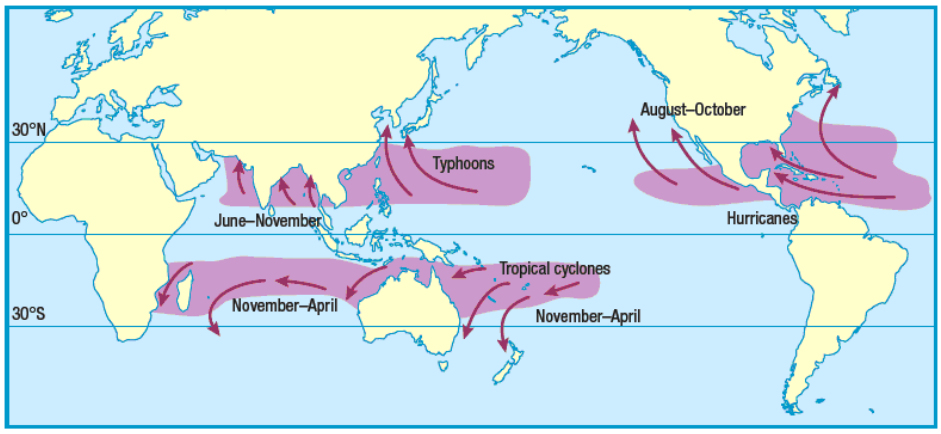
_____

_____

_____

_____

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.

Give 2 conditions needed for tropical storms to form:

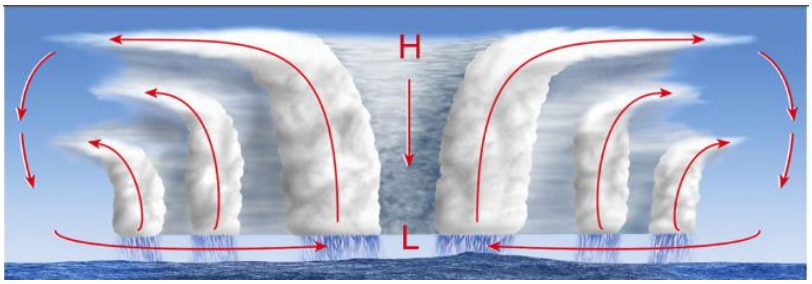
-
-

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

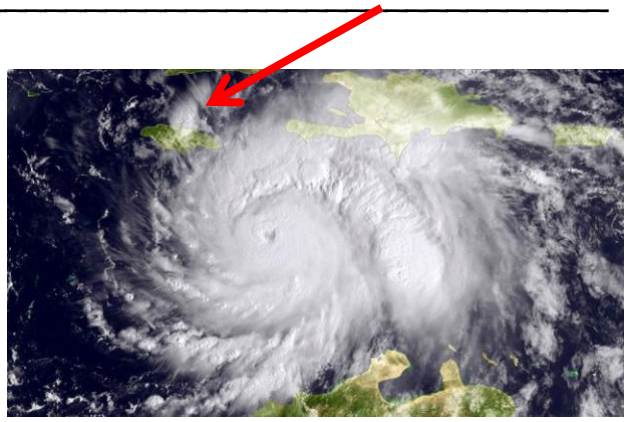
Give 2 reasons why tropical storms may lose their energy:

-
-

Label the diagram below with the characteristics of tropical storms:



Give the likely 24 – 48 hour weather forecast for the island to the north west of the tropical storm.



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

Distribution: _____

Frequency: _____

Intensity: _____

Named example of a tropical storm: Typhoon Haiyan, 2013

Describe the path of Typhoon Haiyan.

Complete the tables below with 3 facts in each column – remember to include SPECIFIC FACTS, i.e. facts that could only have happened in Typhoon Haiyan, 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 Typhoon Haiyan?

Do you think immediate or long-term responses were more significant in Typhoon Haiyan?

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?

_____

_____

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: Storm Desmond, 2015

Outline the causes of Storm Desmond

Complete the table below to show the social, economic and environmental impacts of Storm Desmond (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):

- _____
  _____
- _____
  _____
- _____
  _____

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:	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?

_____

_____

_____

What is the definition of adaptation?

_____

_____

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		

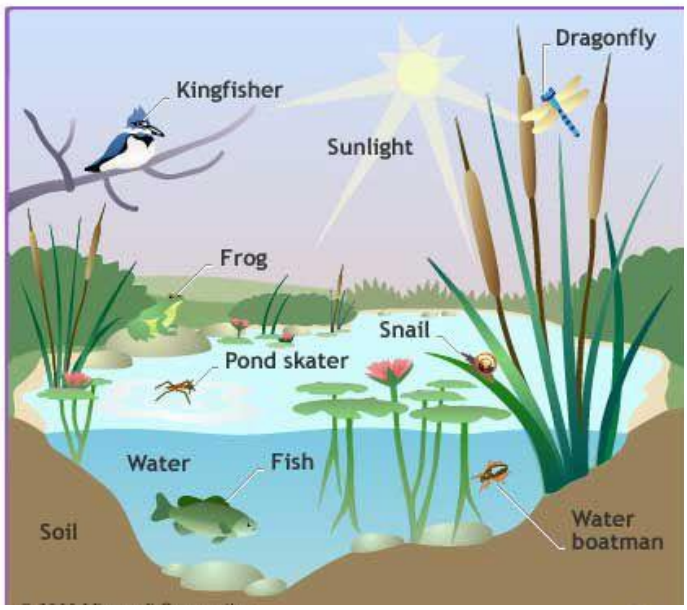
The Living World – Q2

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

An example of a small scall ecosystem: Hene Centre Pond

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

- Ecosystem: _____
  _____
- Biotic components: _____
- Abiotic components: _____



Describe the pond ecosystem shown opposite

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

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		

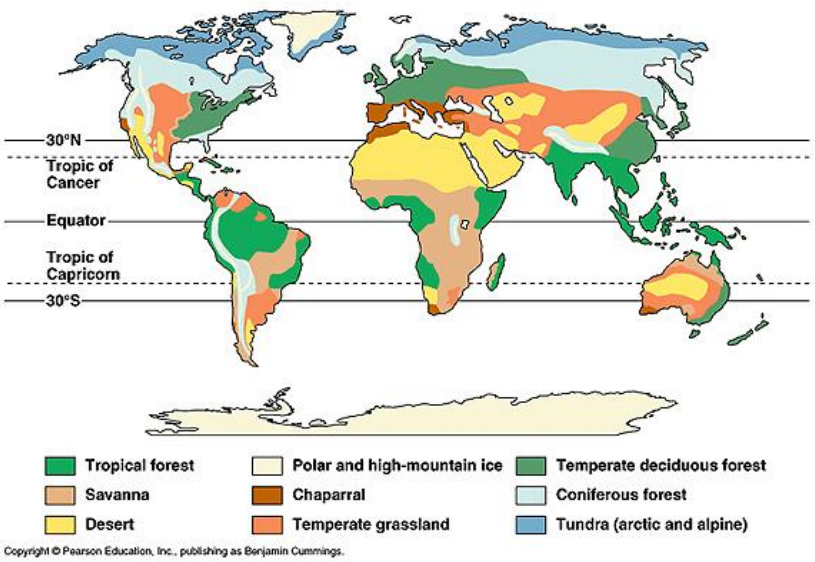
Ecosystems are very fragile and if there is a change to one component it may well have a knock-on effect on the rest of the ecosystem. Complete the natural and human causes of change in an ecosystem:

Natural changes	Changes due to human activity

How can changes affect the pond ecosystem? Complete another flow diagram below for another change:

- More perch (predators) are added to the pond → Smaller fish and frogs are eaten → Less food for creatures higher up the food chain, e.g. herons → More creatures lower down the food chain like slugs
-

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.

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?

_____

_____

What is the climate like?

_____

_____

_____

_____

Why is the temperature constantly high in the rainforest?

_____

_____

Why is the rainfall high?

_____

_____

Why does the amount of rainfall vary throughout the year?

_____

_____

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

- _____

_____

- _____

_____

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:

- _____
_____
_____
- _____
_____
_____
- _____
_____
_____

Deforestation has economic and environmental impacts

Every 2 seconds an area of rainforest the size of a football field is destroyed! Rainforests once covered 15.5 million km2, but now it is just over 6.2 million km2.

Why is the rate of deforestation now decreasing in Brazil?

- _____
- _____
- _____

What is happening to the rainforests in Indonesia compared to Brazil?

_____
_____
_____

A case study of a tropical rainforest: Amazon, Brazil

Describe the location of the Amazon rainforest:

_____
_____
_____
_____
_____
_____
_____
_____
_____

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

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

What are the impacts of deforestation?

How does deforestation lead to soil erosion?

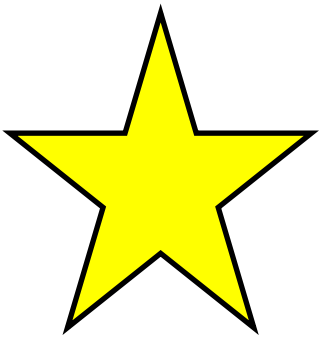
How does deforestation contribute to climate change?

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:



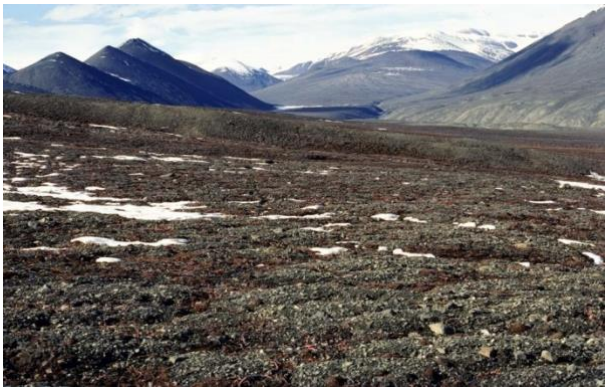
Rainforests need to be managed sustainably so that we can still use valuable resources but without causing long-term damage for future generations. Complete the table below outlining how rainforests can be managed sustainably – include specific facts where possible:

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

Cold environments (polar and tundra) have a range of distinctive characteristics

Cold environments experience temperatures that are at or below zero degrees Celsius for long periods of time.

Annotate the two photographs below: one for polar environments and one for tundra. Include information on their climate, soils, plants and animals.



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

Animal	Adaptation	How does it help it to survive?

Development of cold environments creates opportunities and challenges

A case study of a cold environment: Svalbard

List 5 facts about Svalbard:

- _____
- _____
- _____
- _____
- _____

What are the opportunities for development in Svalbard?

Complete the table below describing the opportunities in Svalbard:

Mineral extraction	Energy developments	Fishing	Tourism

Similarly, below, complete the table describing the challenges of developing Svalbard:

Extreme temperature	Inaccessibility	Provision of buildings/construction	Infrastructure

Cold environments are at risk from economic development

Annotate the photograph below outlining why we should protect cold environments and why they are valuable:

Cold environments offer many opportunities for economic development. To ensure that they do not suffer any long-term damage, they need to be managed sustainably.

What problems are there with the trans-Alaskan pipeline?

- _____
- _____
- _____

How has the use of technology reduced these risks?

- _____
- _____
- _____

Outline how government actions, international agreements and conservation groups can help to sustainably manage cold environments. Give examples where possible:

Government action: _____

_____

_____

_____

International agreements: _____

_____

_____

_____

Conservation groups: _____

_____

_____

_____

_____

Do you think cold environments should be protected? In the table below, give two reasons why they should be protected, two reasons why they should not be protected and then your own opinion:

Yes they should be protected	No they should not be protected
My opinion is…	

Coastal Landscapes in the UK – Q3

The coast is shaped by a number of physical processes

What is a wave?

_____

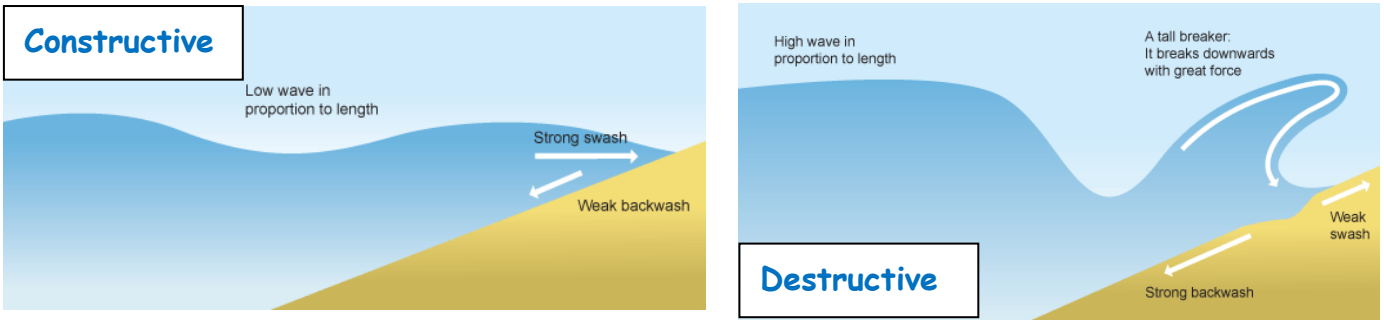
What causes a wave?

_____

What is the fetch?

_____

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		
Type of wave (plunging or spilling)		
Strength of swash		
Strength of backwash		
Beach sediment – gain or loss		

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

_____

_____

What is weathering?

_____

_____

What is **mechanical weathering**?

_____

_____

What is **chemical weathering**?

_____

_____

What is mass movement?

_____

_____

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:

Hydraulic action	Abrasion
Attrition	Solution

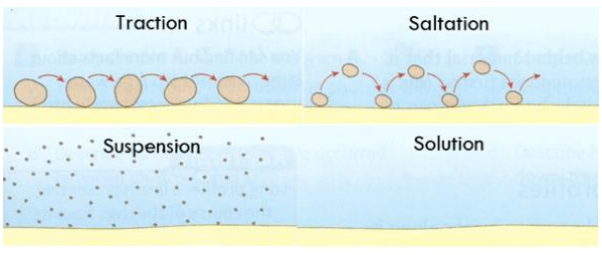
What is an additional type of erosion found at the coast? What does it mean?

_____

_____

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

Traction	Saltation
Suspension	Solution



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

What is coastal deposition?

_____

Give 3 reasons why coastal deposition occurs:

- _____
  _____
- _____
  _____
- _____

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

Outline the two factors that influence coastal forms:

Rock type: _____

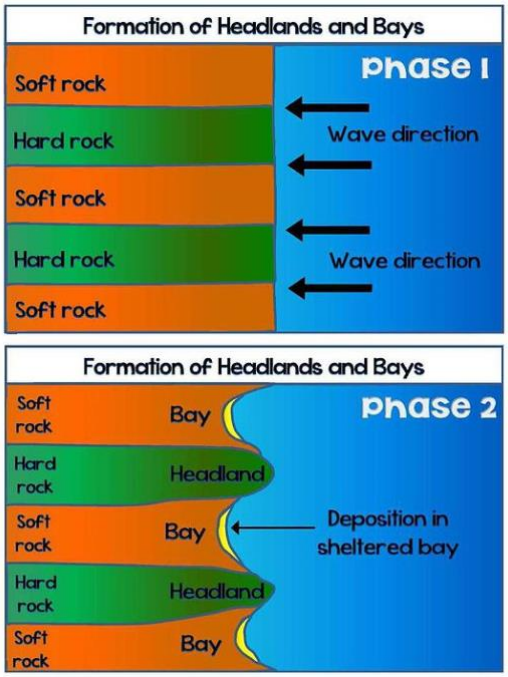
_____

Geological structure: _____

_____

Landforms resulting from erosion

Headlands and Bays



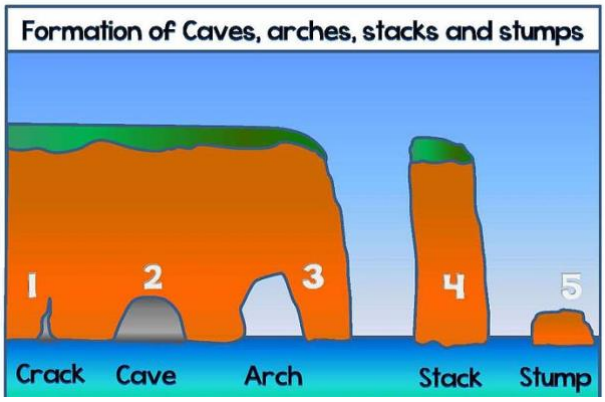
Explain how headlands and bays form using the diagram to help you. Remember to include key terms where necessary.

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: _____

_____

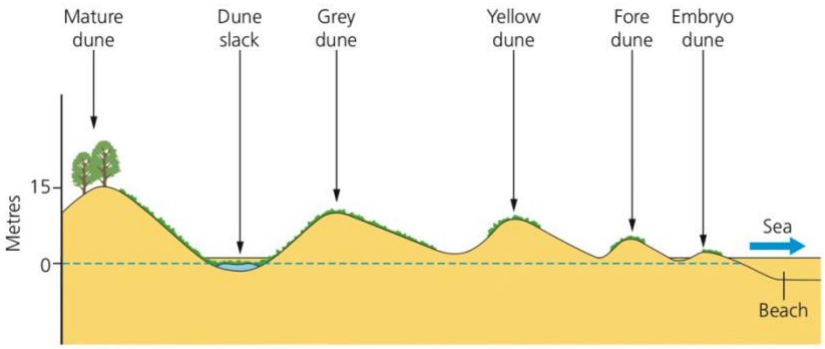
_____

Shingle/pebble: _____

_____

_____

Sand dunes



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

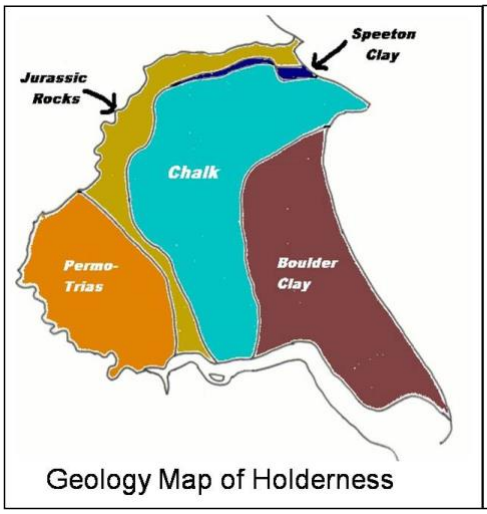
Spits and Bars

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.

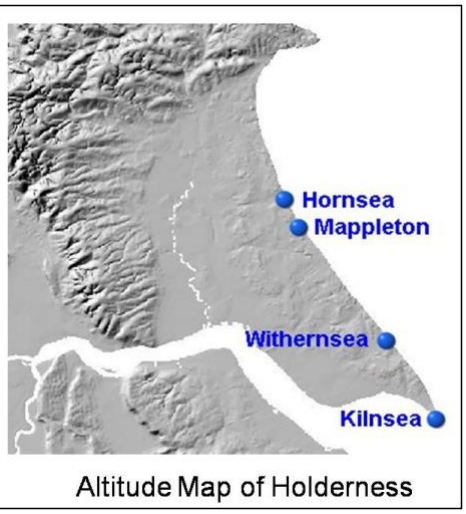
Draw an annotated diagram in the box below to explain the formation of spits and bars:

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

Describe the geology of the Holderness Coast.



Geology Map of Holderness



Altitude Map of Holderness

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

Flamborough Head

Slumping at Bridlington

Spurn Point

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

Hard engineering: _____

_____

Soft engineering: _____

_____

Managed retreat: _____

_____

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?

_____

_____

_____

_____

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

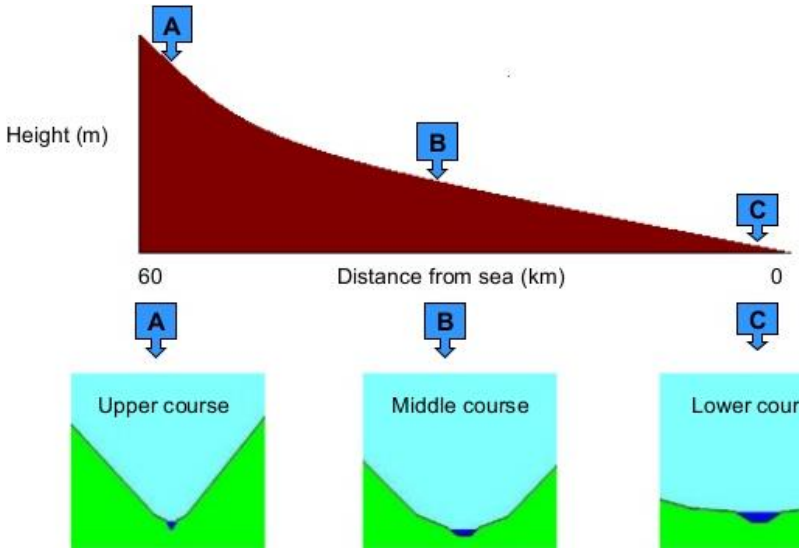
What groups of people might be in conflict over these defences and why?

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.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Complete the definitions of vertical and lateral erosion:

- Vertical erosion is _____
- Lateral erosion is _____

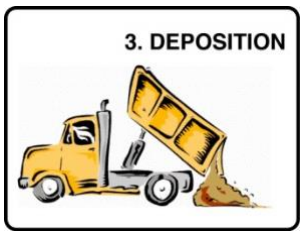
Complete the table below describing the four types of erosion found in a river:

Hydraulic action	Abrasion
Attrition	Solution

Do the same in the table below to describe the four types of transportation in a river:

Traction	Saltation
Suspension	**Solution**

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**

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

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

A river flows over a band of hard rock on top of soft rock.	

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**:

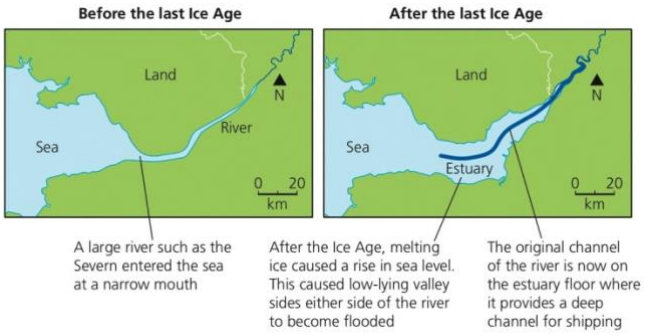
The fastest flow of the river occurs on the outside of a meander causing erosion. Deposition occurs on the inside of the bend.	

Features formed by deposition in the lower course of a river

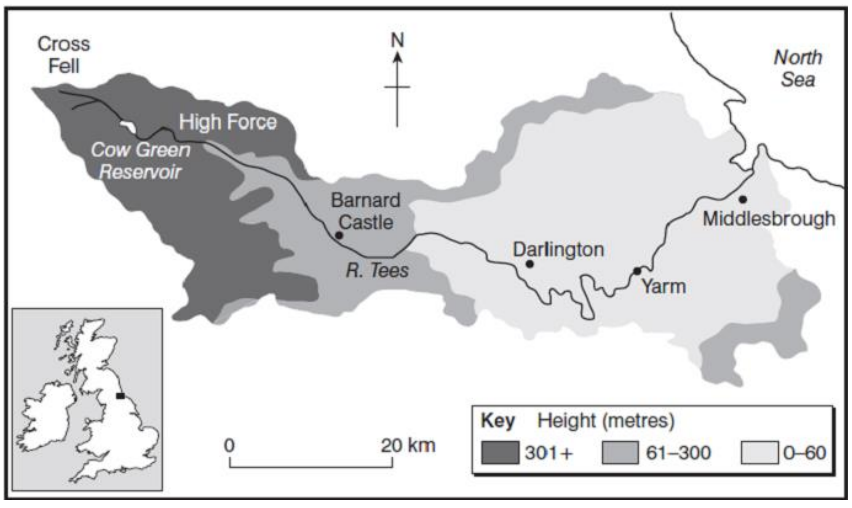
Draw annotated diagrams below to explain the formation of **levees and floodplains**:

A river is contained within its banks (normal)		

Using the diagrams below, explain the formation of **estuaries**:



An example of a river valley in the UK: River Tees, North-east England



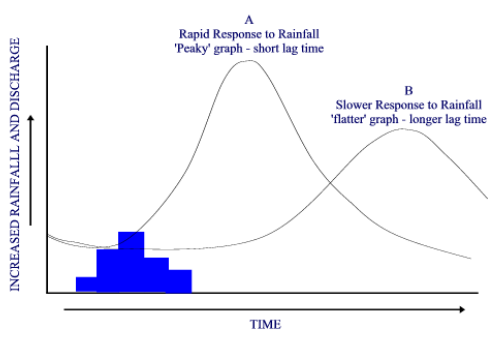
Describe the features of the River Tees (waterfalls, gorges, meanders, levees and estuaries). Include place names. DO NOT explain how the features were formed, just say what they are like.

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
Impermeable rock	Permeable rock

What is hard and soft engineering?

Hard engineering is _____

_____

Soft engineering is _____

_____

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: Carlisle, Cumbria

Briefly outline why Carlisle needed a flood management project:

_____

_____

_____

_____

_____

List 4 of the strategies used in Carlisle 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 Carlisle was a success? Why?

_____

_____

_____

_____

_____

_____

_____

_____

_____