



Here is your GCSE Geography saviour! Read it, breathe it, discuss it, keep it safe, make it yours... and above all, USE IT!

Name: \_\_\_\_\_

# **Revision Booklet**

# **GCSE Geography**

AQA 8035

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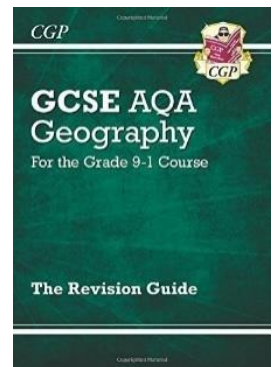
## How to use this booklet

This booklet has been designed to cover every aspect of the AQA 8035 specification in some way. It is ordered in the same way as the specification. You may study the topics in a different order, which is okay.

If you complete all activities (and check with your teacher when you do not understand the activities), you will be well prepared for the exams.

The booklet has a combined approach: it includes some content information alongside lots of tasks to help you revise. All of the tasks will help you to revise the content and skills of the course. Some of the questions are in the style of the exam (and these are identified clearly as EXAM-STYLE QUESTIONS); other questions help you to practice the skills needed but do not exactly mirror the exam (e.g. the MINI ISSUE EVALUATION TASKS); others are purely designed to help you remember and revise content (e.g. brainstorm, tables and general questions).

You should remember that this is not a textbook, so it does not provide all of the content information (it's a good idea to purchase a text that is content-focussed, for example the CGP Revision Guide, which costs £5.95 online).



At the start of the booklet you'll find some helpful resources. The CASE STUDIES AND EXAMPLES information will help you to take an organised approach to these important parts of Paper 1 and Paper 2. The COMMAND WORDS section tells you what each command term is asking you to do, and gives example answers to show you how.

The booklet is designed to be flexible. You may complete tasks in lessons or for homework- your teacher should guide you.

The best approach is to 'chip away' at the tasks over time rather than leaving it to a mad rush in April or May. That way you'll avoid overwhelming yourself too much.



Best of luck. Although you don't need luck, because deep down you know that if you use the booklet your confidence will go up and your grade will follow!

## Course information

Your GCSE Geography course (AQA 8035) culminates in three exams. The basic information that you need to know is in dot points below. More detail is shown at the bottom.

### Paper 1: Living with the physical environment

- The physical geography one!
- Worth 35%
- 1hr 30mins

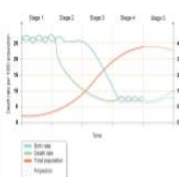
Physical stuff like this...



### Paper 1: Challenges in the human environment

- The human/economic one!
- Worth 35%
- 1hr 30mins

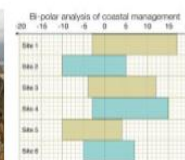
Human/economic stuff like this...



### Paper 3: Geographical applications

- The skills one!
- Worth 30%
- 1hr 15mins

Skills stuff like this...



Paper 1: Living with the physical environment	+	Paper 2: Challenges in the human environment	+	Paper 3: Geographical applications
<p><b>What's assessed</b></p> <p>3.1.1 The challenge of natural hazards, 3.1.2 The living world, 3.1.3 Physical landscapes in the UK, 3.4 Geographical skills</p>		<p><b>What's assessed</b></p> <p>3.2.1 Urban issues and challenges, 3.2.2 The changing economic world, 3.2.3 The challenge of resource management, 3.4 Geographical skills</p>		<p><b>What's assessed</b></p> <p>3.3.1 Issue evaluation, 3.3.2 Fieldwork, 3.4 Geographical skills</p>
<p><b>How it's assessed</b></p> <ul style="list-style-type: none"> <li>• Written exam: 1 hour 30 minutes</li> <li>• 88 marks (including 3 marks for spelling, punctuation, grammar and specialist terminology (SPaG))</li> <li>• 35 % of GCSE</li> </ul>		<p><b>How it's assessed</b></p> <ul style="list-style-type: none"> <li>• Written exam: 1 hour 30 minutes</li> <li>• 88 marks (including 3 marks for SPaG)</li> <li>• 35 % of GCSE</li> </ul>		<p><b>How it's assessed</b></p> <ul style="list-style-type: none"> <li>• Written exam: 1 hour 15 minutes</li> <li>• 76 marks (including 6 marks for SPaG)</li> <li>• 30 % of GCSE</li> <li>• Pre-release resources booklet made available 12 weeks before Paper 3 exam</li> </ul>
<p><b>Questions</b></p> <ul style="list-style-type: none"> <li>• Section A: answer all questions (33 marks)</li> <li>• Section B: answer all questions (25 marks)</li> <li>• Section C: answer any two questions from questions 3, 4 and 5 (30 marks)</li> <li>• Question types: multiple-choice, short answer, levels of response, extended prose</li> </ul>		<p><b>Questions</b></p> <ul style="list-style-type: none"> <li>• Section A: answer all questions (33 marks)</li> <li>• Section B: answer all questions (30 marks)</li> <li>• Section C: answer question 3 and one from questions 4, 5 or 6 (25 marks)</li> <li>• Question types: multiple-choice, short answer, levels of response, extended prose</li> </ul>		<p><b>Questions</b></p> <ul style="list-style-type: none"> <li>• Section A: answer all questions (37 marks)</li> <li>• Section B: answer all questions (39 marks)</li> <li>• Question types: multiple-choice, short answer, levels of response, extended prose</li> </ul>

## Case studies and examples

The specification sets out **14 examples** and **5 case studies** that you must learn for Paper 1 and Paper 2.

**Examples** are small scale. They will probably be taught within one lesson or less, and may take up about a page in an exercise book. Sometimes you must learn a **named example** which is usually regarding an event that happens regularly in a place so names are important to avoid confusion (e.g. Typhoon Haiyan 2013). Most of the time you will learn an **example** which is something that is more constant (e.g. a regeneration project in the UK).

**Case studies** are at a much larger scale. They include a lot of content and will need several lessons to cover the material concerned.

### Paper 1 examples and case studies

1. Named **examples** of a tectonic hazard (in two areas of contrasting levels of wealth)
2. A named example of a tropical storm
3. An example of a recent extreme weather event in the UK
4. An example of a small scale UK ecosystem
5. A **case study** of a tropical rainforest
6. A **case study** of a hot desert OR a cold environment
7. An example of a section of coastline in the UK
8. An example of a coastal management scheme in the UK
9. An example of a river valley in the UK
10. An example of a flood management scheme in the UK
11. An example of an upland area in the UK affected by glaciation
12. An example of a glaciated upland area in the UK used for tourism

For UK landscapes, you will study TWO of Rivers, Coasts and Glacial landscapes. Consequently, you will only study the **four** relevant examples listed as numbers 7-12 here.

### Paper 2 examples and case studies

13. A **case study** of a major city in an LIC or NEE
14. An example of urban planning (LIC or NEE)
15. A **case study** of a major city in the UK
16. An example of an urban regeneration project (UK)
17. An example of tourism reducing the development gap in an LIC or NEE
18. A **case study** of an LIC or NEE
19. An example of modern industrial development
20. An example of a large scale agricultural development
21. An example of a local food scheme in an LIC or NEE
22. An example of a large scale water transfer scheme
23. An example of a local water scheme in an LIC or NEE
24. An example of fossil fuel extraction
25. An example of a local renewable energy scheme in an LIC or NEE

You will study EITHER Food, Water or Energy so you will only study the **two** relevant examples listed as numbers 20-25 here.

Your teacher will choose which specific cases you study. For example, for **an example of tourism reducing the development gap in an LIC or NEE**, you might study safari tourism in Kenya. On the following page, you should write down which specific cases you will use.

## My case studies and examples

	The specification requires...	My specific case...	Have I learnt it?
<b>Paper 1</b>	Named examples of a tectonic hazard (in two areas of contrasting levels of wealth)		
	A named example of a tropical storm		
	An example of a recent extreme weather event in the UK		
	An example of a small scale UK ecosystem		
	A <b>case study</b> of a tropical rainforest		
	A <b>case study</b> of a hot desert OR a cold environment		
	<b>TWO OF...</b> An example of a section of coastline in the UK  An example of a river valley in the UK  An example of an upland area in the UK affected by glaciation		
	<b>TWO OF...</b> An example of a coastal management scheme in the UK  An example of a flood management scheme in the UK  An example of a glaciated upland area in the UK used for tourism		
<b>Paper 2</b>	A <b>case study</b> of a major city in an LIC or NEE		
	An example of urban planning (LIC or NEE)		
	A <b>case study</b> of a major city in the UK		
	An example of an urban regeneration project (UK)		
	An example of tourism reducing the development gap in an LIC or NEE		
	A <b>case study</b> of an LIC or NEE		
	An example of modern industrial development		
	<b>STUDY EITHER FOOD, WATER OR ENERGY...</b> An example of a large scale agricultural development + An example of a local food scheme in an LIC or NEE OR An example of a large scale water transfer scheme + An example of a local water scheme in an LIC or NEE OR An example of fossil fuel extraction + An example of a local renewable energy scheme in an LIC or NEE		



## Command words

When you read a question (in this booklet and in the exams), underline the command word/s (the ones that tell you what to do!).

**Assess** (or **Evaluate**): make a judgement about something

**Tip:** The higher mark questions on case studies and examples often have an assess/evaluate element, so it's smart to go back over your case studies/examples and figure out **what your opinions are**, and **why you have these opinions** (evidence). But remember- assess and evaluate questions can appear throughout all three papers.



*Example question:* 'The effects of and responses to tectonic hazards vary in areas of contrasting levels of wealth.' Assess the extent to which this is true, referring to examples that you have studied. (9)

*Example answer:*

Tectonic hazard type: earthquake

Primary impacts mainly vary because of the types of buildings in HICs and LICs. For example, an earthquake in a HIC like the L'Aquila earthquake in Italy in 2009 destroys many expensive buildings, meaning that rebuilding is more expensive in HICs. In L'Aquila damages cost \$16 billion, compared to \$450 million in Nepal in 2015. Poorly constructed buildings also cause more deaths in LICs due to building collapse. In Nepal nearly 9000 were killed compared to 309 in L'Aquila.

The secondary effects vary even more than the primary. HICs have strong economies so they can rebuild and repair quickly. In Nepal, thousands of people still live in 'temporary' refugee camps two after the event. In L'Aquila, 65,000 people were made homeless compared to 3.5 million in Nepal, but far more people in Italy had insurance to minimise on-going impacts. Also, if a country has enough money to rebuild damaged ports, roads and airports, it can continue to trade. This reduces the economic impacts of an earthquake.

Responses to an earthquake are mainly determined by a country's level of wealth. Immediate and long-term responses are costly, and many LICs such as Nepal must rely on donations and aid. This is unreliable, and while large donations may be given soon after the quake, this may 'dry up' as hazards strike elsewhere. This can mean that immediate responses are prioritised, such as food and medical supplies, while rebuilding and creating employment opportunities may not occur for a long time in poorer regions.

**Read through the model answer above. Circle the main judgement/claim that is made in each paragraph, then underline the evidence that is used to justify the judgement.**

**Define:** you need to say what the term means

**Tip:** These are usually worth 1 or 2 marks, so don't over-complicate it! Keep it simple, but avoid simply re-stating the term as part of the definition. For example, if you're asked to **define 'development gap'**, don't say 'it's a gap in development'! A bit more detail is needed.



*Example answers:*

'Development gap' refers to the differences in levels of wealth and quality of life that exist across the world. (2)

'Development gap' refers to the disparity that exists both within and between nations, for example variations in GNI per head. (2)

**Describe:** write about what it is like

**Tips:** Describe questions will often (not always) require you to describe something from a figure (e.g. a map, table or photograph), so study the resource properly if this is the case.

*Example question:* Describe **two** environmental challenges caused by urban growth in an LIC or NEE. (2)

*Example answer:*

**Challenge 1:** Insufficient sanitation infrastructure can result in people dumping human waste into rivers.

**Challenge 1:** Increased emissions from traffic can add to air pollution.



**Discuss:** give both sides of an argument

**Tip:** You do not need to present a point of view here (unless asked directly to do so), but you do need to outline both views (and ideally, the reasons for those views). For example, if a question was '**TNCs bring more advantages than disadvantages to the LICs and NEEs in which they operate.**' Discuss. (6 marks), you would need to outline the supporting view and the opposing view.



*Example answer:*

TNCs and host governments agree that TNCs bring more advantages than disadvantages to the LICs and NEEs in which they operate, primarily because TNCs pay taxes to the government and generate thousands of jobs. These jobs may raise incomes and quality of life, and lead to greater spending which strengthens local economies. However, environmentalists disagree because TNCs are often not forced to follow regulations that protect water, soil and air from pollution. Human rights activists may disagree as workers are often exploited by TNCs, e.g. in 'sweatshops'. Some economists disagree, arguing that the majority of profits go to the TNC rather than being spent in the LIC/NEE.

**Can you see the two 'sides' that are discussed in this answer?**

**Explain:** offer reason/s

**Tip:** Focus on 'why' something is the way it is! For example, if the question is **Explain why tropical storms form over warm water**, you need to offer reasons why!

*Example answer:*

Warm water leads to mass evaporation, where water vapour rises. When the vapour meets the cool air above, it condenses and forms cloud. The rising warm air creates a low-pressure system which attracts the winds that join smaller clouds together and move the storm cloud at high speed. As the cloud moves over warm water, more rising vapour condenses and joins the cloud, generating huge amounts of energy. Once the storm is moving at 74mph+ it is officially a tropical storm.



\*Go through the answer above and identify the reasons that have been given!



**Justify:** give evidence for, or defend a decision

**Tip:** This command term tends to arise where you are asked to make a decision, so think about where that will happen in the exams! It is likely to appear in the case study or example questions in Papers 1 and 2. In Paper 3, you will need to justify your recommendation in the Issue Evaluation, and in the Fieldwork section you will often need to justify why you have chosen particular data collection or presentation techniques.

*Example question:* Justify **one** of your primary data collection techniques. (3)

*Example answer:*

**Primary data collection technique:** Perception analysis

**Justification:** Conducting perception analysis of residents and local business owners nearby to the business park enabled me to investigate the economic impacts of the business park on the local area because it helped me to gather data on locals' views on how job opportunities, wages and how the local economy had changed.



*Example question:* Justify the statistical techniques you used to analyse your data. (4)

*Example answer:* I used percentage increase and decrease to compare residents' and local business owners' views on how economic opportunities had changed as a result of the development of the business park. This was an appropriate technique because I had collected data from different numbers of residents and business owners, meaning that the raw data results were not easily comparable. Because percentages show proportion, I could reliably compare the data from the two groups of people to see whether there were differences in their views of the business park's impacts. From this I could infer where the benefits of the business park were felt.

**Reminder:** 'statistical techniques' refers to techniques including measures of average (e.g. mean, median, mode); measures of spread (e.g. range or interquartile range); line of best fit; percentage increase/decrease; calculating percentiles, etc. You won't be able to answer a question like this until you have conducted your fieldwork and presented the data you collect.

**Outline:** give the main points

**Tip:** Focus on giving the basic/central information. If you are asked to outline **one** thing (*example A below*), be sure to do that! (writing about more than one factor/issue when you've been asked to write about only one is a waste of time as you'll only be credited for one idea). You may be asked to outline **more than one** impacts/challenges (*example B below*). In that case, ensure that you make distinct (clearly different) points.



*Example question A:* Outline **one** change in UK farming practices since the 1960's. (2)

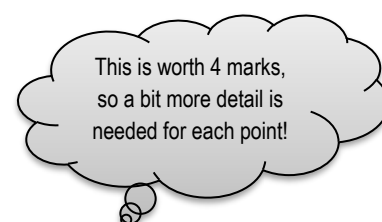
*Example answer:* Farming in the UK has undergone industrialisation since the 1960's (1 mark), meaning that farm sizes, chemical use and crop yields have increased (1 mark).

*Example question B:* Outline **two** environmental impacts of deforestation. (4)

*Example answer:*

**Impact 1:** Deforestation releases the carbon dioxide captured by trees into the atmosphere (1 mark), meaning that more of the sun's radiation becomes trapped which contributes to climate change (1 mark).

**Impact 2:** Deforestation causes habitat destruction (1 mark), which can threaten the survival of species, leaving them endangered or even causing extinction (1 mark).



**Suggest:** offer an idea. You may be asked to suggest a reason or to suggest what an effect may be.

**Tips:** Take clues from the resources provided, if there are any. If not, don't panic- you can make an educated guess. If the question is worth 2 marks, you should offer an idea and then add some detail. For example, if the question asks you to '**Suggest and explain one reason why the death rate decreases as a country develops**', you would need to say more than 'the country can afford better healthcare' (that'd only get you 1 mark).



*Example answers:*

As a country develops, the government can invest more money into healthcare (one reason has been suggested here). This means that more people can access medication needed to prevent sickness and death (and here is the added detail for the 2<sup>nd</sup> mark!).

As a country develops, people can afford better nutrition (1 mark). This means that fewer people die from preventable conditions such as malnutrition (1 mark).

An additional support resource is below. Geography exams almost always ask you to describe and/or explain **distribution**, but many students get confused about what they need to do so they lose unnecessary marks. This should help.

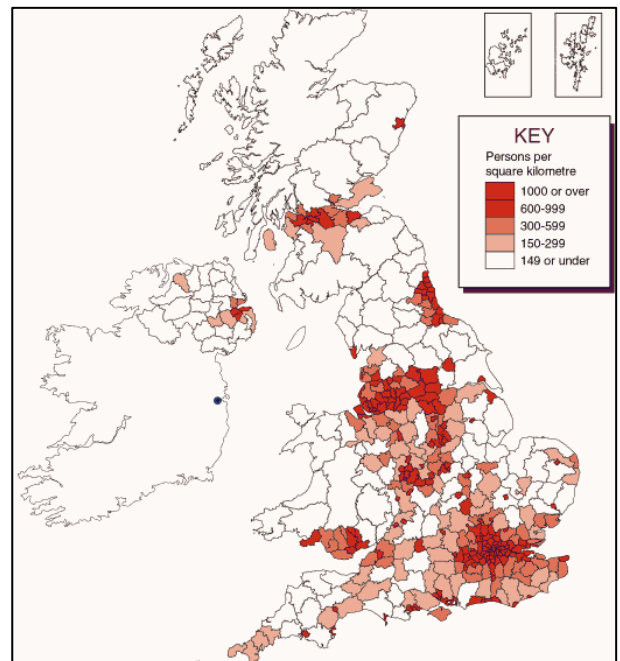
**Distribution:** where something exists or occurs/ how it is spread out across a place.

If you are asked to describe the distribution, you need to say **where** something is.

For example: **Using Figure 1, describe the distribution of the UK's population. (4)**

*Example answer:*

The UK's population is concentrated in England, especially the south-east in London and surrounding counties, where the population is generally 1000+ people per km<sup>2</sup>. Dense populations also exist in S.Wales and SW.Scotland. Populations are sparse (less than 140 people per km<sup>2</sup>) in N.Scotland, central and N.Wales, central and western Northern Ireland and the north-west of England.



If you are asked to explain the distribution, you need to say **why** it is spread in that way.

*Example question:* Explain the distribution of the UK's population as shown in **Figure 1** (4).

*Example answer:*

London is the centre for financial and other key UK industries, meaning that it provides many opportunities and jobs which encourages people to live there. Historically, the centre and north of England had many industrial areas, which established cities such as Manchester and Birmingham. Cold and mountainous places (e.g. N.Scotland and N.Wales) are more difficult to inhabit than the flatter lowland areas (e.g. SE.England), making them sparsely populated.

## Paper 1- Living with the physical environment

### Section A: The challenge of natural hazards

#### Natural hazards

Key idea: Natural hazards pose major risks to people and property.

1. **Define** 'natural hazard' and give examples.

**Command words, p.6**

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2. Add the events to the table below. **Events:** *earthquake, volcanic eruption, tsunami, tropical storm, hurricane/typhoon/cyclone, climate change*

Event	Meaning
	Lava erupts from a vent in the earth's crust. This occurs at destructive and constructive plate boundaries.
	Changes to the earth's atmospheric patterns, especially rainfall and temperature. These changes vary region to region, but in many places they involve increases in temperature.
	Different names are given to tropical storms depending on where they occur.
	Shaking of the ground due to tectonic movement. This occurs at all plate boundary types.
	A series of fast moving, long and high waves resulting from tectonic movement under the ocean floor.
	A powerful storm that moves at more than 74 miles per hour. They form over water and spin in an anticlockwise direction, gathering power as they move over water & losing power when they reach land.

3. Complete the paragraph about hazard risk by filling in the gaps with the provided vocabulary. **Vocabulary:** *equipped, earthquakes, probability, density, magnitude, nature, defences, flooding, rebuild, greater, human, frequently, cope, severe.*

Hazard risk is the \_\_\_\_\_ that a natural hazard occurs. To count as a hazard, the event has to affect \_\_\_\_\_ activities. Several factors influence hazard risk. One is vulnerability. The denser the population is in an area exposed to natural hazards, the greater the risk that they will be affected by a natural hazard. For example, an area with a high population \_\_\_\_\_ along a very active plate boundary (e.g. San Francisco) is especially vulnerable to earthquakes, and a densely populated floodplain (e.g. Bangladesh) is especially vulnerable to \_\_\_\_\_ caused by extreme weather. Another factor is capacity to \_\_\_\_\_. The better a population can cope with an extreme event, the lower the impact will be. For example, HICs are often better \_\_\_\_\_ than LICs to deal with the impacts of natural hazards such as flooding or volcanic eruptions., because they are more able to build \_\_\_\_\_, evacuate people, provide swift medical assistance and \_\_\_\_\_ quickly. Another factor is that the \_\_\_\_\_ of natural hazards varies considerably. Some hazards can be **predicted** (e.g. tropical storms) giving people and governments time to prepare and evacuate, while others cannot be predicted and happen suddenly (e.g. \_\_\_\_\_) meaning that people are caught unaware. Some hazards occur more \_\_\_\_\_ than others, increasing hazard risk. Some hazards are more \_\_\_\_\_ than others, e.g. an earthquake of 9.2 on the Richter scale will have a far \_\_\_\_\_ hazard risk than one that registers in at 4.6. To summarise, some key factors affecting hazard risk are: vulnerability, population density, capacity to cope, level of preparation, hazard type, hazard frequency, and \_\_\_\_\_.

4. Would hazard risk be greatest for A or B? In the final column, give reasons for your choice. An example has been done for you.

Question	A	B	Risk would be greatest in... (A or B)	Reasons
Where will <b>economic</b> cost be greatest?	<i>Volcanic eruption in a rural area</i>	<i>Volcanic eruption in an urban area</i>	B	Urban areas have more buildings and businesses so insurance and reconstruction costs would be higher. Replacement of belongings is costly for individuals.
Where will <b>economic</b> cost be greatest?	<i>Earthquake in an urban area in a HIC</i>	<i>Earthquake in an urban area in a LIC</i>		
Where will <b>human</b> cost be greatest?	<i>A tsunami strikes a densely populated coastline</i>	<i>A tsunami strikes a sparsely populated coastline</i>		
Where will <b>human</b> cost be greatest?	<i>Rising sea levels- mountainous region</i>	<i>Rising sea levels- small Pacific islands</i>		

**Tectonic hazards**

Key idea: Earthquakes and volcanic eruptions are the result of physical processes.

5. The theory of plate tectonics is that...

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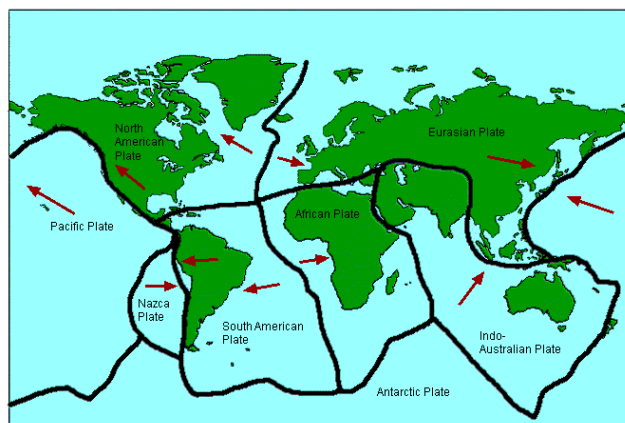


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6. Look at the map. The black lines show plate margins. In one sentence, say what a plate margin is.




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7. Why do most earthquakes and volcanoes occur near plate margins? In your answer, try to use geographical terms such as: *convection currents, tectonic plates, plate boundaries, collision, energy, etc.*

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8. Where do more tectonic hazards occur? Circle the correct answers.
- On or near plate margins / far from plate margins
  - Near the Pacific Ring of Fire / far from the Pacific Ring of Fire
  - Near coastal areas / inland areas
  - The western coastline of North and South America / the eastern coastline of North and South America
  - Southern Africa / south and eastern Asia
9. There are three main types of plate margin (destructive, constructive and conservative). For each plate margin type:
- Draw a diagram showing how the plates move (Towards each other? Apart? Alongside each other?)
  - Write a sentence describing what happens
  - Indicate whether earthquakes and/or volcanic eruptions occur as a result
  - Give an example (use the map above to help you) e.g. *'where the South American and Nazca plates meet'*

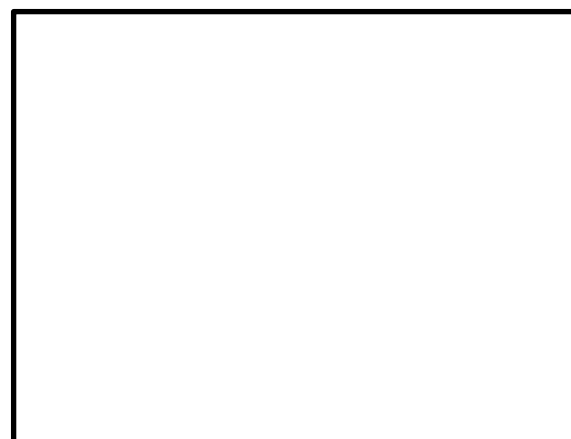
#### Destructive plate margin

- The plates move together / apart / alongside each other
- At a destructive plate margin, \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.
- Earthquakes occur here / volcanoes occur here / earthquakes and volcanoes occur here
- Example: \_\_\_\_\_



#### Constructive plate margin

- The plates move together / apart / alongside each other
- At a constructive plate margin, \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.
- Earthquakes occur here / volcanoes occur here / earthquakes and volcanoes occur here
- Example: \_\_\_\_\_



#### Conservative plate margin

- The plates move together / apart / alongside each other
- At a conservative plate margin, \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.
- Earthquakes occur here / volcanoes occur here / earthquakes and volcanoes occur here
- Example: \_\_\_\_\_



Key idea: The effects of, and responses to, a tectonic hazard vary between areas of contrasting levels of wealth.

10. Below some **effects** of and **responses** to tectonic hazards are listed. Code each one as either **PE** (primary effect), **SE** (secondary effect), **IR** (immediate response) or **LR** (long-term response).

buildings collapse	economic growth slows
water pipes burst	people moved permanently from the area
disease spreads	homelessness
evacuation	people die of cold and exposure
communication links destroyed	landslides
building regulations improved	new jobs in the construction industry
volunteers arrive to search for survivors	tents given out by charities
fires spread due to gas pipes bursting	schools and hospitals rebuilt
people are injured or killed	people live in refugee camps
income is lost	shops and businesses ruined
investment in the area is focussed on rebuilding	gas pipes burst
search and rescue teams deployed	rioting
evacuation services	farmland, crops and livestock destroyed
medical tents set up	water sources contaminated
money is donated to purchase medicines and other supplies	the government has to borrow money for reconstruction
homes are rebuilt at huge expense	sites of religious and cultural importance are lost
trade is made more difficult	water is contaminated

11. The effects of tectonic hazards are often worse in places that have low incomes. Select one effect from the list above, and create a flow chart in the space below to show why the effects may be more devastating in a LIC than a HIC.



The specification says that you need to 'Use named examples to show how the effects and responses to a tectonic hazard vary between **two areas of contrasting levels of wealth.**'

Named examples alert!

12. To help you do this, complete the table below. Try to **include place-specific details** (e.g. place names) and **facts and figures** (e.g. number of destroyed houses and lives lost).

	<b>HIC named example</b> Earthquake or volcano? _____ Place? _____ Year? _____	<b>LIC named example</b> Earthquake or volcano? _____ Place? _____ Year? _____
<b>Primary effects</b>		
<b>Secondary effects</b>		
<b>Immediate responses</b>		
<b>Long-term responses</b>		

**Tip:** you need to be able to **assess** which effects were most/least severe and which responses were most/least effective. Develop a **coding system** in the space below and label the information in your table above.

Command words, p.6





19. Below is a jumbled list of the events that occur in order for a tropical storm to form. In the box, draw the formation of a tropical storm, and **copy and number the events onto the diagram to show that you know the correct order.**

Jumbled sequence of events: trade winds/westerlies merge smaller clouds / cool air sinks downwards causing vapour in the warm air to condense / as the cloud moves over warm waters more condensation occurs increasing the cloud's size and intensity / cloud forms / if the storm reaches 74mph+ it is classed as a tropical storm / trade winds/westerlies spin the large cloud anticlockwise / oceans with temperatures of 26.5C+ cause mass evaporation

**Labelled diagram: formation of a tropical storm**

20. The paragraph below is about the structure and features of tropical storms. Using the vocabulary provided, fill in the blank spaces. **Vocabulary:** *descending, winds, circular, less, speed, clockwise, high, smaller, eye, eyewall, rain, anticlockwise, increases, hundreds, 7-14, 50km, rain, low*

Tropical storms are \_\_\_\_\_ in shape, \_\_\_\_\_ of kilometres wide and usually last \_\_\_\_\_ days. They spin \_\_\_\_\_ in the southern hemisphere and \_\_\_\_\_ in the northern hemisphere. The centre of the storm is called the \_\_\_\_\_. It is up to \_\_\_\_\_ across and is caused by \_\_\_\_\_ air. In the eye there is very \_\_\_\_\_ pressure, light winds, no clouds, no \_\_\_\_\_ and a \_\_\_\_\_ temperature. The eye is surrounded by the \_\_\_\_\_. Here there is spiralling rising air, very strong \_\_\_\_\_ (around 100 miles per hour), storm clouds, torrential \_\_\_\_\_ and a low temperature. Towards the edges of the storm the wind \_\_\_\_\_ falls, the clouds become \_\_\_\_\_ and more scattered, the rain becomes \_\_\_\_\_ intense and the temperature \_\_\_\_\_.

21. On the aerial image of a tropical storm, label:

- the eye
- eyewall
- edge of the storm
- fastest winds
- torrential rain



22. Many experts are worried that climate change will increase the **intensity, frequency** and **distribution** of tropical storms. **Suggest** and **explain** reasons why they are concerned.

**Command words, pages 7 and 9**

One reason why the **intensity** of TS's may increase: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

One reason why the **frequency** of TS's may increase: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

One reason why the **distribution** of TS's may increase: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Key idea: Tropical storms have significant effects on people and the environment.

The specification says that you need to '*Use a **named example of a tropical storm** to show its effects and responses.*'



23. Based on your learning of a named example of a tropical storm, complete the table below. Try to **include place-specific details** (e.g. place names) and **facts and figures** (e.g. number of destroyed houses and lives lost).

NAMED EXAMPLE OF A TROPICAL STORM			
Place? _____		Year? _____	
EFFECTS		RESPONSES	
PRIMARY	SECONDARY	IMMEDIATE	LONG-TERM


24. You need to be able to **assess** which effects were most/least severe and how effective the responses were for your named example.

The **most severe effects** of the tropical storm were the **primary / secondary** effects, because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The **most effective response** to the tropical storm was: \_\_\_\_\_, because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

The **least effective response** to the tropical storm was: \_\_\_\_\_, because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

25. **Annotate** each bubble below with examples and say how they can help to reduce the effects of tropical storms. For example, for 'Protection', you could write '*Afforestation absorbs much of the storm's energy when it hits the coastline, reducing the impact on protecting people, property and the environment further inland*'. You should have at least two examples for each bubble.





Key idea: The UK is affected by a number of weather hazards.

26. The UK experiences a wide range of weather hazards, which can have serious effects. Link the hazards to the effects using neat lines.

Thunderstorms

Rain

Snow and ice

Hailstorms

Wind

Drought

Heatwaves

Heavy rain, lightning and strong winds; lightning can cause deaths and fires, which ruin property.

Water supplies may run low, leading to crop failure. Rules may be imposed to conserve water, e.g. hosepipe bans.

Too much of this in a short time can cause flooding, which puts people, property, businesses and the environment at risk. It can disrupt transport networks, destroy communication lines, cause drownings, and may cost millions of pounds to recover.

May cause injuries from slipping or deaths due to cold. Schools and businesses may be forced to close, and crops may be ruined.

This can damage crops, damage property and make driving very dangerous.

Can cause deaths from breathing difficulties or heat exhaustion. Roads can melt which disrupts transport, but tourism may benefit.

This may uproot trees and destroy property e.g. ripping off roofs. Flying debris can kill. Forests may be damaged when trees are blown over.

Key idea: Extreme weather events in the UK have impacts on human activity.

The specification says that you need to know '**An example of a recent extreme weather event in the UK: causes; social, economic and environmental impacts; and how management strategies can reduce risk**'.

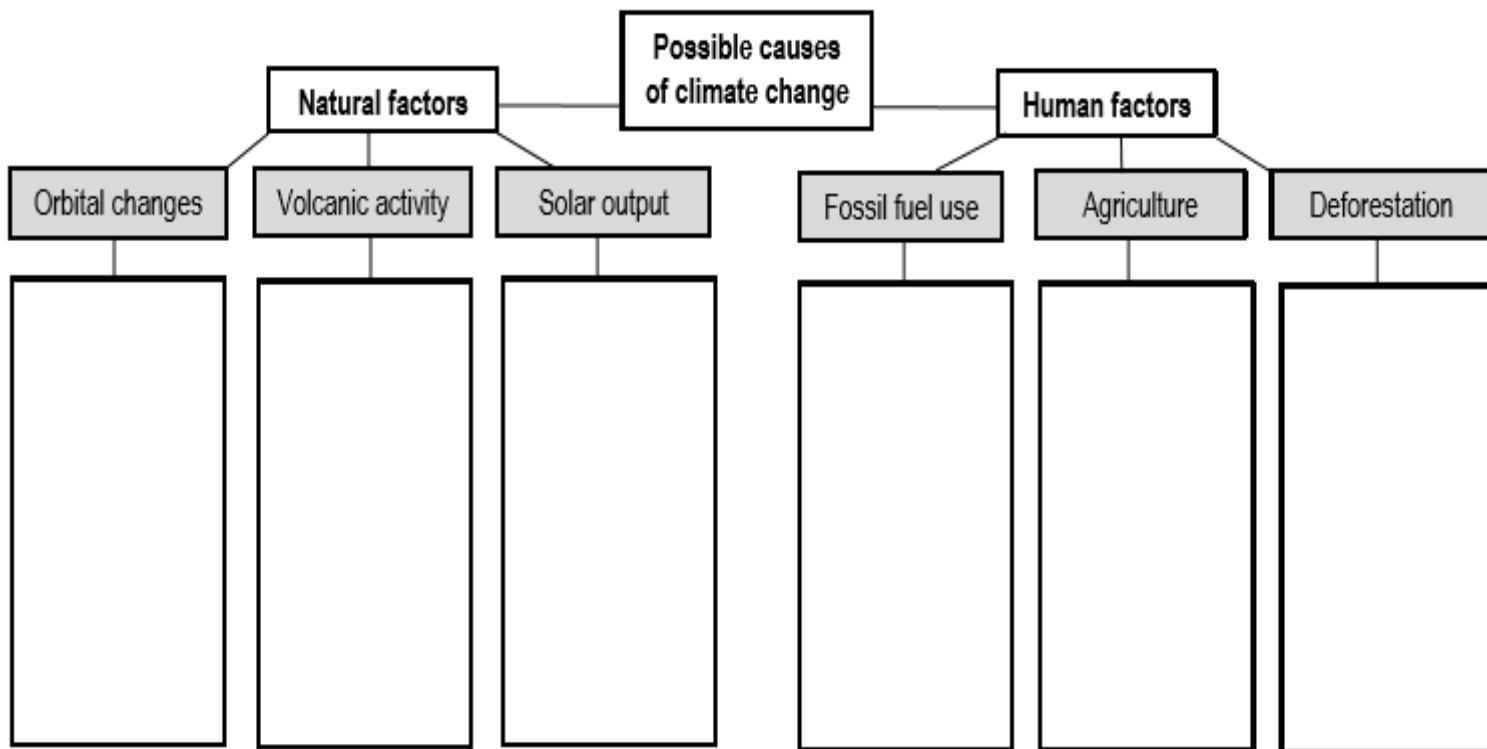


27. Using the information that you have learned in lesson as well as your own research, complete the table below with facts and figures.

EXAMPLE OF A RECENT EXTREME WEATHER EVENT IN THE UK		
Weather event type? _____ Place? _____ When? _____		
CAUSES	IMPACTS	MANAGEMENT
	Social	Which management strategies were used (before, during and/or after)?
	Economic	Did they reduce risk? If so, how? If not, why not?
	Environmental	



32. The figure below shows some of the **possible causes of climate change**. Underneath each factor, briefly **explain** how it is thought to cause climate change.



33. Outline the **effects** of climate change on **people** and the **environment**. You may wish to write a paragraph for each, or create a brainstorm. Try to refer to specific places in your answer.

*Command words, p.8*

Key idea: Managing climate change involves both mitigation (reducing causes) and adaptation (responding to change).

**Mitigation** and **adaptation** help to manage climate change.

34. **Mitigation** means reducing the causes (of climate change). There are lots of ways that climate change can be **mitigated**. The table below shows four mitigation strategies. You need to fill in the gaps so that each strategy is **described** (say what it is) and **explained** (say how it reduces the causes of climate change).

STRATEGIES TO REDUCE THE CAUSES OF (MITIGATE) CLIMATE CHANGE				
	ALTERNATIVE ENERGY PRODUCTION	CARBON CAPTURE	PLANTING TREES	INTERNATIONAL AGREEMENTS
DESCRIBE THE STRATEGY	<i>This means producing energy from sources that are not fossil fuels. For example, wind, solar and wave energy are all renewable energy sources that provides alternatives to the 'dirty' fuels of coal, oil and gas.</i>		<i>Planting trees can take place on a small or large scale. Individuals can plant extra trees around their home, local organisations can organise volunteers to plant trees in the local area, and governments can pay councils to mass-plant across the country.</i>	<i>International agreements such as the Kyoto Protocol and the Paris Agreement encourage governments to set carbon emissions targets, to increase their alternative energy production, and to reduce their greenhouse gas emissions.</i>
EXPLAIN HOW IT REDUCES THE CAUSES OF CLIMATE CHANGE		<i>Capturing carbon reduces the amount of carbon in the atmosphere. Carbon thickens the atmosphere and traps the sun's radiation, so reducing the amount of carbon in the atmosphere will reduce the amount of heat that becomes trapped, thereby reducing one of the key causes of climate change.</i>		

### 35. **MINI ISSUE EVALUATION TASK**

There are many **adaption** strategies to help us manage climate change and reduce risk. To help you revise this topic and also to practice the ISSUE EVALUATION component of Paper 3, you need to decide which strategy you think should be prioritised. On the lines below, say which strategy should be prioritised and how it helps to manage climate change.

**Options: 1- Changing agricultural systems, 2- Managing water supply, 3- Reducing risk from rising sea levels**

Chosen option: \_\_\_\_\_

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## Section B: The living world

- In this section, you **MUST** study **Ecosystems** and **Tropical Rainforests**
- You will also study either **Hot deserts** **OR** **Cold Environments**
- **Which optional topic do I study?** \_\_\_\_\_
- Go down and put a line through the topic that you do NOT study!

### Ecosystems

Key idea: Ecosystems exist at a range of scales and involve the interaction between biotic and abiotic components.

1. Read the paragraphs below to help you revise ecosystems. Highlight or underline key terms and important information.

An **ecosystem** is a unit that includes all the **biotic** (living) parts (e.g. plants and animals) and the **abiotic** (non-living) parts (e.g. soil and climate) in an area. The organisms in an ecosystem can be classed as **producers**, **consumers** or **decomposers**.

A **producer** is an organism that uses sunlight energy to produce food (e.g. a banana tree). A **consumer** is an organism that gets its energy by eating other organisms (e.g. a monkey eats a banana). A **decomposer** is an organism that gets its energy from breaking down dead material, including dead producers, dead consumers or fallen leaves (e.g. bacteria and fungi break down dead monkeys or banana peels).

When dead material is decomposed, **nutrients** are released into the soil. The nutrients are then taken up from the soil into plants. The plants may be eaten by consumers. When the plants or consumers die, the nutrients return to the soil. This transfer of nutrients is called **nutrient cycling**.

2. Draw a food chain or food web in the space provided. Label each component as either **producer**, **consumer** or **decomposer**.

3. Using the information above and your own knowledge, explain how changing one component can impact an ecosystem. Try to include some of the **bolded terminology above** and some examples.

Which key terms should you highlight in this question?

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The specification says that you need to know '**An example of a small scale UK ecosystem** to illustrate the concept of interrelationships within a natural system, an understanding of producers, consumers, decomposers, food chain, food web and nutrient cycling.'







Named example alert!

4. Complete the template below to help you learn and revise your example of a small scale UK ecosystem.

<b>AN EXAMPLE OF A SMALL SCALE UK ECOSYSTEM</b> My example: _____	
<b>What is the ecosystem like?</b> (Abiotic characteristics such as climate and soils, biotic features such as plant and animal types, location etc.)	<b>Diagram or picture of the ecosystem</b>
<b>What are some of the producers, consumers and decomposers in the ecosystem?</b>	<b>Explain how nutrient cycling takes place in the ecosystem.</b>
<b>Diagram of a food chain or food web in the ecosystem</b>	<b>Explain how changes to one component impacts the ecosystem.</b>



5. For each of the **major global ecosystems** below, complete summary notes in the empty boxes.

ECOSYSTEM	IMAGE	LOCATION/S	BIOTIC FEATURES	ABIOTIC FEATURES
Grassland				
Hot desert				
Temperate deciduous forest				
Tropical rainforest				
Tundra				
Polar				

## Tropical rainforests

Key idea: Tropical rainforest ecosystems have a range of distinctive characteristics.

6. Create a brainstorm to show the **physical characteristics of a tropical rainforest**. You should refer to features such as the layers of TRFs, the climate (precipitation and temperature), locations around the world etc.

7. Explain how in tropical rainforest ecosystems, climate, water, soils, plants, animals and people are **interdependent**.

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8. Plants and animals adapt to the physical conditions of tropical rainforests. **Identify** one plant and one animal below, and **describe** how each has adapted to live in the ecosystem.

Chosen plant: \_\_\_\_\_

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Chosen animal: \_\_\_\_\_

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9. Define 'biodiversity'.

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10. Explain how **human activities** have **reduced biodiversity** in tropical rainforests.



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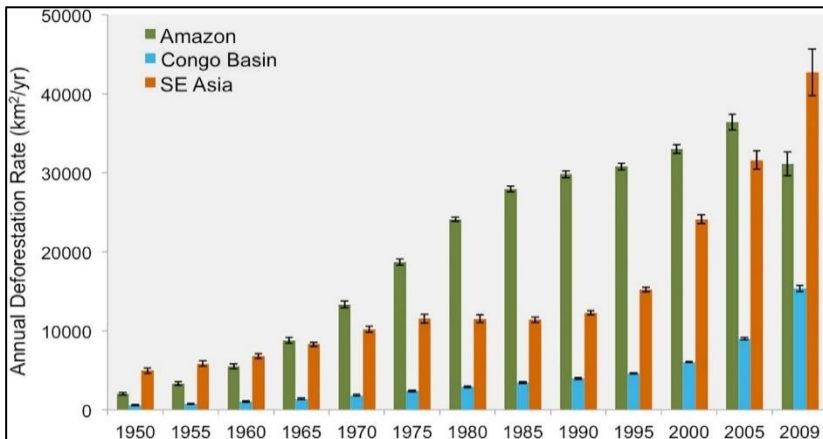
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Key idea: Deforestation has economic and environmental impacts.



11. Describe the general pattern of deforestation rates between 1950-2009.

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12. Compare rates of deforestation in the three regions shown.

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Case study alert!

The specification says that you need to know '**A case study of a tropical rainforest**' to illustrate the causes and impacts of deforestation.

13. Add detail into each of the boxes below to help you revise your case study. Include data and reference to stakeholders.

A CASE STUDY OF DEFORESTATION IN A TROPICAL RAINFOREST			
My case study: _____			
<b>CAUSES OF DEFORESTATION</b>	Subsistence and commercial farming	<b>IMPACTS OF DEFORESTATION</b>	Economic development
	Logging		
	Road building		Soil erosion
	Mineral extraction		
	Energy development		Contribution to climate change
	Settlement		
	Population growth		Local livelihoods destroyed (e.g. rubber tapping)

Which of these **causes** and **impacts** do you consider to be the **most significant**? Highlight them in your table and think about WHY you consider them to be the most significant. **You may be asked to assess/evaluate this in the exam.**



Key idea: Tropical rainforests need to be managed to be sustainable.

14. Why do tropical rainforests need to be **managed**? Your answer should outline their **importance** to people and the environment.

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15. **MINI ISSUE EVALUATION TASK**

15a. There are many strategies to **manage** the rainforest sustainably. To help you revise this topic and also to practice the ISSUE EVALUATION component of Paper 3, you need to decide which strategy you think should be prioritised. In each box below, describe each strategy, then summarise key advantages and disadvantages.

STRATEGIES	IMAGE	BRIEF DESCRIPTION	ADVANTAGES	DISADVANTAGES
Selective logging				
Replanting				
Conservation and education				
Ecotourism				
International hardwood agreements				
Debt reduction				

15b. Now that you know the advantages and disadvantages of a range of rainforest management strategies, select **one** strategy and **justify why it is the best option** to manage the rainforest sustainably.

**Command words, p. 8**

Chosen option: \_\_\_\_\_

*This is the best option to manage the rainforest because...* \_\_\_\_\_

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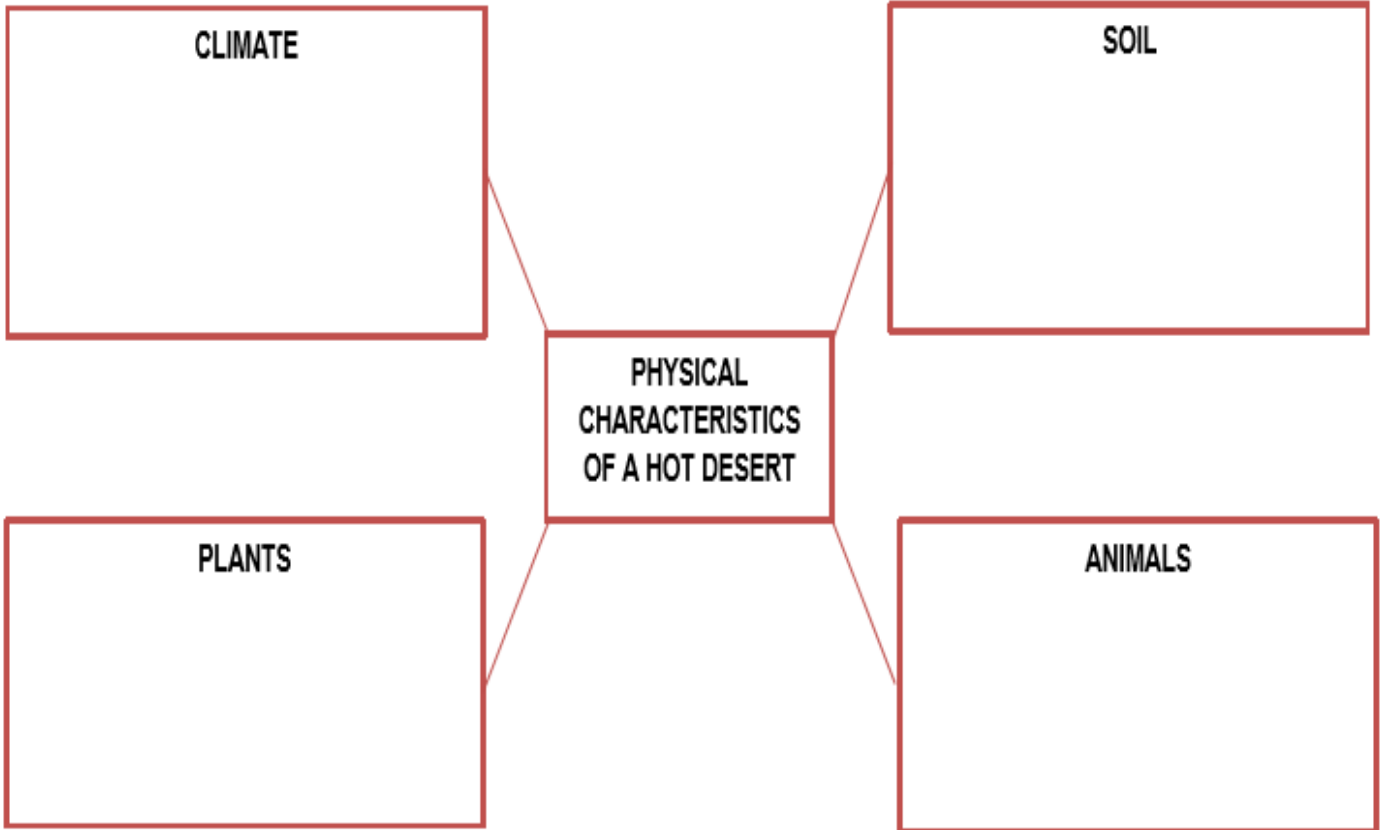
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**REMEMBER-** You study ***EITHER*** Hot deserts ***OR*** Cold Environments!

**Hot deserts**

Key idea: Hot desert ecosystems have a range of distinctive characteristics.

16. Complete the brainstorm below on the physical characteristics of a hot desert by adding brief notes to each box.







Key idea: Development of hot desert environments creates opportunities and challenges.

**Case study alert!**

The specification says that you need to know '**A case study of a hot desert**' to illustrate development opportunities and the challenges of developing in hot deserts.

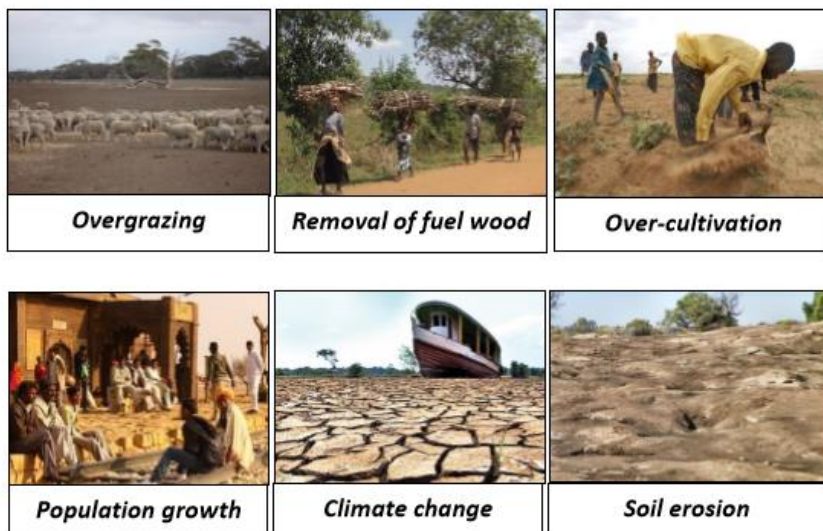
'**Development opportunities**' refers to the options that exist to improve income and quality of life. '**Challenges of developing**' refers to the difficulties that are encountered in trying to develop.

20. Complete the template below to help you learn and revise your case study of a hot desert.

A CASE STUDY OF A HOT DESERT			
My case study: _____			
<b>DEVELOPMENT OPPORTUNITIES IN A HOT DESERT</b>	Tourism	<b>LOCATION</b>	Draw or stick in a map showing the location of your chosen hot desert.
	Energy		
<b>DEVELOPMENT OPPORTUNITIES IN A HOT DESERT</b>	Farming	<b>CHALLENGES OF DEVELOPING IN A HOT DESERT</b>	<p>Explain how the following challenges make development difficult. Link the challenges to the opportunities you've already mentioned.</p> <ul style="list-style-type: none"> <li>• Extreme temperatures</li> <li>• Water supply</li> <li>• Inaccessibility</li> </ul>
	Mineral extraction		

Key idea: Areas on the fringe of hot deserts are at risk of desertification.

21. **Annotate** each box with 1-2 sentences explaining how each factor causes desertification.



## 22. **MINI ISSUE EVALUATION TASK**

There are several strategies to **reduce the risk of desertification**. To help you to practice skills needed for the ISSUE EVALUATION component of Paper 3, complete the sentences below.

**Water management** involves): \_\_\_\_\_

It helps to reduce the risk of desertification by... \_\_\_\_\_

Its disadvantages/difficulties are... \_\_\_\_\_

**Soil management** involves): \_\_\_\_\_

It helps to reduce the risk of desertification by... \_\_\_\_\_

Its disadvantages/difficulties are... \_\_\_\_\_

**Tree planting** helps to reduce the risk of desertification by... \_\_\_\_\_

Its disadvantages/difficulties are... \_\_\_\_\_

**Use of appropriate technologies** is where... \_\_\_\_\_

It helps to reduce the risk of desertification by... \_\_\_\_\_

Its disadvantages/difficulties are... \_\_\_\_\_

**Cold environments**

Key idea: Cold environments (polar and tundra) have a range of distinctive characteristics.

16. Label the images below with the physical characteristics of tundra and polar environments.



*Tundra environment*



*Polar environment*

17. **EXAM-STYLE QUESTION:** Using **Figure 1**, describe the climate of this environment. (3)

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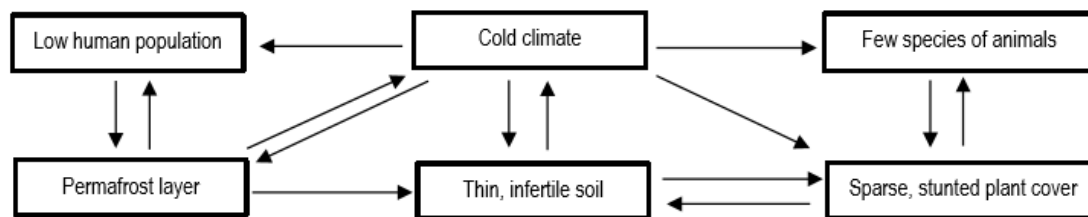
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Figure 1- climate of a tundra		
MONTH	AVERAGE TEMPERATURE (°C)	AVERAGE RAINFALL (mm)
Jan	-9	65
Feb	-8	59
Mar	-6	71
Apr	-2	57
May	3	81
Jun	7	78
Jul	9	74
Aug	8	84
Sept	4	158
Oct	2	143
Nov	-5	119
Dec	-7	82

18. Using the figure below and your own knowledge, describe how the climate can affect the number of animal species in a cold environment.




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19. Complete the gaps in the paragraph below using the vocabulary provided. This will help you to revise the ways that plants and animals have adapted to survive in cold environments. **Vocabulary:** hibernate, battering, migrating, permafrost, Arctic foxes, plants, well-insulated, freezing, energy, cold, transpiration, seals, round-shaped, dormant, Antarctic.

Most plants are small, low to the ground and \_\_\_\_\_ to help them survive \_\_\_\_\_ winds. Leaves are generally small as this reduces the amount of moisture that is lost through \_\_\_\_\_. Most plants have shallow roots in order to avoid the \_\_\_\_\_ layer beneath the soil. Most plants become \_\_\_\_\_ (stop growing) to survive the \_\_\_\_\_, dark winters. Animals have also had to adapt. They are \_\_\_\_\_ against the cold, for example via a fatty layer (e.g. \_\_\_\_\_ and whales) or thick fur (e.g. \_\_\_\_\_ and polar bears). This reduces the amount of \_\_\_\_\_ they use keeping warm. Some animals \_\_\_\_\_ to conserve energy and survive the winter (e.g. Arctic ground squirrels hibernate for more than half the year and can even survive if their body temperature drops below \_\_\_\_\_). Those that do not hibernate adapt in other ways, for example by eating the \_\_\_\_\_ that are available in the winter (e.g. reindeer eat lichens) or by \_\_\_\_\_ to warmer areas (e.g. Arctic terns leave the Arctic winter and fly to the \_\_\_\_\_ for the southern summer).

20. Polar environments are **less biodiverse** than most other environments. Outline **two** reasons why this is the case.

Reason 1: \_\_\_\_\_  
 \_\_\_\_\_

Reason 2: \_\_\_\_\_  
 \_\_\_\_\_

21. Which of the following statements is **true**? Shade **one** oval only.

- a. Biodiversity is higher in the Arctic than in the Antarctic.
- b. Biodiversity is lower in tropical rainforests than in cold environments.
- c. Biodiversity increases as average temperature drops.

Key idea: Development of cold environments creates opportunities and challenges.

**Case study alert!**

The specification says that you need to know '**A case study of a cold environment**' to illustrate development opportunities and the challenges of developing cold environments.

'**Development opportunities**' refers to the options that exist to improve income and quality of life. '**Challenges of developing**' refers to the difficulties that are encountered in trying to develop.





22. Complete the template below to help you learn and revise your case study of a cold environment.

A CASE STUDY OF A COLD ENVIRONMENT			
My case study: _____			
<b>DEVELOPMENT OPPORTUNITIES IN A COLD ENVIRONMENT</b>	Tourism	<b>LOCATION</b>	Draw or stick in a map showing the location of your chosen cold environment.
	Fishing		
	Mineral extraction	<b>CHALLENGES OF DEVELOPING IN A COLD ENVIRONMENT</b>	<p>Explain how the following challenges make development difficult. Link the challenges to the opportunities you've already mentioned.</p> <ul style="list-style-type: none"> <li>• <b>Extreme temperatures</b></li> <li>• <b>Inaccessibility</b></li> <li>• <b>Provision of buildings</b></li> <li>• <b>Infrastructure</b></li> </ul>
	Energy		

Key idea: Cold environments are at risk from economic development.

23. Create a brainstorm to show a range of reasons why **cold environments are valuable as wilderness areas** and **why they should be protected**.

24. The key threat to cold environments is economic development, so **strategies are needed to balance economic development and conservation**. The table below outlines four strategies. In the blank column, you need to explain how each strategy can help to balance the two concerns.

STRATEGY	DESCRIPTION/ EXAMPLE	IMAGE	HOW CAN THE STRATEGY HELP TO BALANCE ECONOMIC DEVELOPMENT AND CONSERVATION?
<b>Use of technology</b>	Modern construction methods can minimise the environmental impacts of economic development. For example, <u>elevating buildings</u> or <u>building on gravel beds</u> can prevent permafrost melting.		
<b>Conservation groups</b>	These groups put pressure on governments to protect wilderness areas and fragile cold environments (e.g. <u>Greenpeace</u> ).		
<b>International agreements</b>	Agreements such as the <u>1959 Antarctic Treaty</u> limits visitors landing at one site to 100 at a time, and prohibits nuclear activities.		
<b>Role of governments</b>	Governments can make laws to protect fragile environments, such as the <u>1964 Wilderness Act</u> which protected wilderness areas from development.		



**Section C: Physical landscapes in the UK**

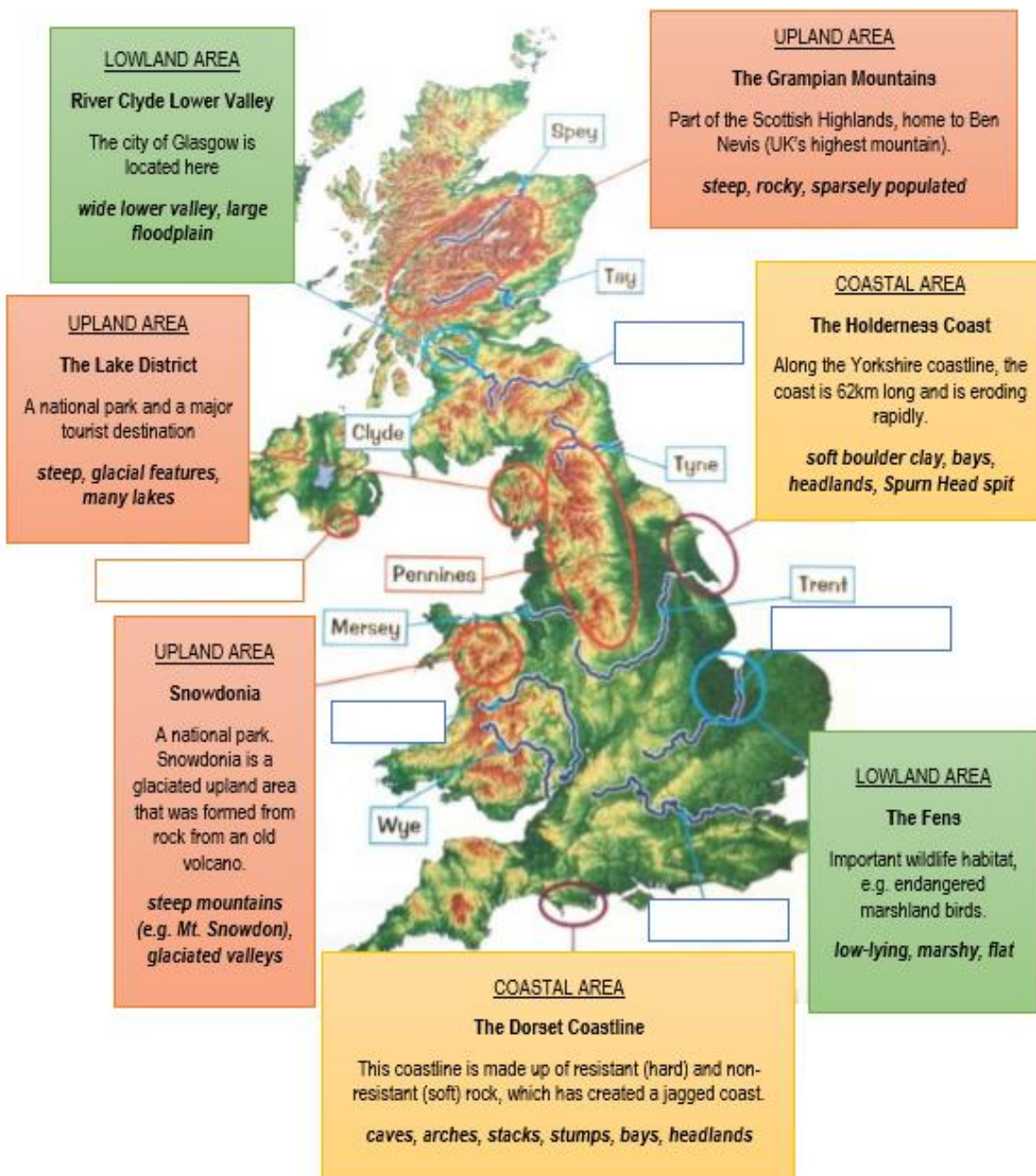
- In this section, you **MUST** study **UK physical landscapes**
- You will also study TWO from **Coastal landscapes in the UK**, **River landscapes in the UK**, and **Glacial landscapes in the UK**
- Which two optional topics do I study? \_\_\_\_\_ and \_\_\_\_\_
- Go down and put a line through the topic that you do NOT study!

**UK physical landscapes**

Key idea: The UK has a range of diverse landscapes

The map shows a range of **upland**, **lowland** and **coastal** areas in the UK. Study the map. You need to know a range of upland, lowland and coastal areas.

1. Where there are blank boxes, write the mountain range or river names.



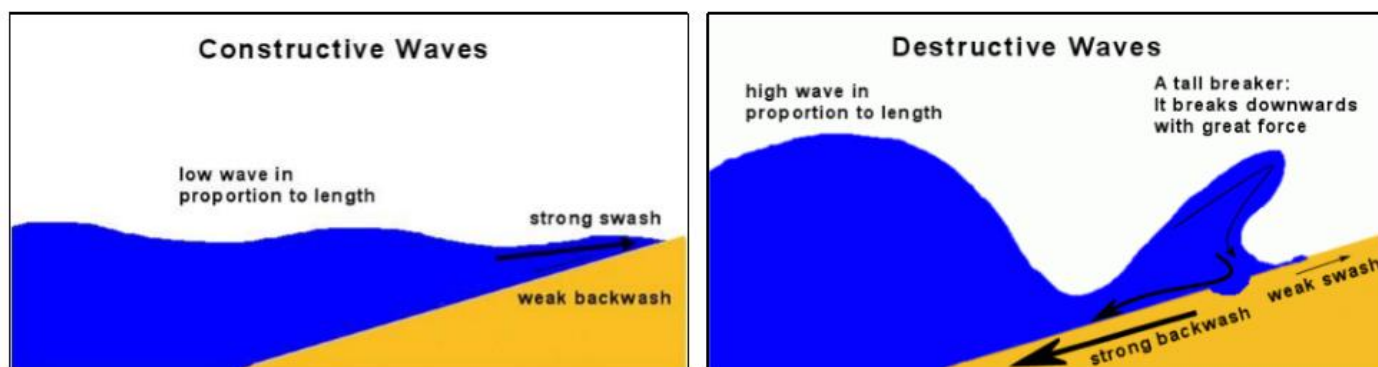


2. Using the map, complete the following sentences by filling in the gaps or deleting incorrect terms.
- Steep** land tends to be found in upland / lowland areas.
  - Flat** land tends to be found in upland / lowland areas.
  - Two **lowland** areas in the UK are \_\_\_\_\_ and \_\_\_\_\_.
  - The **River Ouse** is found in the lowland area of \_\_\_\_\_.
  - The lower valley of the River Clyde is home to the Scottish city of \_\_\_\_\_.
  - Two **upland** areas in the UK are \_\_\_\_\_ and \_\_\_\_\_.
  - The mountain of **Ben Nevis** is found in the \_\_\_\_\_ Mountains in the country of \_\_\_\_\_.
  - The **Mount Snowdon** is found in \_\_\_\_\_ National Park in the country of \_\_\_\_\_.
  - Two areas in England with **glaciated features** are \_\_\_\_\_ and \_\_\_\_\_.
  - Along the **Dorset coastline**, it is the alternating bands of \_\_\_\_\_ and \_\_\_\_\_ rock that has caused a jagged coastline.
  - The Holderness Coast is \_\_\_\_\_ very quickly, at around 1m per year and up to 10m in some places.

### Coastal landscapes in the UK

Key idea: The coast is shaped by a number of physical processes.

Study the diagrams of waves types.



3. Define 'swash'.

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4. Study the photo of Beachy Head and Seven Sisters near Brighton in England. Based on what you can see in the photo, say which wave type mainly occurs there (**constructive** or **destructive**), then offer reasons for your choice.

Main wave type: \_\_\_\_\_

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5. Explain how freeze-thaw weathering can cause coastal cliffs to break up.

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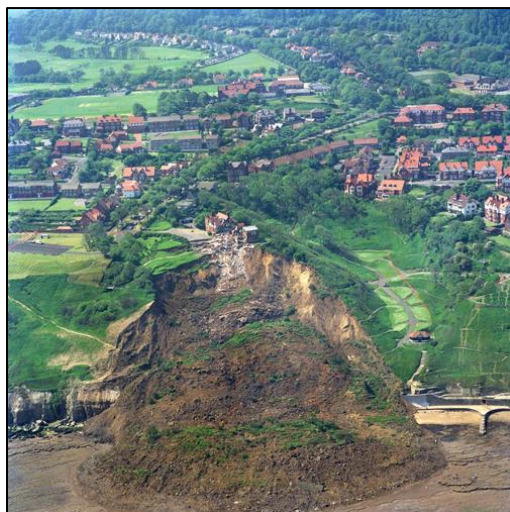
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6. The photograph to the left shows cliffs in North Yorkshire, which suffered mass movement in 1993. Explain what causes mass movement to occur.

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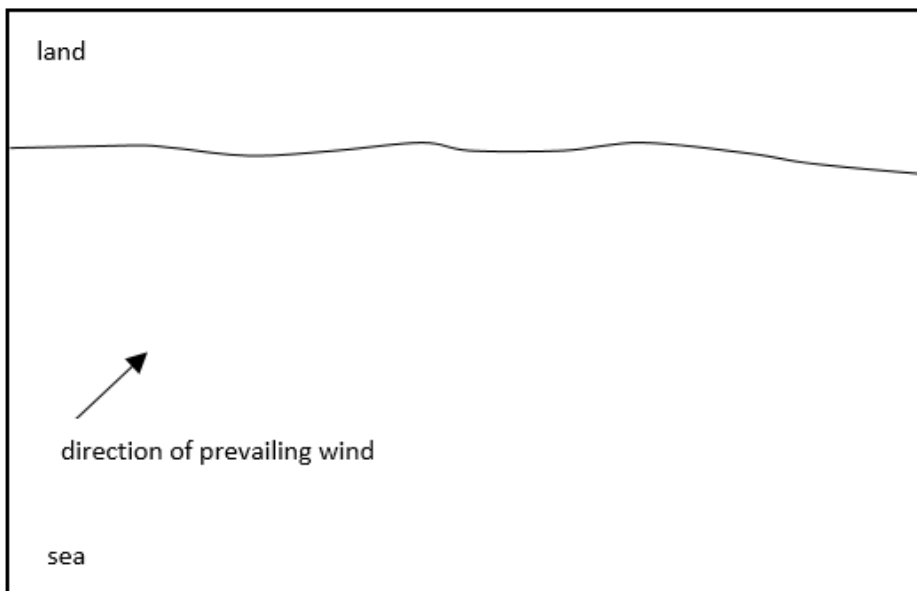
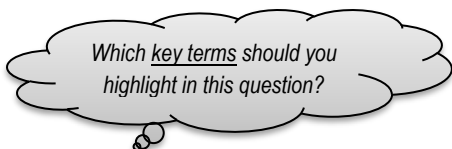


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7. In the boxes provided, draw **labelled diagrams** to show how the processes of **hydraulic power**, **abrasion** and **attrition** erode rock.

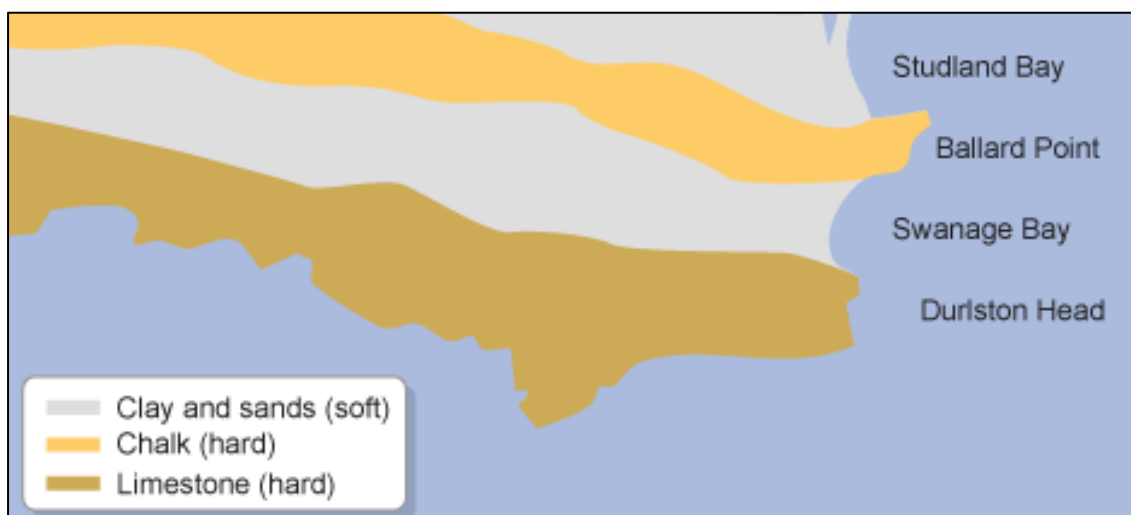
Hydraulic power	Abrasion	Attrition

8. Label the diagram to show the process of longshore drift and how it affects a coastline. You should include a range of terms such as: **swash**, **backwash**, **erosion**, **transportation**, **deposition**.



Key idea: Distinctive coastal landforms are the result of rock type, structure and physical processes.

9. The map below shows the geology of part of the Dorset coastline. On the map, show how the coastline is likely to change in the future. Annotate the changes that you make with brief explanations.



10. Using a diagram, explain the formation of a stack.



11. **EXAM-STYLE QUESTION:** Explain how a wave-cut platform forms. (4)

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12. Which of the following statements are **true**? Shade **two** ovals only.

- a. Depositional landforms occur where swash is strong.
- b. A spit is an erosional landform.
- c. A coastal bar forms when longshore drift deposits sediment across the entrance to a bay.
- d. A headland is a depositional landform.
- e. A wave cut platform is a depositional landform.


13. Next to each image below, **name the coastal feature** and say whether it is formed by **erosion** or **deposition**.



The specification says that you need to 'Use **a named example of a section of coastline in the UK** to identify its major landforms of erosion and deposition.'

Named example alert!

14. Complete the template below to help you learn/revise your named example of a section of UK coastline.

<b>A NAMED EXAMPLE OF A SECTION OF COASTLINE IN THE UK</b> <b>My example: _____</b>	
<p><b>Identify the location</b> of your chosen stretch of coastline on the map.</p> 	<p><b>Sketch map of the geology</b> of your chosen stretch of coastline.</p>
<p><b>Describe the erosional processes</b> at play along this section of coastline.</p>	<p><b>An example of one erosional landform</b> found on this section of coastline. Include a diagram or sketch of the feature and its name if it has one. Stretch: say how the feature is likely to change in the future.</p>
<p><b>Describe the depositional processes</b> at play along this section of coastline.</p>	<p><b>An example of one depositional landform</b> found on this section of coastline. Include a diagram or sketch of the feature and its name if it has one. Stretch: say how the feature is likely to change in the future.</p>

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

15. **Define** 'hard engineering'.

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16. Using the annual sea wall maintenance cost data provided, identify the mode, median, mean and range.

Year	2011	2012	2013	2014	2015	2016	2017
Annual costs (thousand £)	20	30	18	62	36	20	24

**Mode:** the most common  
**Median:** the middle value (when values are in order of size)  
**Mean:** the average  
**Range:** the difference between the greatest and smallest values

Mode: \_\_\_\_\_ Median: \_\_\_\_\_ Mean: \_\_\_\_\_ Range: \_\_\_\_\_

17. Select **one** of the following hard engineering strategies: *sea walls, rock armour, gabions or groynes*. Draw a **labelled diagram** to show how your chosen strategy protects the coastline.

Chosen strategy: \_\_\_\_\_

18. Select **one** of the following soft engineering strategies: *beach nourishment and reprofiling, or dune regeneration*. **Describe** how it protects the coast, and **outline one** advantage and **one** disadvantage to the strategy.

Chosen strategy: \_\_\_\_\_

**Command words, p.7**

It protects the coast by... \_\_\_\_\_

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Advantage: \_\_\_\_\_

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Disadvantage: \_\_\_\_\_

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19. Suggest why **managed retreat** may be an appropriate response to coastal erosion in some cases.

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The specification says that you need to use an '**example of a coastal management scheme in the UK**'. **NOTE: you must refer to a specific place (e.g. groynes at MAPPLETON. Simply discussing groynes in general would not be not sufficient).**



20. Complete the template below to help you learn/revise your example of a coastal management scheme in the UK.

<b>AN EXAMPLE OF A COASTAL MANAGEMENT SCHEME IN THE UK</b> <b>My example: _____</b>	
<p><b>Identify the location</b> of your chosen coastal management scheme on the map. Be sure to label the place name.</p>	<p><b>Provide a sketch drawing</b> of your chosen coastal management scheme.</p>
<p><b>Explain</b> the reasons why management was needed along this stretch of coastline.</p>	<p><b>Describe</b> the management scheme and explain how it helps to protect the coastline.</p>
<p><b>Describe</b> the impacts/effects of the management scheme.</p>	<p><b>Outline</b> the conflicts or problems that have arisen from the scheme. (You might refer to economic or environmental problems, or to disagreements between stakeholders.)</p>















Key idea: Distinctive fluvial landforms result from different physical processes.

23. You need to know a range of river landforms resulting from erosion and deposition (their characteristics and formation). In the tables below, complete the blank columns. Under '**characteristics**', you need to identify the features of the landform (e.g. for flood plain you might write *low, flat land on either side of a river in the lower course, fertile soil from alluvium and other deposited sediments, often used for farming*). Under '**formation**' you need to provide a step-by-step explanation of **how** it forms, referring to specific processes (e.g. simply saying 'due to erosion' isn't specific enough- say whether it is hydraulic action, abrasion or attrition, and **how** that process creates the landform).

Fluvial (river) landforms resulting from erosion			
Landform	Image	Characteristics (and where it is found- upper/middle/lower)	Formation (step-by-step explanation)
Interlocking spurs			
Waterfall			
Gorge			

Fluvial (river) landforms resulting from erosion and deposition			
Landform	Image	Characteristics (and where it is found- upper/middle/lower)	Formation (step-by-step explanation)
Meander			
Oxbow lake			

Fluvial (river) landforms resulting from deposition			
Landform	Image	Characteristics (and where it is found- upper/middle/lower)	Formation (step-by-step explanation)
Levee			
Flood plain			
Estuary			

### OS MAP FOCUS

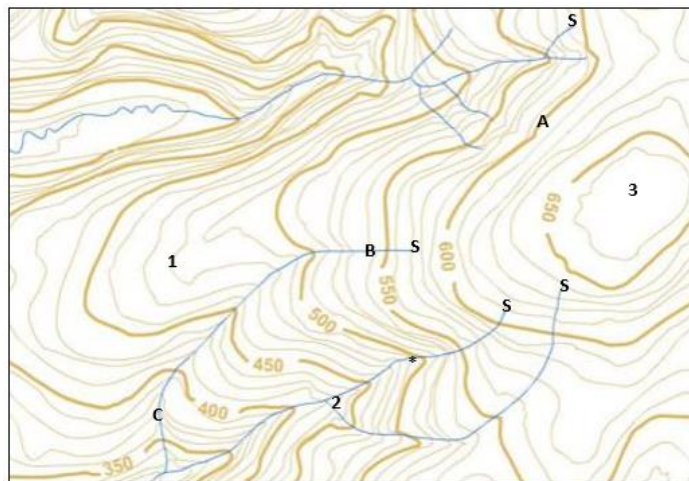
24. Now you know about river features, but are you confident to identify them on an OS map? The following information will help you to do this. Answer the questions at the end.

Contour lines are the orange lines that you see on maps. They show the **height** (or elevation) of the land in metres (at **A** the land is 600m high.)

The **closer** together the lines are, the **steeper** the land ('steep relief'). If they are **far apart**, this indicates that the land is quite **flat** ('gentle relief'). Based on this, we can see that the map shows an area of steep land. This indicates that the rivers shown are in their **upper course!**

A **V shape** is formed where the contour lines cross a river (\*). The V shape is pointing **uphill** to where the river came from.

And of course you know that water flows **downhill!** You should be able to tell the **direction** that the rivers are flowing in by using the contour lines (the river flows away from **B** where the land is 540m high, towards **C** where the land is 370m high). Also, we know that the source (start) of a river is found inland and flows towards the coast, so we know that where the blue river line begins is the source (e.g. **S**).



To re-cap: the main evidence on the map above to show that these are rivers in the upper course is- a) the **contour lines are close together** showing that land is steep, b- the **V-shape** points to where the river came from, and c- we can see the **sources** of the rivers.

#### Questions based on the map above:

- How high is the land at point 1? \_\_\_\_\_
- What is the river feature at point 2? \_\_\_\_\_
- What is the difference in land height between points A and B? \_\_\_\_\_
- What is the land like at point C? \_\_\_\_\_

The map to the right shows a river in its **lower** course. Evidence for this:

- a) the contour lines are **far apart** (indicating fairly flat land) and **the land elevation** is low
- b) the river has **large meanders**
- c) the river meanders across a **large flat area** (the flood plain), and
- d) the river is **wide** (a wide blue line)



The specification says that you need to use an **'example of a river valley in the UK'** to identify its major landforms of erosion and deposition.



25. Complete the template below to help you learn/revise your example.

<b>AN EXAMPLE OF A RIVER VALLEY IN THE UK</b>	
<b>My example:</b> _____	
<b>Major landform/s caused by erosion</b>	<b>Major landform/s caused by deposition</b>
An example of a landform caused by erosion in the _____ valley is a: _____.  It is located:  The characteristics of the landform are:	An example of a landform caused by erosion in the _____ valley is a: _____.  It is located:  The characteristics of the landform are:
Sketch map showing location	Sketch map showing location
Labelled diagram of the landform	Labelled diagram of the landform
Description of how the landform may change in the future and explanation why.	Description of how the landform may change in the future and explanation why.

Key idea: Different management strategies can be used to protect river landscapes from the effects of flooding

**PHYSICAL factors that affect flood risk** include precipitation (rainfall), geology (rock type), relief (land shape).

26. Below, **explain** how each factor affects flood risk, using the key vocabulary provided. An example has been done for you.

**Vocabulary:** permeable, impermeable, infiltration, steep-sided valley, surface runoff, discharge.

**Precipitation:** *Prolonged rainfall causes soil to become saturated. This means that infiltration cannot occur, so surface runoff increases, and this causes rivers to fill up quickly. In the case of heavy rainfall, the water arrives too quickly for infiltration to occur, so surface runoff carries water to the river channel. As the river discharge increases, a river may spill over its banks, causing a flood.*

**Geology:** \_\_\_\_\_

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**Relief:** \_\_\_\_\_

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The key **HUMAN** factor that affects flood risk is land use e.g. building on the flood plain and deforestation.

27. Below, **explain** how each factor affects flood risk, using the key vocabulary provided.

**Vocabulary:** impermeable materials, concrete, tarmac, interception, surface runoff, discharge.

**Building on the flood plain:** \_\_\_\_\_

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**Deforestation:** \_\_\_\_\_

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31. Give **two** examples of hard engineering strategies that can be used to manage flood risk other than dams and reservoirs.

a. \_\_\_\_\_

b. \_\_\_\_\_

32. Explain how **flood warnings** can help to reduce the effects of flooding.

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### 33. **MINI ISSUE EVALUATION TASK**

There are many **engineering** strategies to help **reduce the risk of flooding or its impacts**. To help you revise this topic and also to practice the ISSUE EVALUATION component of Paper 3, you need to think about the benefits and costs of a range of hard and soft engineering strategies.

Imagine that you are a flooding expert from the Environment Agency (EA) paid to advise the local council on the best strategy to use in Boscastle, a small village in Cornwall in southern England that has experienced a number of floods in recent years. Key points to consider:

- Population: 662
- Average house value: £312,000
- Key industries: tourism and fishing
- Village is located at the confluence of three rivers
- Major flood in 2004 where the homes, businesses and cars were swept away. Boscastle flooded again in 2007 although the impacts were not as serious as in 2004.

On the lines below, explain which **one** of the four engineering strategies you recommend that the UK government uses to reduce the risk and/or impacts of flooding in Boscastle. You should explain why this is the best option, identify any problems with your choice, and say why it is a more appropriate choice than the rejected options.

**Options: 1- building a dam and reservoir upstream; 2- building flood relief channels; 3- afforestation; 4- investing in preparation** (e.g. education and modifying buildings most at risk)

Chosen option: \_\_\_\_\_

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The specification says that you need an **'example of a flood management scheme in the UK'**.



34. Complete the template below to help you learn/revise the example.

<b>AN EXAMPLE OF A FLOOD MANAGEMENT SCHEME IN THE UK</b> <b>My example: _____</b>	
<p><b>Identify the location</b> of your chosen flood management scheme on the map. Be sure to label the place name.</p> 	<p><b>Provide a sketch drawing</b> of your chosen flood management scheme.</p>
<p><b>Explain</b> the reasons why management scheme was needed.</p>	<p><b>Describe</b> the management scheme and <b>explain</b> how it helps to manage flood risk and its impacts.</p>
<p><b>Outline</b> the social, economic and environmental issues. Within this section you might also discuss stakeholder opinions and any conflicts.)</p>	<p><b>Evaluate</b> the effectiveness of the management scheme.</p>

## Glacial landscapes in the UK

Key idea: Ice was a powerful force in shaping the physical landscape of the UK.

1. Using **Figure 1**, describe the maximum ice coverage during the most recent ice age.

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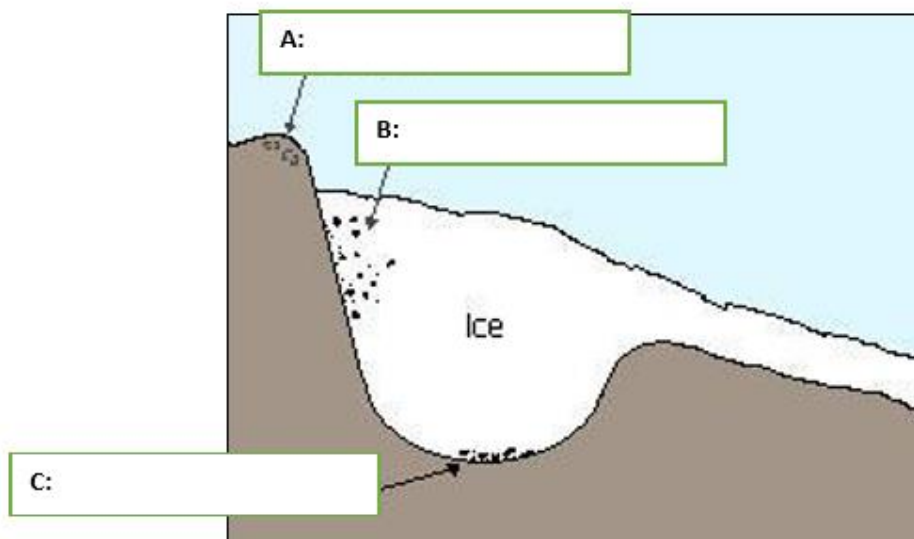


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Figure 1



2. Label the empty boxes below with the erosional process that is occurring at each point.



3. Explain the difference between the processes occurring at B and C.

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4. Complete the paragraph below on glacial erosion and transportation using the vocabulary provided. **Vocabulary:** streams, deposited, clay, sand, together, enormous, till, ice, carried, bulldozing, outwash, size, frozen

Glaciers transport \_\_\_\_\_ amounts of unsorted material over very large distances. This unsorted material is called \_\_\_\_\_, and is made up of sand, \_\_\_\_\_ and rocks. The material is transported in three main ways: 1) it may be \_\_\_\_\_ in the moving glacier, 2) \_\_\_\_\_ on its surface, or 3) pushed in front of it (\_\_\_\_\_). If the ice melts, till is \_\_\_\_\_ (dropped) on the valley floor. Because sand, clay and rocks are transported by a solid mass (\_\_\_\_\_), they aren't sorted by weight and \_\_\_\_\_ like river deposits. Rocks of all shapes and sizes tend to be deposited \_\_\_\_\_. However, at the front of the glacier, small meltwater \_\_\_\_\_ can wash away fine materials like \_\_\_\_\_ and gravel. Because this material is carried by water, it is sorted by size and deposited in layers called \_\_\_\_\_.

5. Which **process** is occurring at the snout of this glacier?

\_\_\_\_\_

6. Explain what 'rotational slip' refers to.

\_\_\_\_\_

\_\_\_\_\_

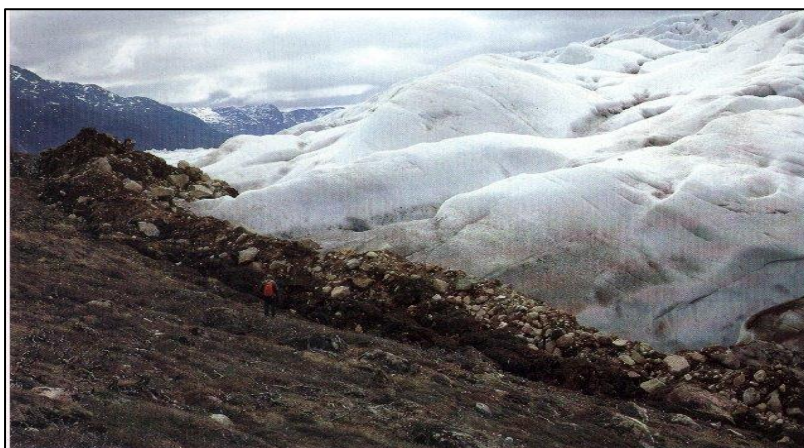
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Key idea: Distinctive glacial landforms result from different physical processes.

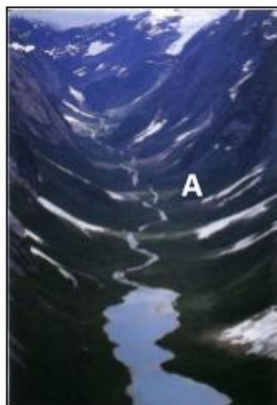
7. Next to the corresponding letters, state the glacial landform shown.

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_



8. The diagram below shows the seven glacial landforms that result from erosion. In each box, **describe the landform** (its characteristics) and **explain how it formed** (the processes). A way to do this successfully is to learn the basic information (e.g. in lesson or at home), then practice verbally describing and explaining to a friend until you can properly remember it without the help of a book. Once you can do this, you're ready to complete the boxes. Avoid simply copying the information from a textbook because this won't help you to remember.

**An arete is...**  
It forms when...  
An example is...

**Pyramidal peaks are...**  
They form when...  
An example is...

**Truncated spurs are...**  
They form when...  
An example is...

**Corries are...**  
They form when...  
An example is...

**Ribbon lakes are...**  
They form when...  
An example is...

**Hanging valleys are...**  
They form when...  
An example is...

**Glacial troughs are...**  
They form when...  
An example is...

9. Moraines are landforms made out of till, dropped by a glacier as it melts. **Describe** the positioning of each of the four types of moraine, and **explain why** they are positioned like this.

Lateral moraine \_\_\_\_\_

\_\_\_\_\_

Medial moraine \_\_\_\_\_

\_\_\_\_\_

Terminal moraine \_\_\_\_\_

\_\_\_\_\_

Ground moraine \_\_\_\_\_

\_\_\_\_\_

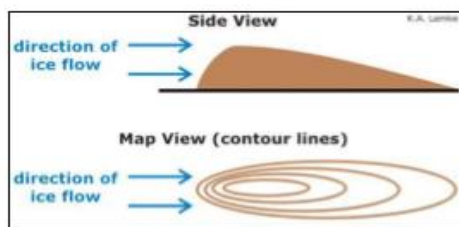
10. Using the annual meltwater data provided, identify the mode, median, mean and range.

Year	2011	2012	2013	2014	2015	2016	2017
Annual glacial meltwater (in millions of cumecs)	80	109	112	98	95	160	95

**Mode:** the most common  
**Median:** the middle value (when values are in order of size)  
**Mean:** the average  
**Range:** the difference between the greatest and smallest values

Mode: \_\_\_\_\_ Median: \_\_\_\_\_ Mean: \_\_\_\_\_ Range: \_\_\_\_\_

**Figure 2**



11. What is the depositional glacial landform depicted in **Figure 2**?

\_\_\_\_\_

12. Identify **two** features of the landform you identified in Q11.

Feature 1: \_\_\_\_\_

\_\_\_\_\_

**Figure 3**



Feature 2: \_\_\_\_\_

\_\_\_\_\_

13. What is the depositional glacial landform depicted in **Figure 3**?

\_\_\_\_\_



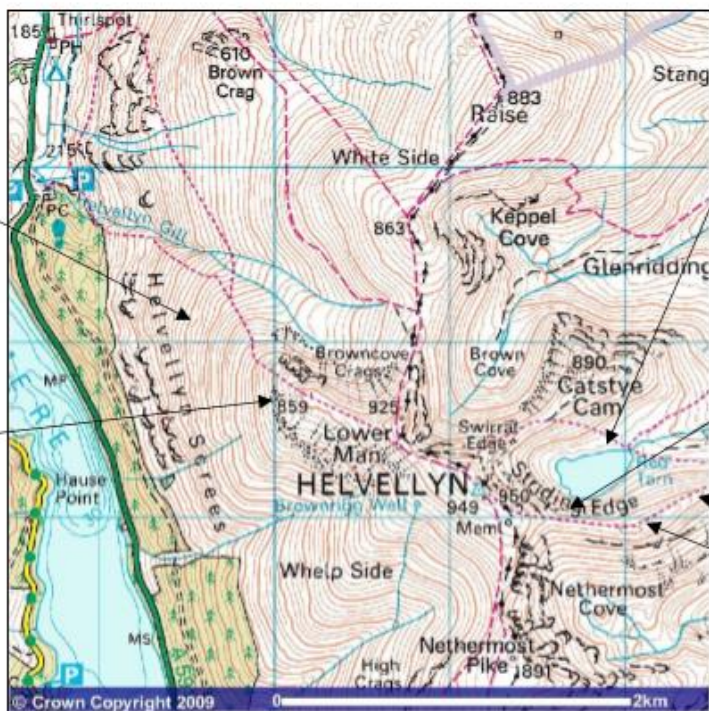
**OS MAP FOCUS**

It can be tricky to read glacial features on OS maps. This is partly because many glacial features are located in areas of steep relief, meaning that the maps are crowded with contour lines. However, it's important that you practice doing so, because it's common for exams to use OS extracts. (More importantly, it could save your life if you find yourself in a glacial landscape!)

See the OS map extract below, which shows a range of glacial landforms in the Lake District:

The height of the land may be difficult to figure out as **contour lines are very close together where the relief is steep**, and are often very 'curvy' where there are many hills or mountains. This makes following a contour line to find the number showing land height quite tricky.

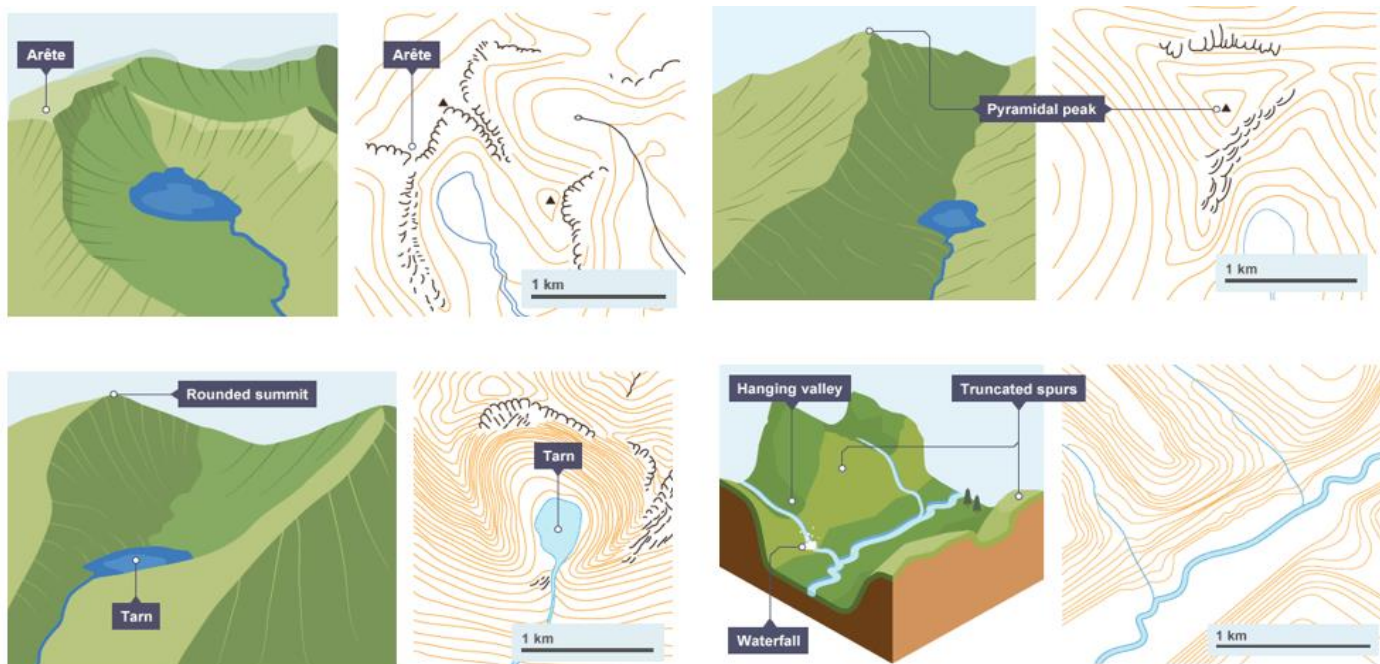
**Black numbers** show the specific height of mountains in metres. These should help you to visualise the shape of the land when reading an OS map.



**Tarns** (bodies of meltwater stored in corries) are easy to find on maps. However, **corries** without water in them can be a little harder to identify. The main clue is *tightly packed contours in a U-shape*.

**Arêtes** are difficult to see. Look for a *really thin hill with tightly packed, parallel contours* on either side. (**Walking tracks** may also be found on or near to arête, as arêtes provide excellent views.)

The following diagrams and their corresponding maps should help you to know what you're looking out for on OS maps. It's important that you ask questions when you're not sure- this is a very difficult topic!





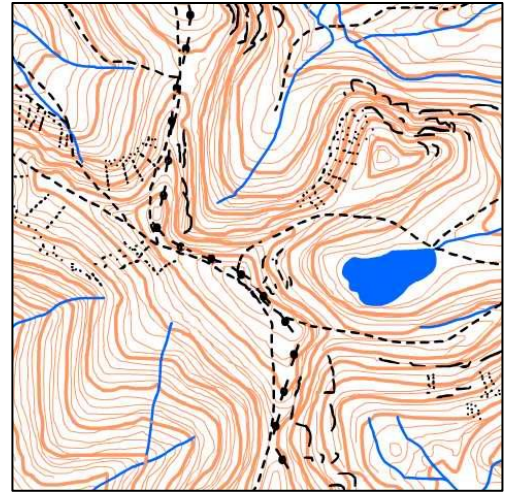
14. Label as many glacial features as you can identify onto the map using neat lines. *Some of the glacial features that I can see are:*

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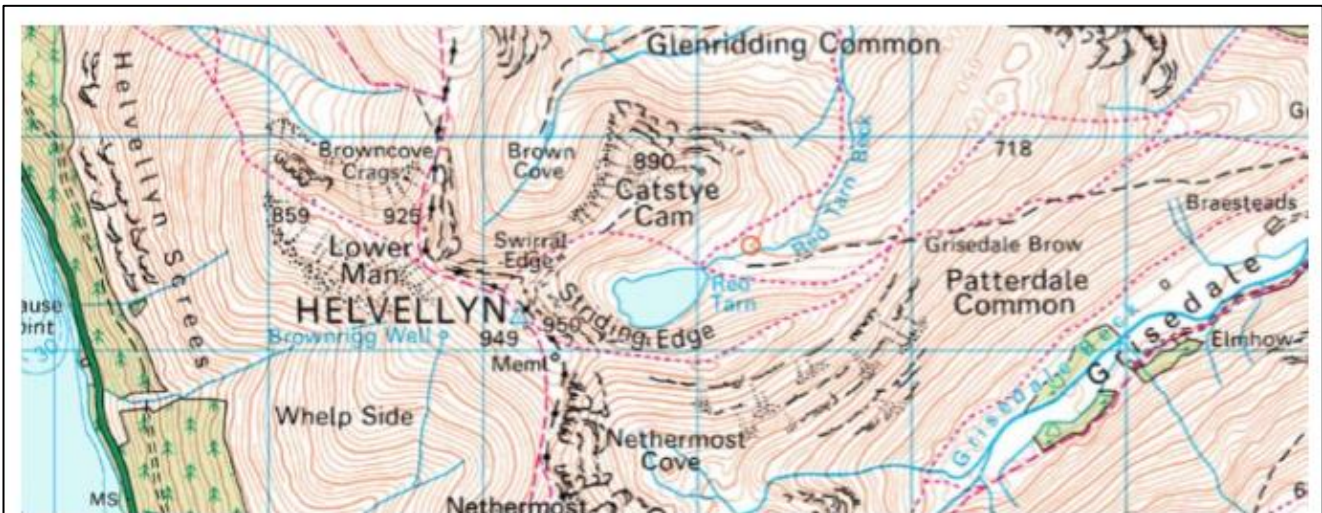
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Use the maps below to answer questions 14-17.



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15. What evidence can be seen on the OS map that this area was glaciated?

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16. What type of feature of glacial erosion now contains the lake called Red Tarn? \_\_\_\_\_
17. From looking at the map extract, label the **summit** (highest point) of Helvellyn onto the second image. Also add labels for 'Striding Edge' and 'Helvellyn Screes' onto the second image.
18. **Scree slopes** are slopes of broken up, sharp and angular pieces of rock. **Name** and **describe** the weathering process that produced this scree.

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19. Now take a **diagonal line** from north-west to south-east across Grisedale valley and sketch a rough cross-section diagram in the space below. (This is not something that you are likely to have to do in the exam, so don't worry if you find this very challenging. The task is intended to help you get a good understanding of maps of glaciated areas, and of how the land would look in real life.)




20. To help you to remember glacial features and how they formed, select one feature (e.g. arete, corrie, pyramidal peak, glaciated trough, ribbon lake, drumlin) and create a labelled diagram in the space below to show how it formed. (Try to choose a different feature to the ones you write about on the following page.)

The specification says that you need to know 'an example of an upland area in the UK affected by glaciation to identify its major landforms of erosion and deposition'.

Example alert!

21. Complete the template below to help you learn/revise your example of an upland glaciated area in the UK.

<b>AN EXAMPLE OF AN UPLAND AREA IN THE UK AFFECTED BY GLACIATION</b> <b>My example: _____</b>	
<p><b>Identify the location</b> of your chosen glaciated upland area on the map.</p> 	<p><b>OS map extract showing all or part of your glaciated upland area</b> (or the closest you can find, OR your own hand-drawn map!)</p>
<p><b>An example of at least one major erosional landform</b> found in your chosen upland area. Include a <u>diagram or sketch</u> of the feature and its <u>name</u> if it has one.</p>	<p><b>Describe the processes</b> that formed the erosional landform/s.</p>
<p><b>An example of at least one major depositional landform</b> found in your chosen upland area. Include a <u>diagram or sketch</u> of the feature and its <u>name</u> if it has one.</p>	<p><b>Describe the processes</b> that formed the depositional landform/s.</p>

Key idea: Glaciated upland areas provide opportunities for different economic activities, and management strategies can be used to reduce land use conflicts.

22. Complete the table below by summarising four key economic activities that occur in glaciated upland areas and their resulting conflicts.

Economic activity	Description of the economic activity (what does it involve, what are its benefits, why is the activity common in glaciated areas, etc)	Conflicts caused by the economic activity (be sure to mention specific stakeholder groups)
Farming		
Forestry		
Quarrying		
Tourism		

23. Outline some of the conflicts between **conservation** and **development** that occur in glaciated upland areas of the UK.

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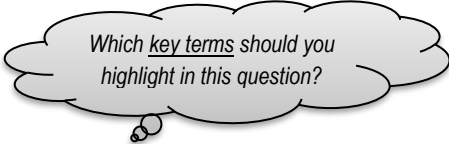
The specification says that you need to know '*an example of a glaciated upland area in the UK used for tourism.*'

Example alert!

24. Complete the template below to help you learn/revise your example of an upland glaciated area in the UK.

<b>AN EXAMPLE OF A GLACIATED UPLAND AREA IN THE UK USED FOR TOURISM</b> <b>My example: _____</b>	
<b>What are the attractions for tourists?</b>	<b>Identify the location</b> of your chosen glaciated upland area used for tourism on the map. 
<b>What are the impacts of tourism? (social, economic, environmental)</b>	<b>Evaluate</b> which impact is most problematic/most difficult to address and why.
<b>What are the strategies used to manage the impacts of tourism?</b>	<b>Evaluate</b> <u>the effectiveness</u> of the management strategies.

**EXAM-STYLE QUESTION:** Explain how tourism has had environmental impacts on a named glaciated area. (6)



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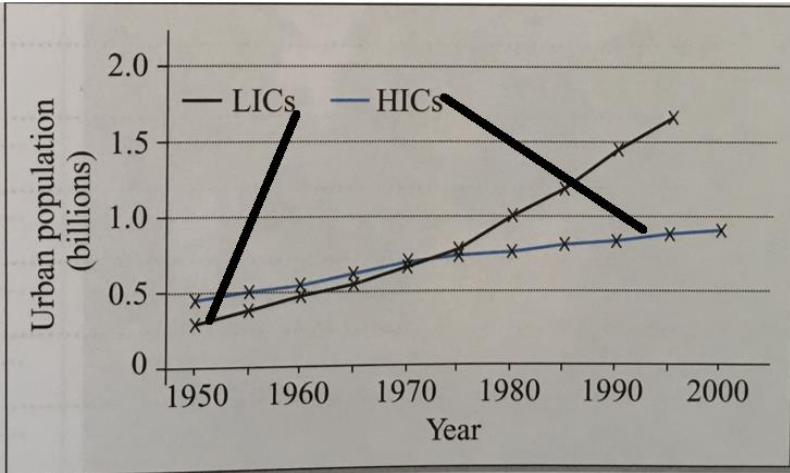
## Paper 2- Challenges in the human environment

### Section A: Urban issues and challenges

Key idea: A growing percentage of the world's population lives in urban areas.

- 1. Complete the graph to show that the urban population of LICs in 2000 was 2 billion.
- 2. Describe the trends shown by the graph.

**Trend:** the pattern or overall result.  
Aim to use descriptive language (e.g. *increasing/decreasing, slow, steady, rapid, exponential, equal, overtake*) and data (numbers).



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3. The paragraph below is about urban growth in HICs and LICs. Using the vocabulary provided, fill in the blank spaces.  
**Vocabulary:** *development, rural, minimally, already, slow, varies, manufacturing, China, Germany, proportion, 50%, Industrial Revolution, World Bank, Ethiopia, highest, trebled.*

Urbanisation refers to the growth in the \_\_\_\_\_ (percentage) of a country's population living in urban areas. Urbanisation is happening all over the world, and over \_\_\_\_\_ of the world's population now live in urban areas (and this is increasing). However, urbanisation is happening at different rates in places at different levels of \_\_\_\_\_. In high-income countries (HICs) like \_\_\_\_\_, urbanisation happened during the \_\_\_\_\_ (in the 19<sup>th</sup> Century) meaning that today, most people \_\_\_\_\_ live in urban areas. This means that rates of urban growth are \_\_\_\_\_ in HICs because almost everybody in the country already lives there! (For example, in Germany, between 1960 and 2016 the proportion of people living in urban areas rose \_\_\_\_\_ from 71% to 76%.) In LICs such as \_\_\_\_\_, urbanisation is happening more rapidly. LICs are less economically developed, meaning that it is only in recent years that many LICs have begun to develop industries such as \_\_\_\_\_ in the urban areas, which encourages people to move from \_\_\_\_\_ areas in search of work. Consequently, urban growth rates are \_\_\_\_\_ in LICs. (For example, in Ethiopia, between 1960 and 2016 the proportion of people living in urban areas more than \_\_\_\_\_, from 6% to 20%) (\_\_\_\_\_ data). Newly emerging economies (NEEs) are countries where economic growth is happening rapidly, e.g. Brazil, \_\_\_\_\_, and Nigeria. In these countries, urban growth \_\_\_\_\_.

4. Migration affects the rate of urbanisation, and **push-pull theory** helps to explain this. For each of the factors below, say whether it is **push** or **pull**, and **explain how it causes migration**. An example has been done for you.

**Remember:** a push factor is something that encourages someone to **leave** an area; a pull factor is something that encourages someone to **move to** an area

Factor	Push or pull?	How does it cause migration?	Common in HICs, LICs or both?
Natural disasters			
Mechanisation of agriculture			
Family members living abroad			
Better employment opportunities			
Desertification			
Improved quality of life			
Improved health care and education			
Conflict or war			

5. Define 'natural increase'.

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6. What is the minimum population required for a city to be classed as a **megacity**? \_\_\_\_\_

7. Study the map showing the world's largest megacities. Using the map, answer questions 7a-7c.

7a. Which megacity is predicted to have the greatest **overall** population increase by 2025? \_\_\_\_\_

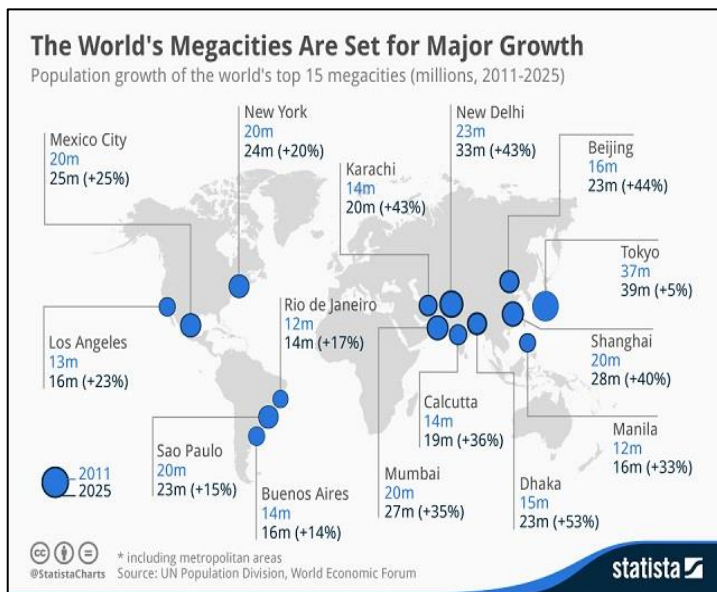
7b. Which megacity is predicted to have the greatest **rate** of urban growth of the fifteen megacities shown?

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7c. Which region is predicted to experience the greatest urban growth by 2025? Shade **one** oval.

- i. North America
- ii. Europe
- iii. Asia

8. Explain how natural increase leads to the growth of megacities.




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Key idea: Urban growth creates opportunities and challenges for cities in LICs and NEEs.

The specification says that you need to use '**an example of how urban planning is improving the quality of life for the urban poor.**' Make sure your example is based in an LIC or NEE.



9. Complete the template below to help you remember your urban planning example.

AN EXAMPLE OF HOW URBAN PLANNING IS IMPROVING THE QUALITY OF LIFE OF THE URBAN POOR		
My example: _____		
<p><b>What are the problems?</b> (Say why the QOL needs to be addressed in your chosen location. Try to include statistics.)</p>	<p><b>Which urban planning strategies are being used?</b> (Describe them, and say how they address QOL issues.)</p>	<p><b>How effective are the strategies?</b></p>

**Case study alert!**

The specification says that you need to know '**A case study of a major city in an LIC or NEE**' to illustrate the location & importance of the city, causes of growth, and how urban growth has created opportunities and challenges. As a **case study**, you need to know about many aspects of your chosen city. It is possible that an entire 9-mark question will be based on one key idea, so take the time to research and revise each section.

10. To help you learn/revise this case study, complete the template below. (You should also do further research to help you remember place specific detail. Looking up YouTube clips about your chosen city is one useful way. Finding relevant images of the city and creating a visual brainstorm with annotations is another.)

<b>A CASE STUDY OF A MAJOR CITY IN AN LIC OR NEE</b> <b>My example: _____</b>	
<b>Map showing the location of the major city</b> (either a sketch map or printed map)	<b>Why is the city important?</b> (You should discuss its importance within the country and within the world more broadly.)
<b>Which <u>migration factors</u> are contributing to the city's growth?</b> (Push-pull factors; try to include statistics and place-specific detail).	<b>How is <u>natural increase</u> contributing to the city's growth?</b> (How and why has natural increase changed in recent decades?)
<b>What are the <u>opportunities</u> resulting from the urban growth?</b> (Social opportunities e.g. access to services & resources + <u>economic opportunities</u> ?)	<b>What are the <u>challenges</u> resulting from the urban growth?</b> (Managing urban growth, service and resource provision? Ec/soc/en)

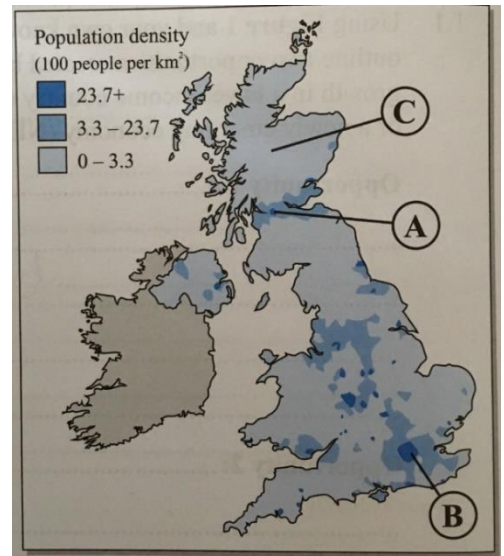
**Remember-** an evaluate/assess element is possible in case study questions... think about which factors are the most significant in causing urban growth, and also about whether the opportunities or challenges are greater...



Key idea: Urban change in cities in the UK leads to a variety of social, economic and environmental opportunities and challenges.

13. Study **Figure 1**, a map showing the population density of the UK.

13.1 **Describe** population distribution in the UK.




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13.2 Name the cities labelled **A** and **B** on the map, and state which countries each city is located in.

**A:** The city is \_\_\_\_\_ and is located in the country of \_\_\_\_\_

**B:** The city is \_\_\_\_\_ and is located in the country of \_\_\_\_\_

13.3 Suggest why the population density in areas **B** and **C** vary so much.

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14. **ISSUE EVALUATION- MAKING LINKS BETWEEN TOPICS...** Think back to the 'physical' topics of paper 1 (e.g. River landscapes in the UK and Glacial landscapes in the UK). Which links can you draw between the issue of population density in the UK and the physical topics you've already studied? Make notes next to the dot points below. An example has been done for you.


- In Ecosystems I learnt that the south-east of England has a lot of lowland areas that are affected by development and population increases (e.g. marshland areas east of London and in East Anglia etc.). This links to Urban growth and UK cities because it is the spread of people and industries that puts these ecosystems at risk.

- \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Case study alert!**

The specification says that you need to know '**A case study of a major city in the UK**' to illustrate the location & importance of the city, impacts of migration on the city's character and growth, and how urban growth has created opportunities and challenges. As a **case study**, you need to know about many aspects of your chosen city. It is possible that an entire 9-mark question will be based on only one key idea, so take the time to research and revise each section in depth.

15. To help you learn/revise this case study, complete the template below. (You should also do further research to help you remember place specific detail. Looking up YouTube clips and documentaries about your chosen city is one useful way. Finding relevant images of the city and creating a visual brainstorm with annotations is another. Looking up online articles about the city can help to shed light on the character of the city, *especially if you look at newspapers from the city itself.*)

<b>A CASE STUDY OF A MAJOR CITY IN THE UK</b> <b>My example: _____</b>	
<b>Identify the location of the major UK city on the map.</b>	<b>Why is the city important?</b> (You should discuss its importance within the UK and the wider world.)
	
<b>What are the <u>impacts</u> of <u>national and international migration</u> on the <u>growth</u> of the city?</b> (Try to use statistics.)	<b>What are the <u>impacts</u> of <u>national and international migration</u> on the <u>character</u> of the city?</b>
<b>What are the <u>opportunities</u> resulting from the urban growth?</b> (e.g. <u>soc/ec opps</u> such as cultural mix, recreation and entertainment, employment, integrated transport systems, and <u>environmental opps</u> like urban greening?)	<b>What are the <u>challenges</u> resulting from the urban growth?</b> ( <u>soc/ec</u> e.g. urban deprivation & inequalities; <u>environmental</u> e.g. dereliction, waste disposal; and the impact of urban sprawl etc.)



16. **Outline** some of the problems experienced by the environment as a result of the growth of commuter settlements.

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17. **EXAM-STYLE QUESTION:** Using a named example, explain how urban change can cause inequalities in housing. (4)

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The specification says that you need to use '***an example of an urban regeneration project***' to show reasons for regeneration and the features of the project. Make sure your example is based in the UK.

**Example alert!**

18. Complete the template below to help you remember your urban regeneration project example.

<b>AN EXAMPLE OF AN URBAN REGENERATION PROJECT</b>	
<b>My example:</b> _____	
<b>Why did the area need regeneration?</b> (Try to identify soc/ec/en issues and include statistics.)	<b>What did the project involve?</b>

Key idea: Urban sustainability requires management of resources and transport.

Cramming millions of people into relatively small spaces (cities) can take a huge toll on the environment, but strategies exist to make urban living more sustainable. Before you think about the strategies, you need to ensure that you know what ‘sustainable’ means!

**Sustainability refers to a way of doing things that enables a balance of economic, social and environmental concerns, with a view to the long-term ‘health’ of people, the economy and the environment.** If a government prioritises only economic growth at the expense of citizens and the natural environment, its approach is very unsustainable. Similarly, if a government only focuses on protecting the environment but does nothing about inequality, this is also unsustainable. If something is sustainable, it can **continue well into the future**. In both examples, the approaches could not continue for very long- they cannot be *sustained*.

19. Decide whether each urban strategy below is sustainable (S) or unsustainable (U). Write an S or U next to each and give a reason/s for your decision.

Strategy	Sustainable (S) or Unsustainable (U)	Reason/s
City A has rapidly growing water needs. The government decides to transport water from the sparsely populated farming regions to use in the densely populated south.		
City B has rapidly growing water needs. The government offer subsidies so that people and councils that install rainwater tanks do not have to pay the full cost of installation.		
The population of City C generates a lot of waste. The government decides to build three new recycling plants to turn the waste into new products.		
One of the councils in City D has approved the building of a business centre on one of its main parks. It'll generate many jobs, but it will remove children's play areas and habitats for urban wildlife.		

20. Select one of the strategies to the right and **assess** the contribution that it can make towards sustainable urban living.

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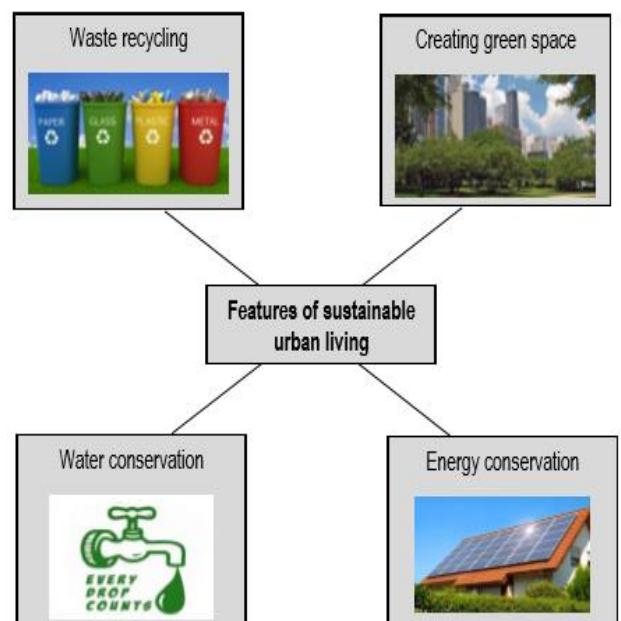
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## Section B: The changing economic world

Key idea: There are global variations in economic development and quality of life.

People often think of 'development' purely in economic terms, but this is a bit limited. **Development refers to progress in economic growth but also in social welfare and the use of technology.** When a country develops life gets better for people living there because they have better economic opportunities and quality of life.

The level of development varies between different countries, and some countries are developing more rapidly than others. The difference in development between more and less developed countries is called the **global development gap**.

Measuring development isn't always straightforward as there are lots of different measures. For example, looking at **average income** is one way to get an idea of quality of life, but it doesn't tell the whole story. Looking at **doctors per 1000 people** tells us something about how developed the country is too, but again, it doesn't give the whole story. That's why we use a range of **development indicators**.

1. In the table below, fill in the gaps to ensure that you know what each development indicator is, what it measures, how it changes as a country develops, and examples (include data). Use <http://data.worldbank.org/> if you need data.

Development indicator	What it is	What it measures	As a country develops, it gets...	An example where it is high	An example where it is low
Gross National Income (GNI)	Total value of goods & services produced by a country, including income from overseas. Usually measured in US\$.			Germany \$3,523,920,730,000	Dominica \$508,050,000
GNI per head/ per capita			Higher		
Gross Domestic Product (GDP)		Wealth			
Birth rate		Women's rights			
Death rate	The number of deaths per 1000 people in a population in a year.			Central African Republic 14	Honduras 5
Infant mortality rate			Lower	Somalia 85	Sweden 2
People per doctor		Health			
Literacy rate			Higher		
Access to safe water	The percentage of people who have clean drinking water.			Germany 100%	Ethiopia 57%
Life expectancy					Cote D'Ivoire 52yrs
Human development index (HDI)		Health Education Wealth	Higher		

Each development indicator is useful in some way, but they often have problems as well. For example, **GNI per head** is useful in that it gives a **sense of the average income** of people in a country and as such it gives a **general idea of quality of life**. However, as **an average**, it **tells us nothing** about the gap between the rich and poor in a country. This should show you that relying on one indicator alone is not a good approach, and we should look at a variety of indicators to get a better idea of a country's level of development. The **Human Development Index (HDI)** was developed as a response to this problem.

2. Explain why the HDI is often seen as a more useful development indicator than single indicators such as GNI per capita.

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3. Outline one criticism of the HDI.

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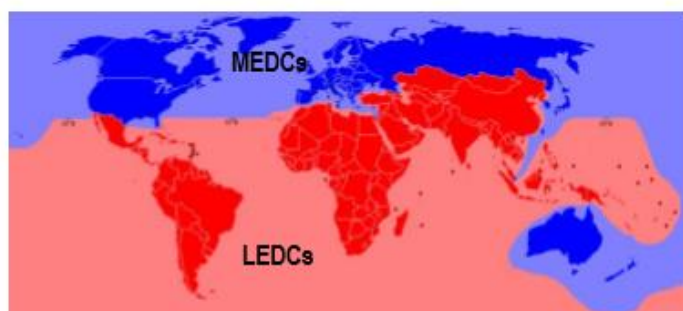


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Ways of grouping countries has changed over time. In the past, countries were divided into More Economically Developed Countries (MEDCs) and Less Economically Developed Countries (LEDCs). Nowadays we talk about High Income Countries (**HICs**) and Low Income Countries (**LICs**), and another category has been added: Newly Emerging Economies (**NEEs**).



4. Study the two maps above and then explain why adding the third category (NEE) is more useful than a simple wealthy/poor split when trying to understand levels of development

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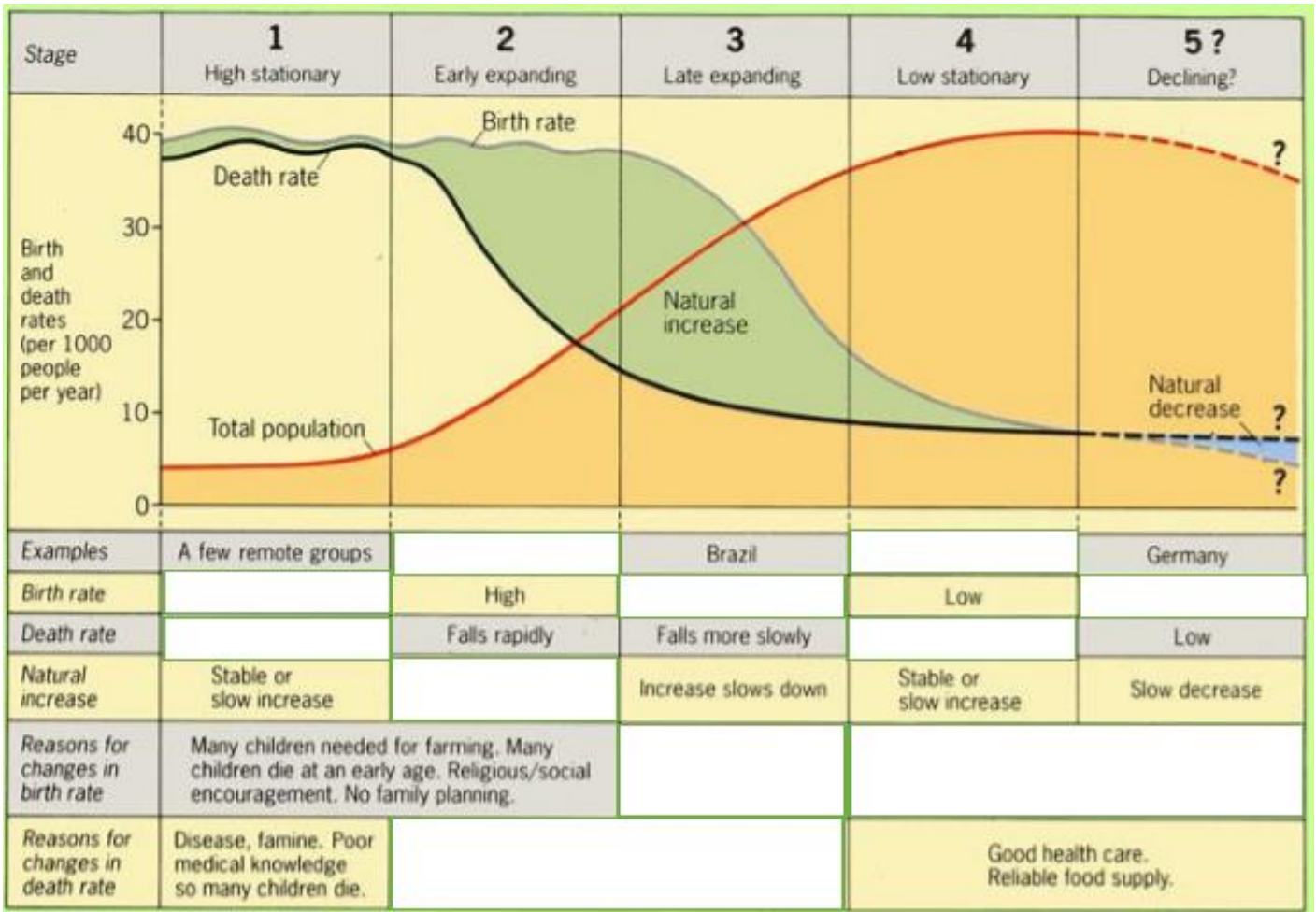


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5. The Demographic Transition Model is shown below, but certain information has been blanked out. Fill in the spaces with examples, descriptions and reasons.



6. Explain why the death rate decreases before the birth rate as a country develops.

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7. Outline some of the problems faced by governments of countries with a very low birth rate.

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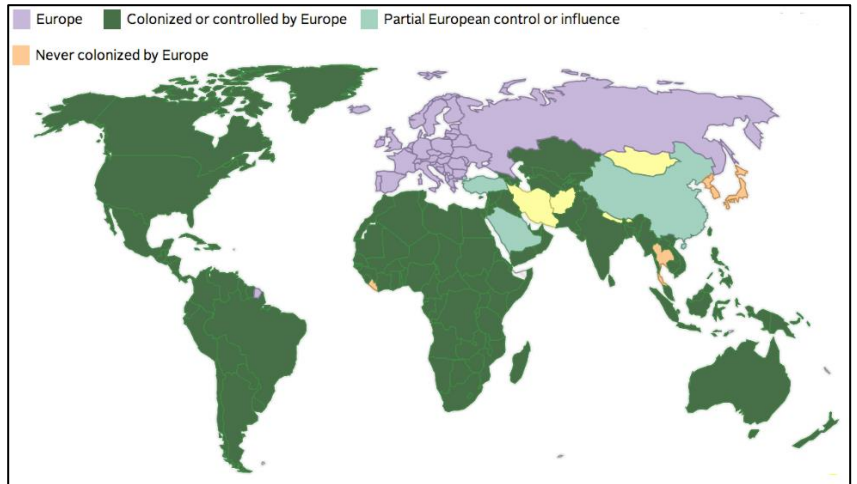
8. Create a brainstorm to show **reasons for unequal development across the world**. Your brainstorm should have three main arms: physical, economic and historical. It should address all of the following: *poor farming land, raw materials, climate, natural hazards, colonisation, conflict/war, trade links, debt, economies that rely on primary exports*.

9. Outline **one** reason why a country that suffers from natural disasters may find it difficult to develop.

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10. Study the map showing countries that at some point were under European control (colonised). What are the links that you can make between this map and the current global development gap? Offer **reasons** for these links.



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11. Explain why a country that relies mainly on the export of primary goods may find it difficult to develop.

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12. Uneven development has many consequences, for example large migration flows and disparities in health and wealth.

**Explain** how uneven development causes large flows of international migration.

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Key idea: Various strategies exist for reducing the global development gap.

The development gap is very **tricky to reduce**. A **range of strategies** exist, but there is **no one-size-fits-all approach**, and different **stakeholders** will have **conflicting views** about them.

13. In the table below, fill in the gaps to show your understanding of what each strategy involves, how it helps to reduce the development gap, who would benefit from each approach, and problems/criticisms. Some of the boxes have been filled in for you, and 'Aid' has been done entirely as a model.

STRATEGIES	WHAT DOES IT INVOLVE?	HOW DOES IT REDUCE THE DEVELOPMENT GAP?	WHO BENEFITS?	PROBLEMS / CRITICISMS
Aid	Aid ( <b>assistance</b> ) is given, usually from one government to another. It is often in the form of <b>money</b> , but may be in the form of help (e.g. rebuilding or medical aid after a natural disaster). Money may be given as <b>donation</b> or <b>loan</b> .	Aid is often spent on <b>projects</b> to help develop the country. For example, money spent developing <b>schools</b> or <b>hospitals</b> can generate long term improvements in skills, literacy and life expectancy. This improves <b>quality of life</b> , creates a more <b>skilled workforce</b> , and helps people to live and work longer, so they pay <b>taxes</b> for longer and rely less on the government for <b>welfare</b> . Money spent on improving <b>water access</b> and <b>sanitation</b> improves people's health and reduces the spread of avoidable diseases. This strengthens the workforce, <b>reduces infant mortality</b> , reduces need for <b>healthcare</b> and improves <b>life expectancy</b> .	If money is <b>spent wisely</b> by the recipient government, its <b>citizens</b> and the <b>country overall</b> should benefit. Aid can also provide <b>stability</b> for the recipient government because the population is less inclined to unrest if their needs are being met. The donor government also benefits as they give aid based on <b>preferential conditions</b> . For example, <b>China</b> has given aid to <b>Kenya</b> , on the condition that a certain percentage of Kenya's <b>imports</b> are bought from China.	Recipient countries may become <b>reliant</b> on aid. Donor countries may impose <b>conditions</b> that benefit the donor more than the recipient. Aid in the form of loans may be difficult to <b>pay back</b> , especially where <b>high interest</b> rates exist. This can lead the recipient into <b>further debt</b> and prevent development. <b>Corrupt</b> governments may not spend aid as intended, meaning that money is siphoned off to powerful individuals while the <b>neediest</b> receive no benefit.
Debt relief	Debt relief is when some or all of a country's debt is <b>cancelled</b> , or <b>interest rates</b> on their loans are <b>lowered</b> . For example, the <b>IMF</b> and <b>World Bank</b> have granted <b>HIPC</b> (highly Indebted Poor Country) status to 37 countries, meaning that they qualify for <b>debt assistance</b> .			Debt relief often involves strict <b>conditions</b> that can prevent development. For example, in some cases, to receive debt reduction or cancellation, recipient governments have had to agree to sell their <b>natural resources</b> to foreign countries, or to remove <b>subsidies</b> that they give to farmers, meaning that their farmers cannot <b>compete internationally</b> .
Fair Trade				Most of the profits go to <b>retailers</b> rather than the <b>producers</b> . It can be difficult to <b>monitor</b> the work conditions of Fair Trade-approved organisations, which can mean that in some cases employers do not abide by expectations. Recent research has also shown that while the producers may benefit from Fair Trade, <b>employees</b> do not necessarily receive better treatment from FT employers than non-FT employers.



Industrial development		Developing industries such as <b>manufacturing</b> can help a country to develop by increasing the <b>revenue</b> that is earned from <b>exports</b> . It also <b>diversifies the economy</b> , meaning that the economy now relies on more than one main industry. This provides more financial <b>stability</b> . Industries such as manufacturing generate more money than <b>primary</b> sectors such as farming, so governments have more funds with which to invest into <b>social development</b> such as health, education and housing. Developing new industries also develops the <b>training</b> and <b>skills</b> of the workforce.		
Investment			Governments receive increased revenue, mainly from the <b>taxes</b> paid by foreign companies. <b>Jobs</b> are generated by investing companies, which can improve <b>employment options</b> and <b>wages</b> for workers, which may improve <b>quality of life</b> . <b>Locally owned businesses</b> may also benefit, because as people's wages improve they may <b>spend</b> more in the local economy.	Foreign <b>multinational companies</b> are often allowed to get away with <b>poor treatment</b> of workers (e.g. harsh conditions and low wages) and <b>environmental harm</b> (e.g. toxic waste dumping, dyes and bleaches into water systems, deforestation (e.g. for palm oil plantations in Indonesia) or unrestricted greenhouse gas emissions. Also, most of the <b>profits flow out</b> of the country and back to the 'headquarter' country.
Microfinance			<b>Poor people</b> who wouldn't ordinarily qualify for <b>loans</b> from big banks because they have no <b>assets</b> tend to benefit most from microfinance. <b>Women</b> are the main recipients of microfinance because they are less likely to default on their loans so in many cases, 99% of microfinance loans go to women. This can give them the opportunity to develop their own <b>businesses</b> . <b>Families</b> can benefit because their overall <b>household income</b> may improve.	Microfinance has not been proven to help development on a <b>national scale</b> . Often, <b>better-educated</b> communities tend to receive the loans while less-educated or <b>less-literate</b> communities miss out because they cannot <b>lobby</b> as effectively for microfinance loans. This can mean that the quality of life of the <b>neediest</b> does not improve.
Tourism	Tourism brings in enormous amounts of money, and <b>foreign currency</b> can strengthen a poor country's economy. For many countries, tourism is its <b>main industry</b> . Tourism has provided huge economic benefits to countries such as Jamaica, Barbados, Thailand, Cambodia, Kenya, Egypt, South Africa, and Brazil.			Tourism brings economic benefits to <b>tour companies</b> although the financial benefits may not extend to the <b>neediest</b> . Tourism can often leave the environment <b>vulnerable</b> , for example as tourists extend into ever more <b>remote</b> regions, leave <b>rubbish</b> behind, cause <b>erosion</b> , use large amounts of the host country's <b>natural resources</b> (e.g. water), etc. Tourism can also turn <b>indigenous cultures</b> into tourist attractions, for example many people in the <b>Masai</b> tribe in Kenya have ceased their nomadic lifestyle in order to stage daily dances for tourists.
Using intermediate technology			<b>Individuals</b> and <b>communities</b> (often the <b>neediest</b> ) benefit from intermediate technologies because they are cheap, easy to maintain and provide an improved quality of life. For example, improved lighting, improved safety and fewer respiratory problems result from using the relatively simple technology of LED lights in homes instead of burning firewood for light. <b>Governments</b> also benefit because they are not necessarily investing in hugely expensive infrastructure but are still helping communities to develop.	

The specification says that you need to use '*an example of how the growth of tourism in an LIC or NEE helps to reduce the development gap*'.

Example alert!

14. Complete the template below.

<b>AN EXAMPLE OF TOURISM IN AN LIC OR NEE HELPING TO REDUCE THE DEVELOPMENT GAP</b> <b>My example: _____</b>	
<b>A description of the tourism industry in your chosen LIC/NEE</b> (+ include data e.g. number of tourists, revenue etc.)	<b>Location</b> (a drawn or printed map showing the location of your chosen LIC or NEE and if relevant, where tourism operates)
<b>How is tourism helping to reduce the development gap in your chosen LIC/NEE?</b>	<b>Are there any problems or criticisms?</b> (social, economic, environmental?)

15. **EXAM-STYLE QUESTION:** Explain how tourism can help an LIC or NEE reduce the development gap. (4)

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Key idea: Some LICs and NEEs are experiencing rapid economic development which leads to significant social, environmental and cultural change.

**Case study alert!**

The specification says that you need to know '**A case study of one LIC or NEE**'.

As a **case study**, you need to know about many aspects of your chosen LIC/NEE. It is possible that an entire 9-mark question will be based on only one key idea, so take the time to research and revise each section in depth.

16. To help you learn/revise this case study, complete the template below. You should also do further research- look up YouTube clips and documentaries about your chosen LIC/NEE. Find relevant images of the country and create a visual brainstorm based on the topics of each box below. Look up articles about the changes that the country is experiencing, and find past and current data on industrial and social changes using World Bank Data (<http://data.worldbank.org/>)

**CASE STUDY OF AN LIC OR NEE**

**My example:** \_\_\_\_\_

<p><b>Background information</b> (what is the <u>social</u>, <u>political</u>, <u>economic</u> and <u>environmental</u> context? E.G for 'social'- population size, life expectancy, level of education; for 'political'- the type of government, in/stability, policy priorities; for 'economic'- GNI, GNI per head, main industry/ies etc; for 'environmental'- key issues, ecosystems under threat etc.</p>	<p><b>Location</b> (include a map showing the location of your chosen LIC/NEE within its region)</p> <p>What is the <b>importance of the country</b> within its <b>region</b> (<i>regionally</i>) and within the <b>wider world</b> (<i>globally</i>)?</p>
<p><b>The industrial structure</b>- outline the importance of <u>primary</u>, <u>secondary</u> and <u>tertiary</u> industries (both employment and contribution to GDP) and how this has <u>changed over time</u>.</p>	<p><b>How can manufacturing stimulate economic development in the LIC/NEE?</b></p>
<p><b>TNCs</b>- what is their role in the country's industrial development?</p>	<p><b>TNC's</b>- advantages and disadvantages for the LIC/NEE?</p>

<p><b>Describe how the country's relationships with the wider world are changing...</b> (trade and political relationships)</p>	<p><b>International aid</b>- what <u>types of aid</u> does the country receive? What are the <u>impacts</u> on the LIC/NEE?</p>
<p><b>Effects of economic development on the environment</b></p>	<p><b>Effects of economic development on quality of life</b> (use data e.g. from the World Bank to show changes in access to water, literacy, life expectancy etc)</p>

Key idea: Major changes in the economy of the UK have affected, and will continue to affect, employment patterns and regional growth.

17. Prior to **de-industrialisation** in the UK, what were the UK's main industries?

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18. Explain why the UK experienced de-industrialisation.

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19. Study the table 'UK employment structure over time'. Outline how **globalisation** has contributed to the changes shown.

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UK EMPLOYMENT STRUCTURE OVER TIME			
Year	Primary	Secondary	Tertiary
1800	75%	15%	10%
1900	15%	55%	30%
2000	2%	28%	70%

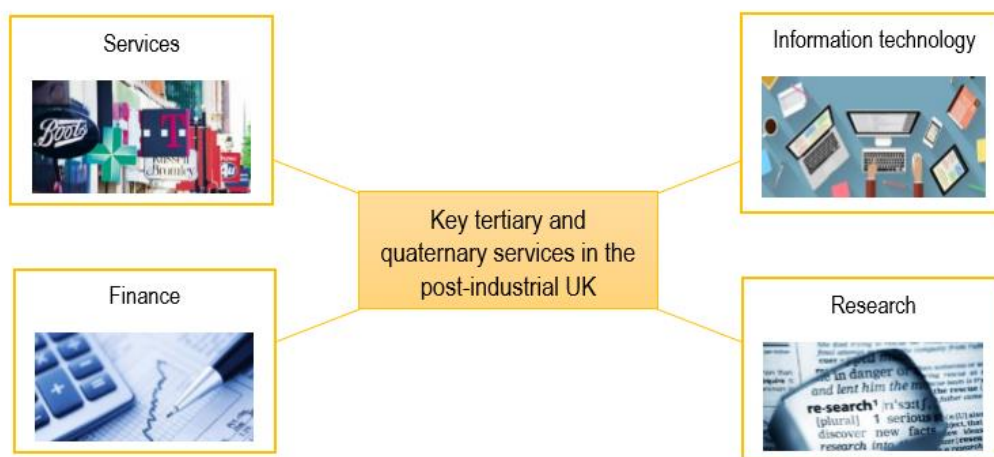
20. What does 'post-industrial economy' mean?

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21. **Services, information technology, finance and research** are all key sectors in post-industrial UK. For each sector, annotate each box in the model below, e.g. employment statistics, % contribution to GDP or GNI, government policies to promote the sector, where they are located within the UK, etc.



22. Give **two** reasons why the number of science and business parks in the UK has grown in recent decades.

Reason 1: \_\_\_\_\_

\_\_\_\_\_

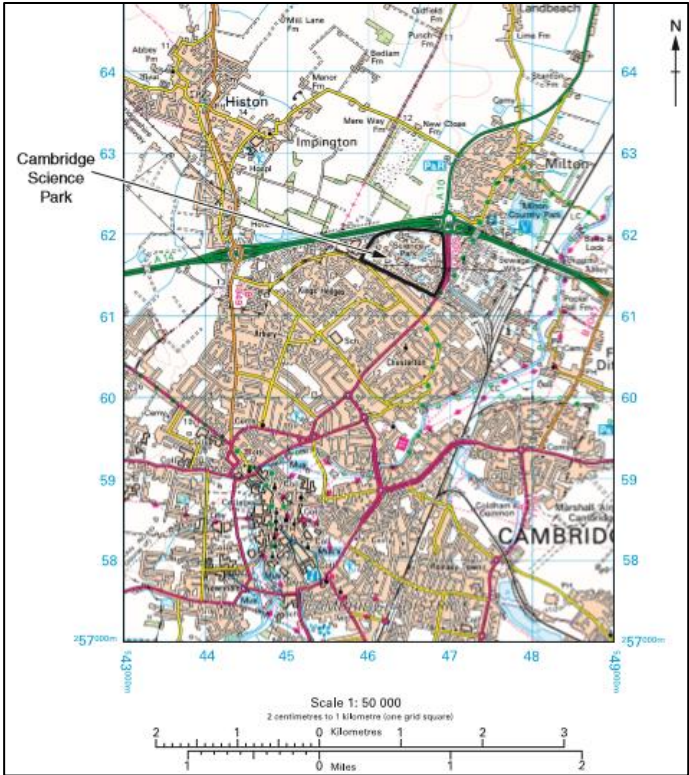
Reason 2: \_\_\_\_\_

\_\_\_\_\_

Study the **OS map extract** showing the location of Cambridge Science Park (on the following page).

23. Give the four-figure grid reference where the science park is located. \_\_\_\_\_

24. Suggest why this is a desirable location for a science park.




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The specification says that you need to use *'an example of how modern industrial development can be more environmentally sustainable'*.



25. Complete the template below to revise how modern industrial development can be more environmentally sustainable.

<b>AN EXAMPLE OF HOW MODERN INDUSTRIAL DEVELOPMENT CAN BE MORE ENVIRONMENTALLY SUSTAINABLE</b> <b>My example:</b> _____	
<b>Description of the industry</b> (What is produced? How is it produced? Why is it important to the area in which it is produced, and to the UK?)	<b>Location-</b> show the location of the industry. Label relevant nearby settlement/s or environmental features. <div style="text-align: right; margin-top: 10px;">  </div>
<b>How is this example of modern industry striving to be more sustainable?</b>	<b>Assess how sustainable this example of modern industrial development is.</b>

**EXAM-STYLE QUESTIONS**

Study **Figure 3**, showing population change in two rural parts of the UK, and **Figure 4**, showing the locations and other features of these counties.

26. Using Figure 3, calculate the percentage population change for Argyle and Bute and North Somerset between 2001 and 2011.

North Somerset: \_\_\_\_\_

Argyle and Bute: \_\_\_\_\_

27. Suggest **one** possible reason for the population change in each area.

North Somerset: \_\_\_\_\_

\_\_\_\_\_

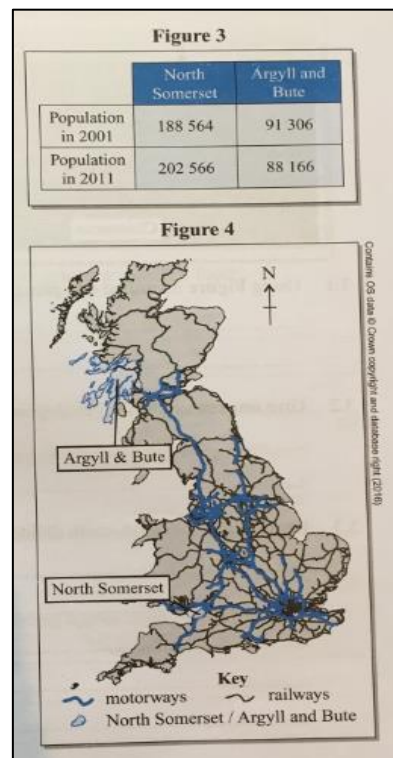
\_\_\_\_\_

\_\_\_\_\_

Argyle and Bute: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



28. Explain how improving and developing new infrastructure (e.g. road, rail, port and airport) can help areas suffering from population decline to address this problem.

\_\_\_\_\_

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\_\_\_\_\_

29. Suggest why many young people may choose to move away from rural areas such as Argyle and Bute.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

'North-south divide' refers to the fact that the north and south have been affected by industrial change differently (with the north hit harder by de-industrialisation and the south benefiting more from growing tertiary and quaternary industries) and the fact that in general, social and economic indicators tend to be better in the south.

The map below shows you the areas generally considered to be '**the north**' (the north of England and most of Wales, all of Northern Ireland and Scotland) and '**the south**' (densely populated southern England, including the capital city of London).

30. Annotate the map with **social and economic indicators** and **other relevant details** for different parts of the 'north' and the 'south' (life expectancies, years of education, wages, locations of declining/closed industries (e.g. coal) and growing industries (e.g. finance), areas where most foreign investment occurs, etc).



**Command words, p.7**

31. Using evidence, **discuss** the claim that a 'north-south divide' exists in the UK.

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32. Explain how creating **enterprise zones** can help to reduce the north-south divide.

**Tip:** You should also revise how devolving powers and the 'Northern Powerhouse' attempt to resolve regional differences.

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## Section C: The challenge of resource management

- In this section, you **MUST** study **Resource management**
- You will also study one of either **Food OR Water OR Energy**
- **Which optional topic do I study?** \_\_\_\_\_
- Go down and put a line through the topics that you do NOT study!

### Resource management

Key idea: Food, water and energy are fundamental to human development.

1. Explain why access to safe and reliable water is necessary for people to enjoy a decent standard of living.

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2. Create flow charts to show the **social** and **economic** benefits of access to nutritious food.

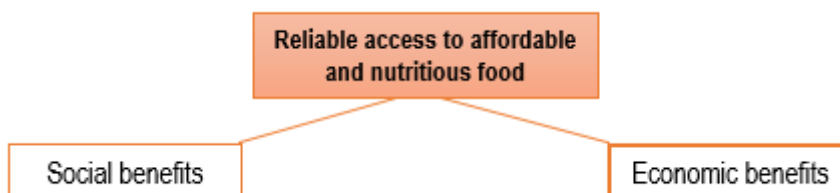
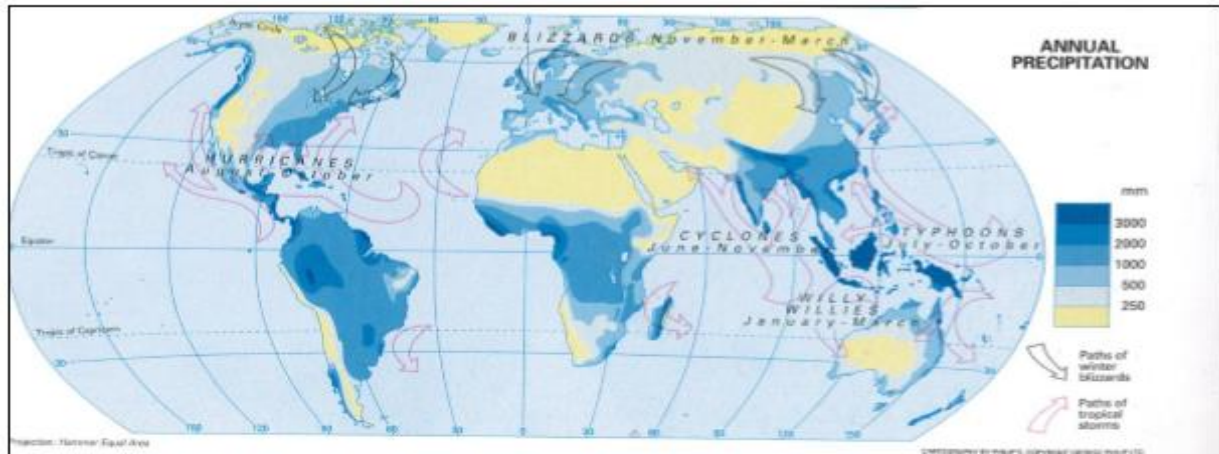
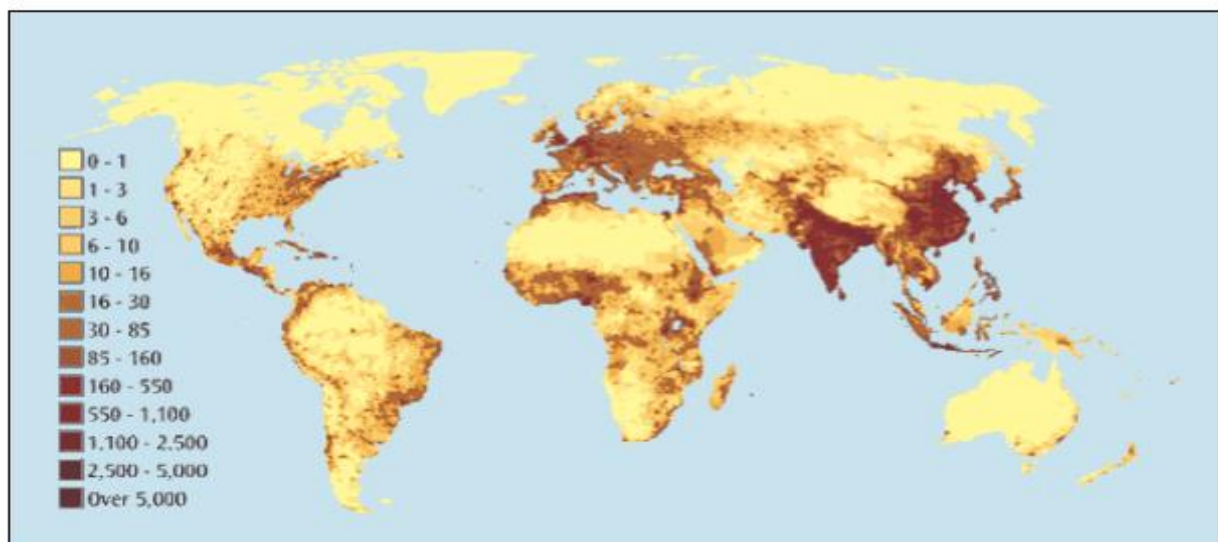




Figure A: Average annual precipitation across the world

Figure B: Estimated population per kilometre<sup>2</sup> 2015

5. Using the vocabulary provided, complete the paragraph on **resource demand and consumption**. **Vocabulary:** *unsuitable, buy, electricity, import, NEEs, Venezuela, food, wealth, long-term, standard, greater, desalination, expensive, availability, barrels, none, dry, extract, technological, manufacturing, wind, exported, reserves, cars, USA, fuel, afford.*

The global distribution of resources such as water, energy and \_\_\_\_\_ is very uneven. Some countries don't have their own natural energy \_\_\_\_\_, while others have enormous reserves. For example, \_\_\_\_\_ has an estimated 297 billion \_\_\_\_\_ of oil while the USA has 36 billion and some countries have \_\_\_\_\_.

Some countries have large food supplies, while other have \_\_\_\_\_ climates or environments that are \_\_\_\_\_ for food production. To access more resources, some countries have to \_\_\_\_\_ them or find \_\_\_\_\_ solutions to produce more. For example, some countries invest in \_\_\_\_\_ farms to harness renewable energy, while others pay for \_\_\_\_\_ plants (e.g. Spain), while others import oil (e.g. \_\_\_\_\_). Importing resources is very \_\_\_\_\_. Investing in renewable technologies is also expensive, but can provide a \_\_\_\_\_ solution. Consequently, consumption of resources is dependent on a country's level of \_\_\_\_\_, as well as resource \_\_\_\_\_. It is little surprise that resource consumption is \_\_\_\_\_ in HICs, because they can afford to \_\_\_\_\_ resources. Also, people in HICs are used to a certain \_\_\_\_\_ of living, for example in the UK people expect to have \_\_\_\_\_ in their homes and \_\_\_\_\_ to drive their cars. Consumption is increasing rapidly in \_\_\_\_\_. In China, there are approximately 300 million \_\_\_\_\_ on the roads and this is rapidly increasing as wealth rises. In NEEs industries such as \_\_\_\_\_ are expanding and this requires a lot of energy. In general, as wealth increases in NEEs, people can \_\_\_\_\_ to buy more food and water, which increases consumption. Resource consumption is lower in LICs for various reasons: they may not be able to afford to \_\_\_\_\_ their existing resources, or they may have to buy expensive imports which they can't afford, or foreign companies may own their natural resources so they are \_\_\_\_\_ out of the country.

Key idea: The changing demand and provision of resources in the UK create opportunities and challenges.

6. **EXAM-STYLE QUESTION:** Suggest and explain two reasons why demand for high-value foods such as exotic fruits and vegetables has increased in the UK in recent decades.

Reason 1: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Reason 2: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Study **Figure C**, showing distances travelled by a range of food imports to the UK.

7. Using **Figure C** and your own knowledge, explain why the carbon footprint associated with UK food consumption is increasing.

\_\_\_\_\_

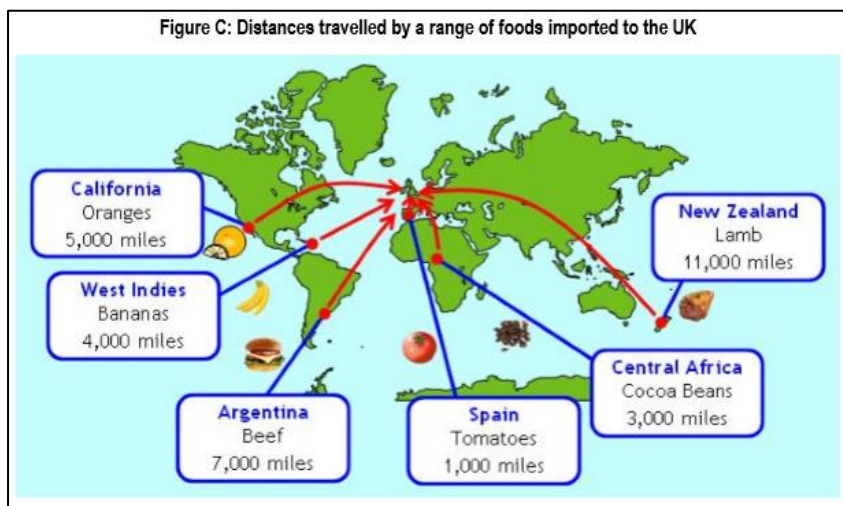
\_\_\_\_\_

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\_\_\_\_\_

8. A variety of strategies exist to reduce food miles. Create a brainstorm to briefly explain a range of these strategies.

Strategies to reduce food miles in the UK

9. Outline **one** change in UK farming practices since the 1960's.

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10. Annotate **Figures D** and **E** below with the following information:

- Places with **high annual rainfall**
- Places with **low annual rainfall**
- Places with **dense populations**
- Places with **scarce populations**

Figure D: UK population density

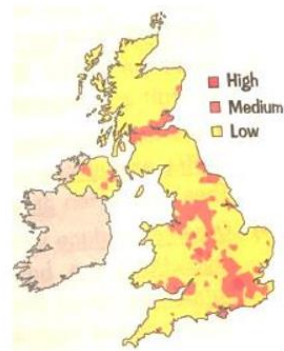


Figure E: UK average annual rainfall



11. Using **Figures D** and **E** and your own knowledge, explain why water may need to be transported from some parts of the UK to other parts.

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12. Using **Figures D** and **E** and your annotations, **circle the correct fact** in each sentence below.

- The UK's population is predicted to increase by 1 million / 10 million / 100 million by 2040
- Most new homes will be built in the north-east / north-west / south-east
- Wales, northern Scotland and south-west England have dense populations / sparse populations
- London, Manchester and Glasgow have dense populations / sparse populations
- The north of England and all of Scotland tends to have a water surplus / water deficit
- The south-east of England and the east of Northern Ireland tend to have a water surplus / water deficit
- Areas that are likely to suffer water deficits are those with dense populations and low rainfall / those with sparse populations and high rainfall

13. Transferring water from areas of surplus to areas of deficit has a range of impacts. Annotate the pictures of the dam and aqueduct below with issues or conflicts that can arise over water transfer (e.g. economic, social, environmental, political).

Two major modes of water transfer in the UK

Dams



Craig Goch dam, Wales

Aqueducts



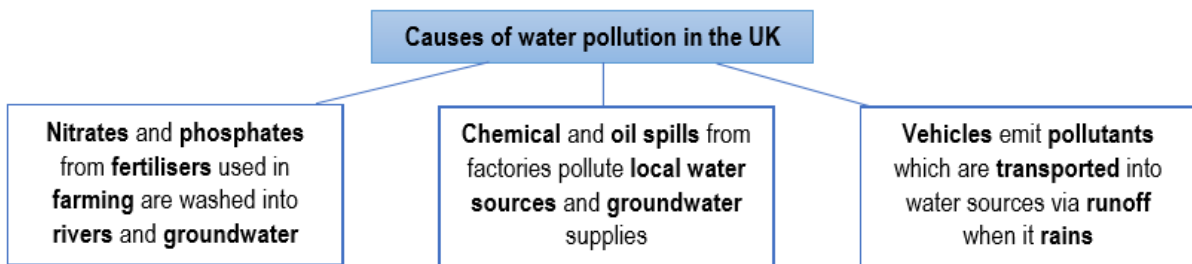
Chirk Aqueduct, England

14. Offer **two** reasons why the demand for water in the UK is increasing.

Reason 1: \_\_\_\_\_

Reason 2: \_\_\_\_\_

The model below shows some causes of water pollution in the UK. Revise them!



15. For **one** of the causes of water pollution above, outline a strategy that is used to manage the problem.

Chosen cause of water pollution: \_\_\_\_\_

Strategy: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

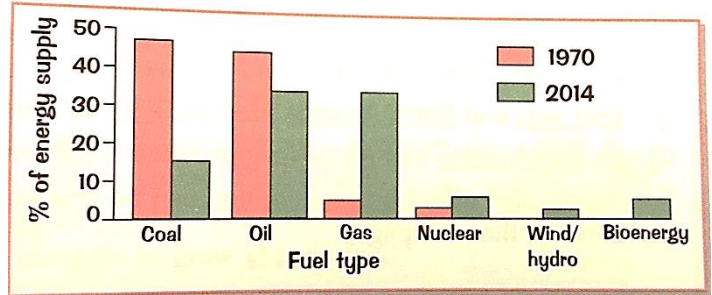
\_\_\_\_\_

\_\_\_\_\_



Study the graph to the right, which shows how the UK's energy mix has changed over time.

16. Compare the UK's 1970 and 2014 energy mixes.




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17. Describe how the UK's reliance on coal changed between 1970 and 2014.

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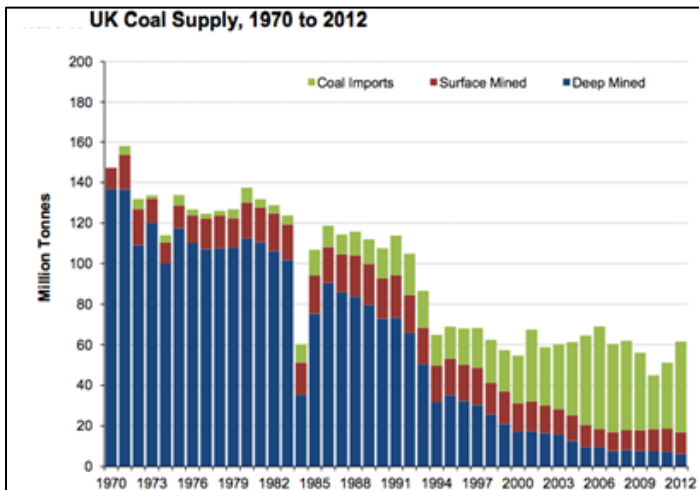
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18. Using the graph to the left, describe how the UK's reliance on imported coal has changed, and explain these changes.

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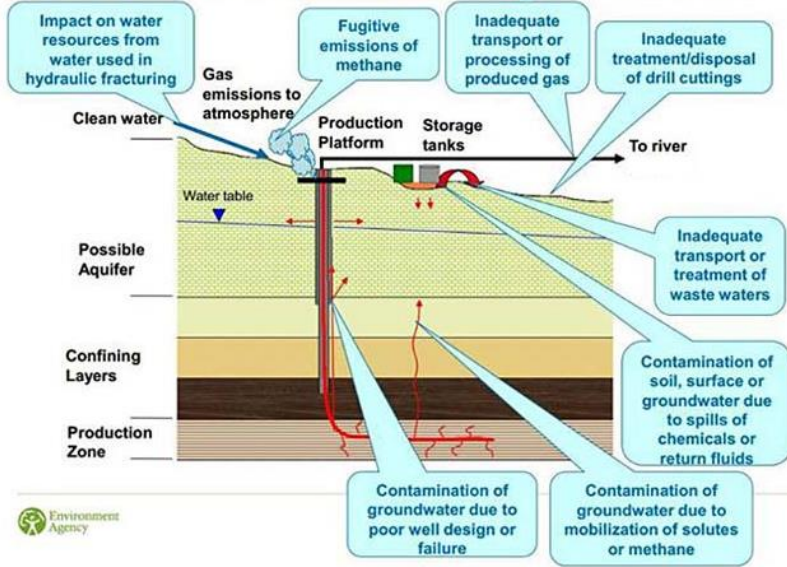
19. Which of the following statements is **true**? Shade **three** ovals only.

- f. The UK's reliance on domestic coal is increasing.
- g. The UK's reliance on gas has increased in recent decades.
- h. Renewable energies such as wind are slowly increasing in use.
- i. Nuclear energy has no environmental risks.
- j. Burning fossil fuels emits greenhouse gases.





### Environmental risks of shale gas extraction



20. Study the 'Environmental risks of shale gas extraction' diagram, created by the Environment Agency. Select two of the environmental risks from the diagram, and explain how each could affect the environment. An example has been done for you.

**Example:** *Fugitive emissions of methane* are likely to affect the environment because methane is easily trapped in the atmosphere, trapping the sun's radiation and contributing to rising temperatures. This can affect fragile species that require cold climates to survive and upset food chains as certain species thrive whilst others die out.

a. \_\_\_\_\_ is likely to affect the environment because...

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b. \_\_\_\_\_ is likely to affect the environment because...

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21. Economic issues result from the exploitation of both renewable and non-renewable energy sources in the UK. Beneath the model below, note down some of the issues/problems/conflicts that occur. (You can mention social/ environmental/ political impacts as long as they relate to economic issues.)



**Food**

Key idea: Demand for food resources is rising globally but supply can be insecure, which may lead to conflict.

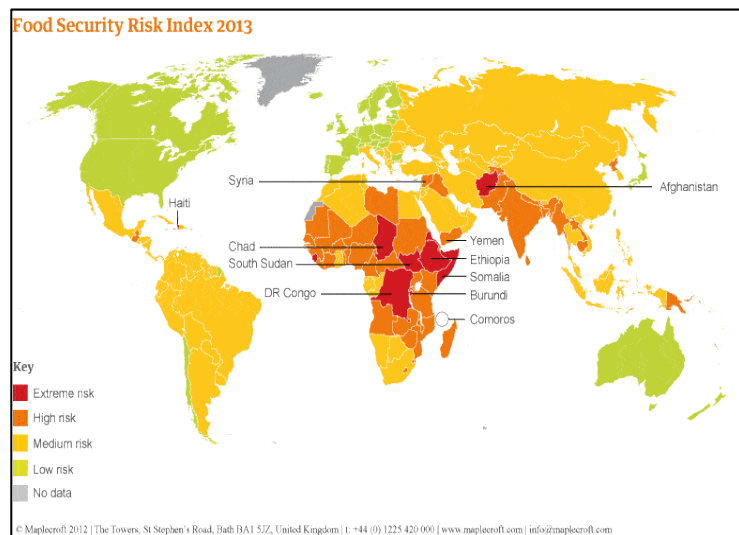
22. Define 'food security'.

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Study the Food Security Risk Index 2013.



23. Describe the global distribution of places with medium risk of food insecurity.

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24. List three countries with low risk of food insecurity.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

25. Using the map, complete the following sentences:

The continent with the highest number of countries with extreme risk of food insecurity is .....

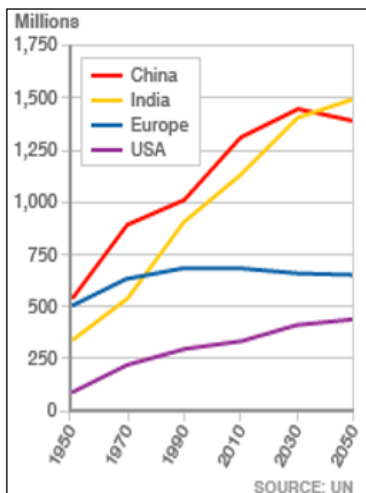
A country in the Middle East with extreme risk of food insecurity is .....

Syria, India and Madagascar have a ..... risk of food insecurity.

26. Complete the paragraph below on **food production and consumption**, using the vocabulary provided. **Vocabulary:** Africa, varies, wealth, calorie intake, import, Less, primary, available, USA, eat, income.

The amount of food that countries produce \_\_\_\_\_ dramatically. East Asia and the \_\_\_\_\_ produce a lot of food, while Central America and \_\_\_\_\_ only produce small amounts. (This may seem surprising considering that you have already learnt that LICs tend to rely on the exporting of \_\_\_\_\_ goods to make money- this indicates how small their economies are!) The amount of food people \_\_\_\_\_ also varies across the world. HICs such as the USA and UK can afford to \_\_\_\_\_ lots of food and most people have a high enough \_\_\_\_\_ to purchase lots of food. \_\_\_\_\_ developed areas such as central Africa cannot afford to import lots of food and less food is \_\_\_\_\_. People in NEEs consume less than those in HICs, but consumption in NEEs is growing rapidly as \_\_\_\_\_ increases. You can see why \_\_\_\_\_ is a useful development indicator!

Figure A: Population growth and projections



27. Describe the trends shown in Figure A.

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28. Using Figure A and Figure B and your own knowledge, suggest why global food consumption is rapidly increasing.

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Figure B: Average yearly income (WB data)

Country	1960	2016
China	\$89	\$8123
India	\$81	\$1709
USA	\$3007	\$57467

29. A number of **factors** affect food supply, and we can categorise these as **physical** or **human**. Complete the tables below to help you revise these factors. Some examples have been done for you.

PHYSICAL FACTORS AFFECTING FOOD SUPPLY		
	Explanation of how it affects food supply	Example
<b>Climate</b>		
<b>Water stress</b>	<ul style="list-style-type: none"> <li>Water is necessary for <b>crops</b> and <b>livestock</b> to survive. Areas with low <b>rainfall</b> or with limited <b>groundwater</b> availability for <b>irrigation</b> struggle to grow enough food.</li> <li><b>Climate change</b> is increasing the degree of water stress in many places, as <b>temperatures</b> rise and <b>rainfall</b> becomes more <b>unreliable</b>.</li> </ul>	The <b>Sahel</b> region in northern Africa receives <b>low annual rainfall</b> and the ' <b>wet season</b> ' is short and unreliable. In <b>35 of the last 40 years</b> , rainfall in the Sahel has been below the level previously considered normal.
<b>Pests and diseases</b>		

HUMAN FACTORS AFFECTING FOOD SUPPLY		
	Explanation of how it affects food supply	Example
<b>Poverty</b>		
<b>Technology</b>		
<b>Conflict</b>	<ul style="list-style-type: none"> <li>Fighting can ruin <b>agricultural land</b> and <b>crops</b> or kill <b>livestock</b>. In some cases, the land is ruined for decades.</li> <li>When people are forced to <b>flee</b> it is difficult to ensure <b>food supply</b>.</li> <li>Conflict disrupts <b>trade routes</b> which reduces or stops <b>access</b> to food. Conflict also prevents people <b>working</b> which reduces <b>income</b> and thus their capacity to <b>purchase</b> food.</li> <li>In some cases, <b>withholding food</b> is used as a <b>weapon of war</b>.</li> </ul>	In <b>Cambodia</b> and <b>Bosnia</b> landmines made large areas of land too <b>unsafe</b> to use, even decades after the wars ended. Right now (2017) in <b>Somalia</b> , food aid to <b>drought</b> -prone areas is being withheld by <b>al-Shabaab</b> as a way to control the population, so <b>famine</b> is widespread.

30. **EXAM-STYLE QUESTION:** Describe the problems that a country may experience as a result of food insecurity. (6)

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31. Practising your **evaluation** skills... **Think:** of the problems you've mentioned above, which are most difficult to overcome? Why do you think this? Is this the case in both LICs and HICs? Make dot point notes to summarise your thoughts below.

- Most difficult: \_\_\_\_\_
- This is because: \_\_\_\_\_
- It is similar/different for HIC and LICs because: \_\_\_\_\_

Key idea: Different strategies can be used to increase food supply

32. Select **two** of the strategies below, and **explain** how each can be used to increase food supply.

**Strategies:** *irrigation, aeroponics and hydroponics, the new green revolution, biotechnology, appropriate technology*

Strategy 1: \_\_\_\_\_

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Strategy 2: \_\_\_\_\_

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The specification says that you need to use '*an example of a large scale agricultural development to show how it has both advantages and disadvantages*'.

Example alert!

33. Complete the template below to help you revise your example of a large scale agricultural development.

<b>AN EXAMPLE OF A LARGE SCALE AGRICULTURAL DEVELOPMENT</b> <b>My example:</b> _____	
<b>A map to show the location</b> of your chosen large scale agricultural development.	<b>Background information</b> (What is produced? Provide details e.g. size of the development, amount of produce, etc.)
<b>Advantages</b> (social/economic/environmental, statistics, stakeholder views, etc.)	<b>Disadvantages</b> (social/economic/environmental, statistics, stakeholder views, etc.)

You've already looked at the idea of **sustainability**, and now you need to apply it to the challenges of **providing enough food to rising populations**.

**Remember:** *sustainability* refers to solving an immediate problem, without damaging the environment, costing too much, or ruining chances of future generations.

One of the **problems** with **industrial agriculture** is that it uses **unsustainable** amounts of **water** (70% of the world's freshwater supply). Another problem is that it uses **pesticides** and **fertilisers**, which are **toxic chemicals** that contaminate **soil** and **water**, and can change **food chains** (e.g. via **eutrophication**, which occurs when fertilisers make their way to rivers and cause greater growth of algae and other plants. These plants absorb a lot of the water's **oxygen** which causes **fish** and other species to **die** off). Thankfully, there are more sustainable ways to **grow** and **consume** food!

34. Write a paragraph to describe and explain each of the three types of **low impact farming** listed below, using the questions provided as a guide.

Organic Farming:

- a. What sorts of natural processes are used in organic farming in order to cause less environmental damage?
- b. Are herbicides, pesticides and vaccinations used? Why/why not?
- c. Why do many organic farmers sell their goods close to where they are produced?




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Permaculture:

- d. What is permaculture?
- e. According to permaculture principles, should people grow their own food or buy it? Why?
- f. According to permaculture principles, should people attempt to eat more or fewer animal products? Why?




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Urban farming initiatives:



- g. What sorts of urban spaces are used for urban farming initiatives?
- h. How does urban farming reduce food miles?
- i. How does urban farming make cities more attractive?

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35. Write paragraphs to describe and explain how **eating seasonally** and **reducing waste** can help us move towards a more sustainable resource future, using the questions provided as a guide.

Fish and meat from sustainable sources:

- a. How can fishing quotas help to protect the environment?
- b. How can consumers be helped to make informed decisions about purchasing sustainably farmed fish?
- c. Why is a more sustainable approach to farming meat needed? How can meat farming practices become less harmful to the environment?




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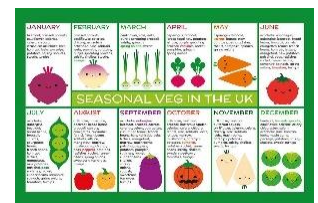
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Seasonal food consumption:

- d. What does 'seasonal food consumption' involve?
- e. How is purchasing out-of-season foods harmful to the environment?
- f. What does 'food miles' mean, and how are food miles reduced by seasonal food consumption?




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Reduced waste and losses:

- g. How much of the food that is produced is wasted or lost?
- h. Why is food waste an environmental problem?
- i. What sorts of schemes exist to educate people about food waste?

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The specification says that you need to use '**an example of a local scheme in an LIC or NEE to increase sustainable supplies of food**'.



36. To revise your example, complete the template below.

<p><b>AN EXAMPLE OF A LOCAL SCHEME IN AN LIC OR NEE TO INCREASE SUSTAINABLE SUPPLIES OF FOOD</b></p> <p>My example: _____</p>	
<p><b>Location</b> (identify the country on the world map. Also, say where the scheme operates <i>within</i> that country)</p>	<p><b>Describe</b> what the scheme involves</p>
<p><b>Say how it helps to increase sustainable supplies of food</b> (most important part!)</p>	<p>Are there any <b>problems</b> with the scheme?</p>





**Water**

Key idea: Demand for water resources is rising globally but supply can be insecure, which may lead to conflict.

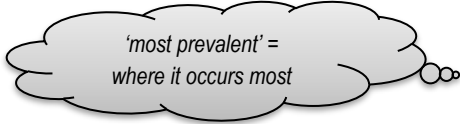
11. Define 'water insecurity'.

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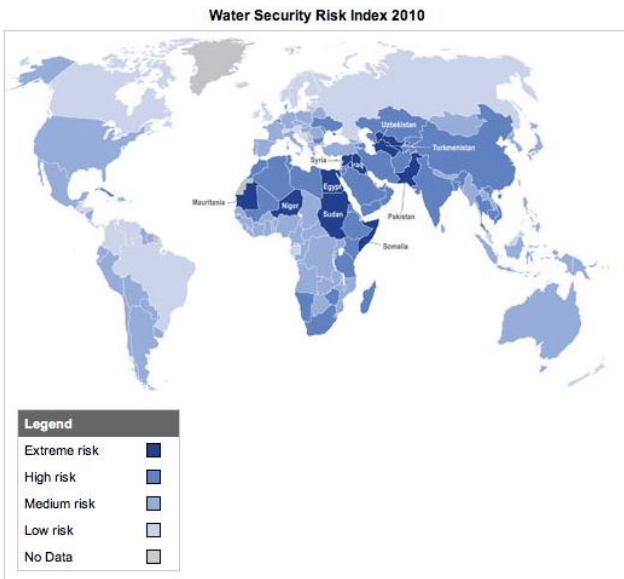


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Study the Food Security Risk Index 2013.



12. **Describe** where risk of water insecurity is most prevalent.




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13. List three countries with **low** risk of water insecurity.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

14. Using the map, complete the following sentences:

The two regions with the highest risk of water insecurity are ..... and .....

Two NEEs with a high risk of water insecurity are ..... and .....

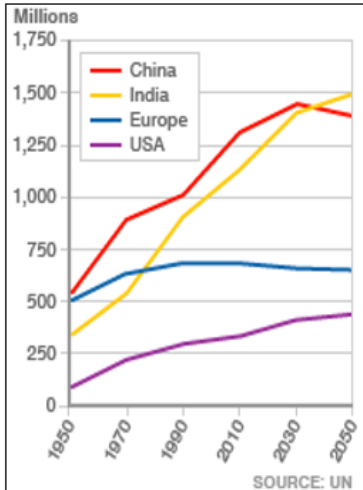
India, China and South Arica have a ..... risk of water insecurity.

15. Complete the paragraph below on **global patterns of water security and insecurity**, using the vocabulary provided.

**Vocabulary:** wages, consume, physical, high, pipes, dense, human/economic, unreliable, access, increase, indirectly, large, low, industrial, directly.

Places with \_\_\_\_\_ levels of rainfall and \_\_\_\_\_ population densities tend to enjoy water security (e.g. Canada, Brazil and Russia). Places with low or \_\_\_\_\_ rainfall and/or \_\_\_\_\_ populations often suffer from water insecurity (e.g. Saudi Arabia, Spain and Mexico). The amount of water people \_\_\_\_\_ also varies across the world. In HICs such as the USA and UK, people consume \_\_\_\_\_ amounts of water. They do this \_\_\_\_\_ (e.g. showering and washing machines) and \_\_\_\_\_ (e.g. via the purchase of water-intensive goods such as clothing and food imports). HIC governments may also be able to afford expensive infrastructure projects (e.g. irrigation) which increases \_\_\_\_\_ and consumption. In LICs such as Ethiopia and Haiti, \_\_\_\_\_ are lower which reduces people's capacity to purchase water, while governments are less able to implement infrastructure such as sanitation and cross-country water \_\_\_\_\_, which reduces availability and thus consumption. In NEEs such as India and China, water use is increasing as \_\_\_\_\_ use rises, and as wages \_\_\_\_\_ and people's changing lifestyles result in greater consumption. Clearly then, water security and insecurity occur due to a combination of \_\_\_\_\_ and \_\_\_\_\_ factors.

Figure A: Population growth and projections



16. Describe the trends shown in Figure A.

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17. Using Figure A and Figure B and your own knowledge, suggest why global water consumption is rapidly increasing.

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Figure B: Average yearly income (WB data)

Country	1960	2016
China	\$89	\$8123
India	\$81	\$1709
USA	\$3007	\$57467

18. A number of **factors** affect water supply, and we can categorise these as **physical** or **human**. Complete the tables below to help you revise these factors. Some examples have been done for you.

PHYSICAL FACTORS AFFECTING WATER SUPPLY		
	Explanation of how it affects water supply	Example
<b>Climate</b>		
<b>Geology</b>		

HUMAN FACTORS AFFECTING WATER SUPPLY		
	Explanation of how it affects water supply	Example
<b>Pollution of supply</b>	<ul style="list-style-type: none"> <li>If water sources such as <b>rivers</b> and <b>lakes</b> are polluted, the supply of <b>safe</b> water decreases.</li> <li><b>Fracking</b> for gas can release <b>toxic chemicals</b> into underground water sources.</li> <li><b>Rapidly developing countries</b> produce a lot of <b>industrial waste</b> and this is often <b>untreated</b> and <b>dumped</b> into water sources.</li> <li><b>Air pollution</b> can affect water supply when <b>acid rain</b> occurs</li> <li>Poor <b>sanitation</b> can affect water supply as water becomes <b>contaminated</b> and unsafe to drink. Sharing water sources with <b>animals</b> is also hazardous.</li> </ul>	<ul style="list-style-type: none"> <li>Water sources in the <b>USA</b> have been contaminated by fracking (e.g. in Killdeer, North Dakota)</li> <li>Chemical and power plants, textile and food production factories have polluted <b>70%</b> of <b>China's</b> rivers and lakes.</li> <li>In <b>India</b>, the largest cause of water contamination is <b>untreated sewage</b></li> </ul>



Key idea: Different strategies can be used to increase water supply.

21. Select **two** of the strategies below, and **explain** how each can be used to increase water supply.

**Strategies: diverting supplies, increasing storage, desalination**

Strategy 1: \_\_\_\_\_

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Strategy 2: \_\_\_\_\_

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The specification says that you need to use '**an example of a large scale water transfer scheme to show how its development has both advantages and disadvantages**'.



22. Complete the template below to help you revise your example of a of a large scale water transfer scheme.

<b>AN EXAMPLE OF A LARGE SCALE WATER TRANSFER SCHEME</b> <b>My example:</b> _____	
<b>A map to show the location/s</b> of your chosen large scale water transfer scheme.	<b>Description</b> (Where does it operate (area of surplus and area of deficit; the features of the water transfer scheme, i.e. the technology)
<b>Advantages</b> (Who benefits? Economic gains? Environmental improvements? Include statistics and reference to stakeholders.)	<b>Disadvantages</b> (Who loses out? Economic issues? Environmental degradation? Include statistics and reference to stakeholders.)





The specification says that you need to use **'an example of a local scheme in an LIC or NEE to increase sustainable supplies of water'**.



24. To revise your example, complete the template below.

<b>AN EXAMPLE OF A LOCAL SCHEME IN AN LIC OR NEE TO INCREASE SUSTAINABLE SUPPLIES OF WATER</b>	
My example: _____	
<p><b>Location</b> (identify the country on the world map. Also, say where the scheme operates <i>within</i> that country)</p>	<p><b>Describe</b> what the scheme involves</p>
<p><b>Say how it helps to increase sustainable supplies of water</b> (most important part!)</p>	<p>Are there any <b>problems</b> with the scheme?</p>



**Energy**

Key idea: Demand for energy resources is rising globally but supply can be insecure, which may lead to conflict.

11. Define 'energy security'.

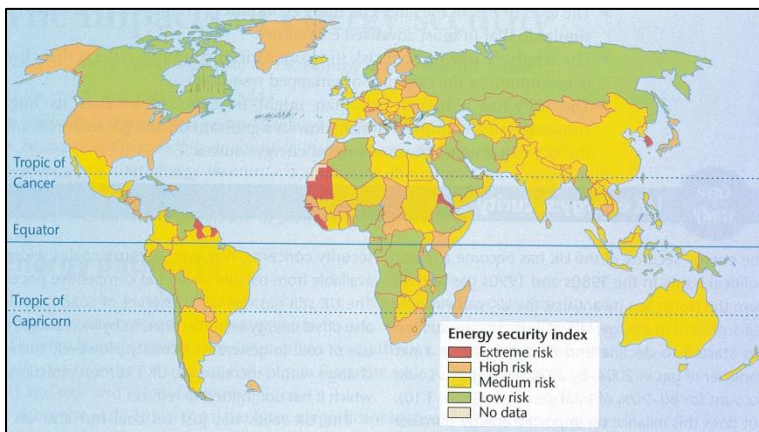
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Study the Energy Security Risk Index.

12. **Describe** the distribution of countries with a **low** risk of energy insecurity.




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17. Using **Figures A, B, C** and your own knowledge, suggest why global energy consumption is rapidly increasing.

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18. A number of **factors** affect water supply, and we can categorise these as **physical, economic, technological** and **political**. Complete the tables below to help you revise these factors. Some examples have been done for you.

<b>PHYSICAL FACTORS AFFECTING ENERGY SUPPLY</b>		
	Explanation of how it affects energy supply	Example
<b>Distribution</b>	<ul style="list-style-type: none"> <li>Fossil fuels are distributed unevenly so some countries have fewer resources than others.</li> <li>In some places, energy reserves are hard to access</li> </ul>	<ul style="list-style-type: none"> <li>USA has limited oil supply</li> <li>Antarctic oil: hard to reach</li> </ul>
<b>Some resources are non-renewable</b>		
<b>Climate and geography</b>	<ul style="list-style-type: none"> <li>Some places have greater opportunities to develop renewable energies such as solar, wind, wave, geothermal and hydroelectric power.</li> </ul>	<ul style="list-style-type: none"> <li>Australia has huge solar energy potential</li> <li>The UK and Norway have huge wind energy potential</li> </ul>
<b>Natural disasters</b>		

<b>ECONOMIC FACTORS AFFECTING ENERGY SUPPLY</b>		
	Explanation of how it affects energy supply	Example
<b>Access</b>	<ul style="list-style-type: none"> <li>The world's remaining fossil fuels are increasingly difficult to reach, so extraction is becoming more expensive. This means that some places are not able to meet their energy needs, increasing energy insecurity.</li> </ul>	<ul style="list-style-type: none"> <li>The UK's remaining coal is no longer cost-effective to extract as it is too deep</li> </ul>
<b>Volatile prices</b>		
<b>Infrastructure</b>		

TECHNOLOGICAL FACTORS AFFECTING ENERGY SUPPLY		
	Explanation of how it affects energy supply	Example
<b>Unavailable or expensive technology</b>		

POLITICAL FACTORS AFFECTING ENERGY SUPPLY		
	Explanation of how it affects energy supply	Example
<b>Wars and instability</b>		
<b>International agreements</b>	<ul style="list-style-type: none"> <li>International agreements designed to slow the rate of climate change set targets to reduce emissions, which means that some countries can burn fossil fuels as much as they used to.</li> </ul>	<ul style="list-style-type: none"> <li>Kyoto Protocol</li> <li>Paris Climate Agreement</li> </ul>
<b>Concerns over safety</b>		

19. **EXAM-STYLE QUESTION:** Describe the problems that a country may experience as a result of energy insecurity. (6)

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20. Practising your **evaluation** skills... **Think:** of the problems you've mentioned above, which are most difficult to overcome? Why do you think this? Is this the case in both LICs and HICs? Make dot point notes to summarise your thoughts below.

- Most difficult: \_\_\_\_\_
  - This is because: \_\_\_\_\_
  - It is similar/different for HIC and LICs because: \_\_\_\_\_
- 
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Key idea: Different strategies can be used to increase energy supply.

21. Select one **renewable energy strategy** and one **non-renewable energy strategy** below, and **explain** how each can be used to increase energy supply.

**Renewable energy strategies:** *biomass, wind, hydro, tidal, geothermal, wave, solar*

Strategy 1: \_\_\_\_\_

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**Non-renewable energy strategies:** *increasing supply of fossil fuels, increasing supply of nuclear energy*

Strategy 2: \_\_\_\_\_

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The specification says that you need to use '*an example to show how the extraction of a fossil fuel has both advantages and disadvantages*'.



22. Complete the template below to help you revise your example of the extraction of a fossil fuel

<b>AN EXAMPLE OF FOSSIL FUEL EXTRACTION</b> <b>My example:</b> _____	
<b>A brief description of the fossil fuel</b> (what it is, how it forms)	<b>How is your chosen fossil fuel extracted?</b> (diagram or explanation)
<b>Advantages</b> (Who benefits? Economic gains? Statistics and stakeholders.)	<b>Disadvantages</b> (Who loses out? Economic issues? Environmental degradation? Statistics and stakeholders.)





The specification says that you need to use '***an example of a local renewable scheme in an LIC or NEE to provide sustainable supplies of energy***'.

Example alert!

24. To revise your example, complete the template below.

<b>AN EXAMPLE OF A LOCAL RENEWABLE ENERGY SCHEME IN AN LIC OR NEE</b>	
My example: _____	
<p><b>Location</b> (identify the country on the world map. Also, say where the scheme operates <i>within</i> that country)</p>	<p><b>Describe</b> what the scheme involves</p>
<p><b>Say how it helps to increase sustainable supplies of energy</b> (most important part!)</p>	<p>Are there any <b>problems</b> with the scheme?</p>

## Paper 3- Geographical applications

### Section A: Issue Evaluation

The 'Issue Evaluation' is **Part A** of **Paper 3: Geographical Applications**.

12 weeks prior to the exam a **resource booklet** becomes available, so expect your teacher to begin discussing it in **late March**. The resource booklet contains a **range of resources** such as maps, graphs, photos, data such as development indicators, and quotes from the people involved.

It's fantastic that you receive a resource booklet, because this gives you **clues** around what you will be asked about in the exam. For example, if there is a table comparing the impacts of a natural hazard in two places, you'd expect to be asked to compare the impacts.

#### **A few hints about the Issue Evaluation:**

- It could be about **physical** or **human** geography but it is likely to involve **both aspects** in some way.
- It could be based in the **UK** or **elsewhere**.
- It could cover **any of the compulsory content** you've studied in the course, but it may also extend to **new contexts** that you haven't studied. Don't be worried about this- as long as you **study** the resource booklet and **practice** predicted questions you should feel well prepared.
- In the exam, you'll have to answer a **range of questions** about the issue, using the **resources** you've been given. You'll also answer a **longer-mark question** that requires you to make a **decision** about the issue. There is no right or wrong answer. The best answers will **justify** their decision using **evidence** from the resource booklet and **geographical knowledge** from the course.
- The key to success is presenting a **balanced argument**, and showing that you understand the **advantages** and **disadvantages** of the options. You'll need to think about the **social, economic, environmental** and **political impacts** of the options, and also about how negative impacts can be **managed**. It is very likely that your teacher will help you to **predict** what some of the options may be, and you should **practice** writing about them in lesson and your own time. Ask your teacher to look at your answers and to give you **feedback**.

Decision-making exercises are not new in Geography exams. This means that you can take a look at some of the past papers from various exam boards (e.g. visit the OCR and Edexcel websites and search for past papers) to get a sense of the kinds of resources and questions that may come up. Of course, these older papers are not set out exactly the same as yours will be, so simply use them to get a sense of the types of issues and questions that you may face. To see how Part A will be set out when you sit Paper 3, take a look at AQA's specimen paper: <http://www.aqa.org.uk/subjects/geography/gcse/geography-8035/assessment-resources>

On the following pages, you will find a practice Issue Evaluation activity. You may work in this in class or do it in your own time: it'd be a good idea to speak to your teacher about it to see whether they want to use it in lessons.

#### *A useful structure for your 9-mark decision answer*

- Say which option you are choosing
- **Outline the advantages of your chosen option** (and use some **evidence/data** from the resources!) This is the most important part of your answer.
- Briefly mention any **disadvantages** (and if possible, suggest how these could be minimised/managed)
- Briefly outline the **disadvantages** of the rejected options
- If you have time, acknowledge the **advantages** of the **rejected options**- but make this brief so that you don't argue against yourself! (You might say how these advantages are less important than the advantages of your chosen option.)
- Finish by stating why your chosen option is the **most suitable/beneficial/sustainable** choice.

Issue Evaluation – Resource Booklet

Oil and Development in Nigeria

Figure 1- Nigeria in a nutshell

Nigeria in a nutshell

With 192 million people, Nigeria is the most populated country in Africa. Its largest city – Lagos – with around ten million people is one of the fastest growing cities in the world (photo A).

Once a British colony, Nigeria gained its independence in 1960. The discovery of oil led to an oil boom in the 1970s. This should have helped Nigeria to become an African success story, but oil wealth has not reached most people. Instead, the country has suffered from years of violence and corruption. Its reputation has discouraged the foreign investment that might speed up development.

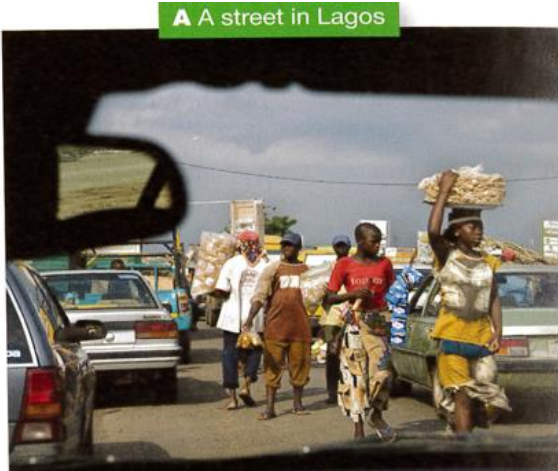
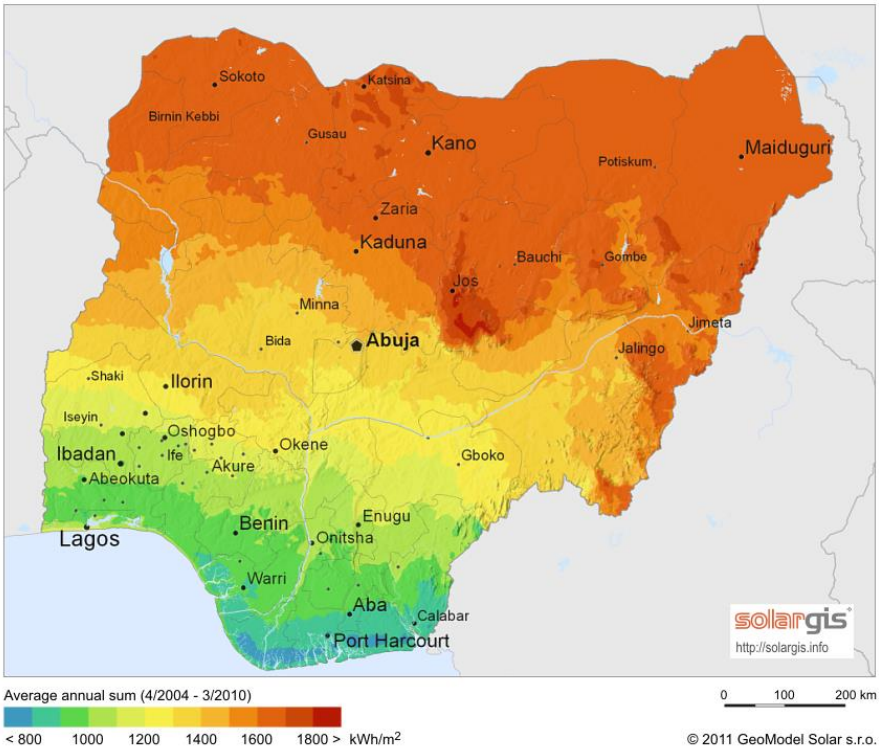


Figure 2- Demographics of Nigeria

Full name:	The Federal Republic of Nigeria
Population:	154.7 million (2009) (UK 61 million)
Capital:	Abuja
Largest city:	Lagos
Area:	923 768 km <sup>2</sup> (UK: 244 000 km <sup>2</sup> )
Major languages:	English (official), Yoruba, Ibo, Hausa
Major religions:	Islam, Christianity, indigenous beliefs
Life expectancy:	47 years (men), 48 years (women) (UK: 77 years for men, 81 years for women)
GDP per capita:	\$1160 (2008) (UK \$39 750)



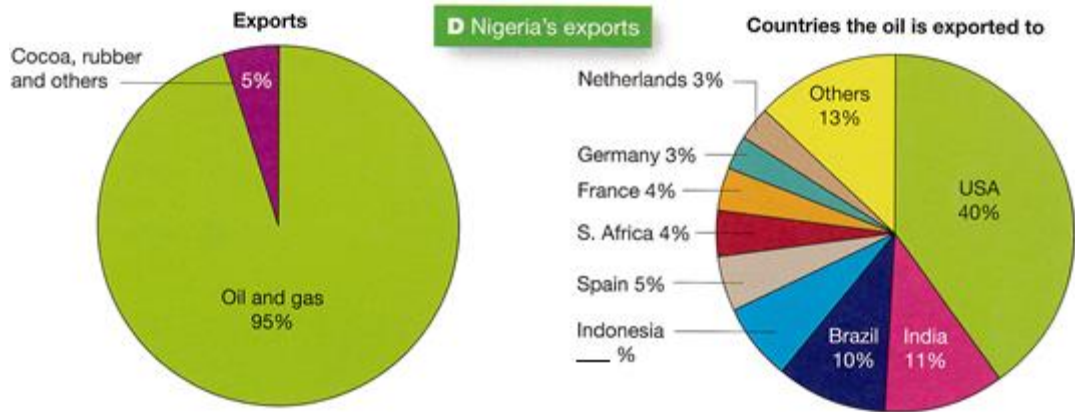
Figure 3- Average annual exposure radiation across Nigeria



to



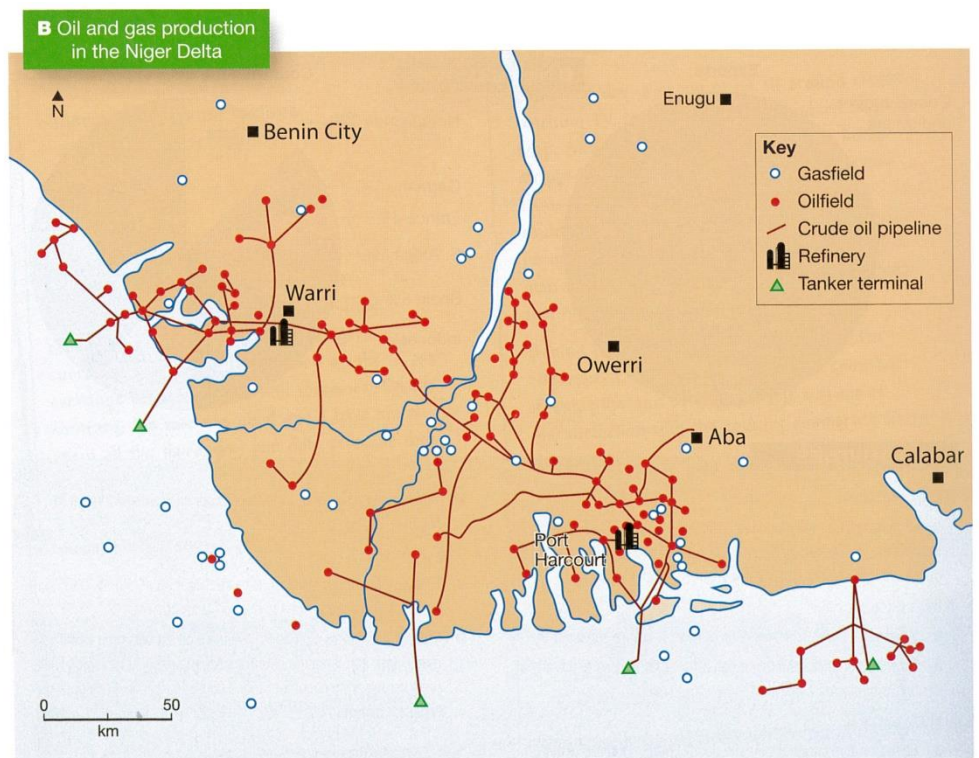
**Figure 4- Nigeria's exports**



**Figure 5- Oil and gas production in the Niger Delta**

Most of Nigeria's oil is found in the Niger Delta, the vast wetlands that surround the mouth of the River Niger where it flows into the Gulf of Guinea. The population of the region is almost 40 million, a quarter of Nigeria's total. At its heart is the fast-growing city of Port Harcourt, the oil capital of the delta.

Oil production has had a huge impact on the region. Oilfields, marked by oil drilling platforms, dot the landscape, both onshore and offshore. Linking the oilfields to the refineries and tanker terminals are a network of pipelines (map B). Most oil production is in the hands of a few transnational corporations such as Shell and ExxonMobil.



**Figure 6- Oil reserves and production in Nigeria and other nations**

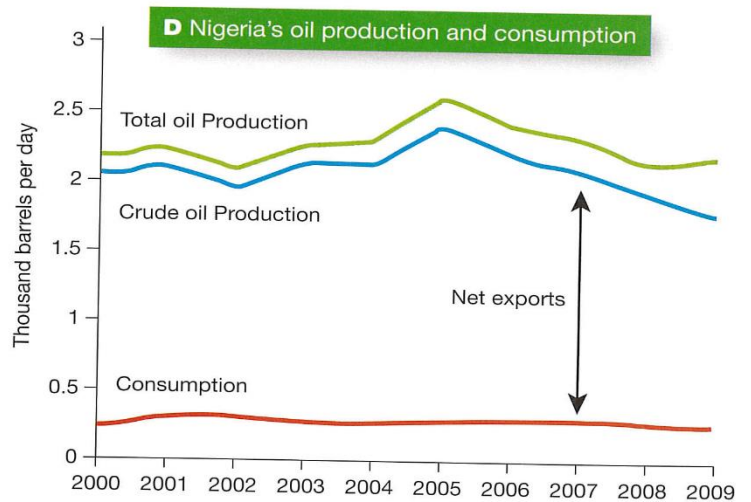
Nigeria has oil reserves estimated at 37.2 billion barrels, the tenth largest in the world. In 1971 it joined OPEC – the Organisation of Petroleum Exporting Countries (table C). Nigerian oil is one of the highest grades of oil in the world. Most of the oil it produces is exported – 40% of it to the USA. This makes it the USA's fifth largest supplier of oil.

**C Top ten OPEC countries – oil reserves and production, 2008**

Country	Reserves (billion barrels)	Production (million barrels per day)	Expected life of the reserve (years)
Saudi Arabia	267	10.2	72
Canada	179	3.3	149
Iran	138	4.0	95
Iraq	115	2.1	150
Kuwait	104	2.6	110
Venezuela	99	2.7	88
United Arab Emirates	98	2.9	93
Russia	60	9.9	17
Libya	41	1.7	66
Nigeria	37	2.4	41

**Figure 7- Nigeria's oil production and consumption**

Since 2005, oil production in Nigeria has declined (graph D). This is largely due to an increase in violence in the Niger Delta, resulting in pipeline vandalism, kidnappings and militant takeovers of oil production facilities. This, in turn, has made countries like the USA look elsewhere for their oil supplies.

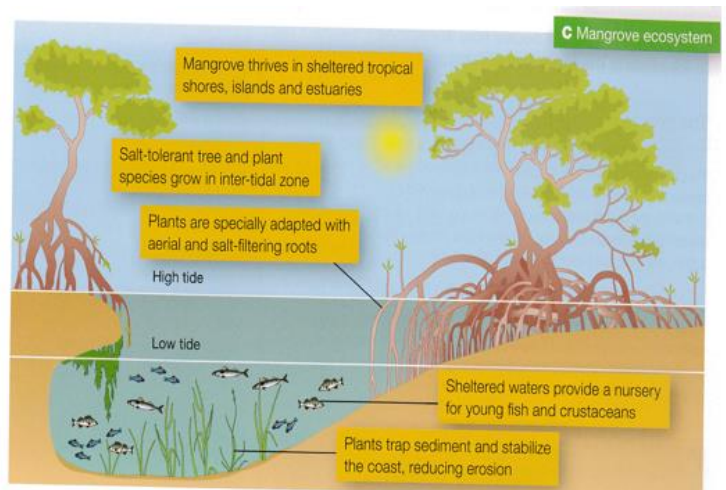


**Figure 8- Nigeria's mangrove ecosystem**

The Nigerian coast has one of the largest areas of mangrove forest in the world. Mangrove forest is a rich, diverse ecosystem, with a wide variety of land and marine species (diagram C). Mangrove forest is also valuable to local people as it provides:

- timber for building
- thatch for roofs
- fuel wood, particularly for drying fish
- safe breeding ground for young fish
- protection against storms and coastal erosion.

All of these benefits come to an end when oil pollution destroys the natural ecosystem.



**Figure 9- Environmental impacts of the oil and gas industry in the Niger Delta**

**An environmental catastrophe**

The Niger Delta is one of the world's most important wetland and coastal marine ecosystems. More than 60% of the people in the region still depend on the natural environment for their livelihood, either through farming or fishing. But, pollution from the oil industry is destroying the resource they depend on.

- Oil spills and waste damage agricultural land and reduce soil fertility. Local people claim the oil companies do not maintain their pipes or clear up the mess that is created (photo A).
- Flares burn off gas from the oil. The oil companies choose to burn the gas instead of selling it because it is cheaper. The fumes affect peoples' health and also contribute to global warming (photo B).
- Oil heated by the sun becomes highly flammable and can cause fires that burn out of control and destroy the natural vegetation or farmland.
- Oil pollution offshore and around the coast kills fish and their food sources and damages the ability of fish to reproduce.





Figure 10- Comparing social and environmental impacts of oil spills in the Niger Delta and the Gulf of Mexico

	Niger Delta 1956-2010	Gulf of Mexico 2010
Duration of spill	54 years	3 months
Location	Nigeria	USA
Volume of oil spilled	9-13 million barrels (est.)	4.9-8.7 million barrels (est.)
Number of spills	Around 7000 (some lasting for years)	One
Number of sites	Around 2400 onshore and offshore	One offshore
Oil companies involved	Shell, ExxonMobil, Total, Chevron etc	BP
Death toll	Unknown – but estimates of hundreds from pollution and oil-related violence	11 oil rig workers killed
Unemployment	Unknown – 1000's of farmers and fishermen (permanent)	12 000 shrimp workers (temporary)

Figure 11- The options

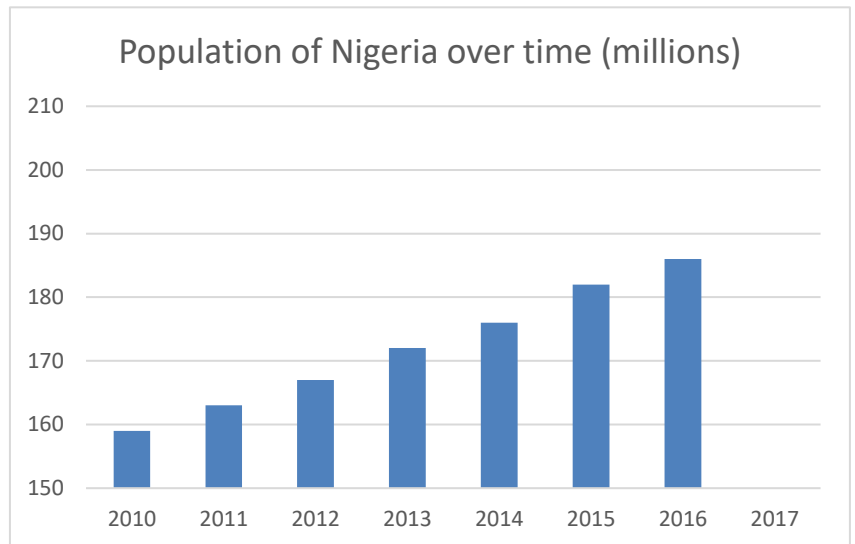
- A. Carry on drilling and hold TNCs accountable:** continue to drill for oil, and impose stricter social and environmental regulations on oil companies
- B. Reduce dependence on oil:** invest in solar energy farms so that Nigeria can begin to rely less on oil
- C. Stop producing oil:** get rid of the oil companies and leave the oil in the ground. Focus on developing farming and fishing industries across the country.



*Tip:* Study the resources above, then **predict** what sorts of questions you might be asked about them. Also have a go at predicting what the decision-making **options** will be... Finally, take a look at the questions that have been provided for you and **have a go!**

**Practice questions**

- Using **Figure 1** ('Nigeria in a nutshell'), complete the graph to show Nigeria's population in 2017. (1)



- Which country provides the largest market for Nigeria's oil? (1)

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- Using **Figure 4** ('Nigeria's exports'), calculate what percentage of Nigeria's oil is exported to Indonesia. (1)

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- Using **Figure 4** ('Nigeria's exports') and your own understanding, explain why a country whose economy relies on primary exports may find it difficult to develop. (6)

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- What is a transnational corporation? (1)

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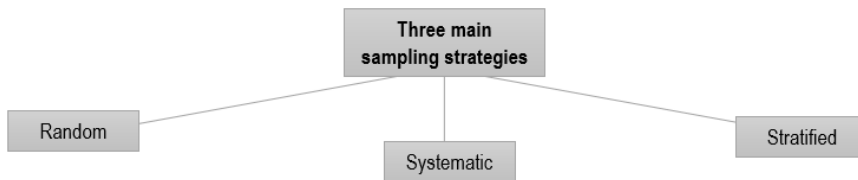
**Section B: Fieldwork**

Fieldwork is assessed in **Paper 3: Geographical Applications**. Even though you have no coursework, you do complete **two** sets of fieldwork (**one human** and **one physical**) and you need to be able to **write about these in the exam**. You may be asked about **either** your physical or human fieldwork, **or both**.

The fieldwork part of the exam is split into two parts: **familiar fieldwork contexts** and **unfamiliar fieldwork contexts**. The familiar fieldwork questions relate to **your own fieldwork**. The unfamiliar fieldwork questions relate to **unfamiliar situations**: e.g. you might need to answer questions about **data collection techniques**, or how best to **present** a set of data, or to **assess** how useful certain techniques are. Let's begin with unfamiliar fieldwork.

**Unfamiliar fieldwork**

- For each of the three main sampling strategies below, annotate the model by describing what the strategy involves and its advantages/why it is used.



Data collection methods vary between **human** and **physical** fieldwork (e.g. **pedestrian count** vs. **sediment analysis**). They also vary depending on your **area of enquiry**, e.g. for coasts you might measure **beach profile** whereas for rivers you might measure **velocity**. There are many **data collection techniques** (more than you can possibly describe here). In class and in your own time you should ensure that you understand **a variety** of data collection techniques.

- For now, select a range of human **and** physical primary data collection techniques from the selected list below (or others that your teacher mentions). **You should select different techniques to the ones you used in your physical and human physical fieldwork enquiries**. For each, say whether it is used for **human or physical fieldwork (or both)**, describe **what it is**, its **aims**, and mention any **considerations**. An example has been done for you. (The RGS website is helpful: <http://www.rgs.org/OurWork/Schools/Fieldwork+and+local+learning/Fieldwork+techniques/Fieldwork+techniques.htm> )

Selected list of primary data collection techniques: bipolar analysis, questionnaires, pedestrian flow, environmental quality survey, environmental impact survey, land use survey, diversity index, mental maps, perception analysis, (for Coasts) beach profile, infiltration rate, sediment analysis, (for Rivers) river cross sections, velocity, sediment analysis



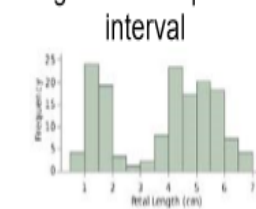



Data collection technique	Description	Aims	Considerations
Urban land use transect  (human fieldwork enquiry)	Develop a land-use classification key based on land use type (residential, industrial, etc.) Walk the transect route and gradually build up information on the base map by adding colours or codes from the key. The map can be redrawn following fieldwork to ensure that all of the land uses are clearly shown. It is useful to have base maps of the study locations, a land use classification key, pencil, clipboard, notepad or record sheets and a digital camera	To investigate land use patterns and change over time; to investigate retail and commerce and to identify any issues concerning the management of the urban area; to undertake a study of the function of a town or of different parts of a town/city, or to compare the function of different towns and cities; to investigate spatial differences in function within an urban area; to study changes in function over time (temporal studies); to investigate industrial land-use.	Mapping large areas can be time consuming and labour-intensive (group work is a good idea); a suitable sampling strategy should be devised to reduce bias in land use surveys; obtaining site maps, especially historical ones, can be difficult (and there may be a cost involved); subjectivity is inevitable when classifying land use and errors can sometimes be made in judging the age and style of buildings


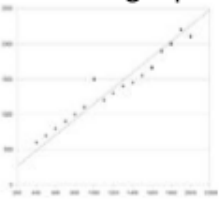


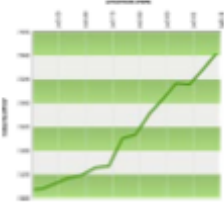
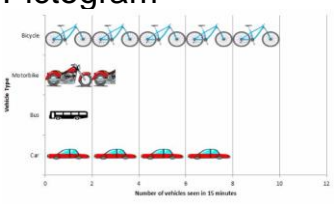
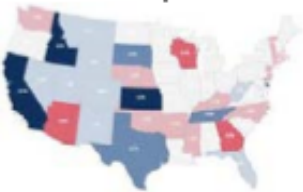
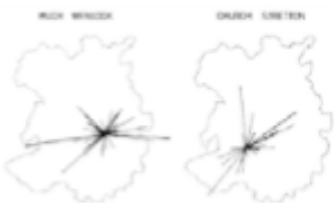




Data needs to be presented in ways that make it **easy to understand**. However, there are **different types of data**, which means that **different presentation techniques** are needed. You are likely to be questioned on data presentation in the unfamiliar fieldwork section of paper 3, so you need to know **why different data presentation methods are used**.

2. Complete the table below, describing what each presentation technique is, and explaining why it is used. An example has been done for you.

Data presentation technique	Description of technique	Why it is used (and which data type it is suitable for)
<p><b>Field sketch</b></p> 	<p><i>A diagram drawn by hand to show physical and/or human features of a place. It should complement the other FW techniques &amp; show scale and direction (compass points).</i></p>	<p><u>Data type: landscape/place image</u></p> <p><i>Used to introduce the study site/transects; to examine the human and physical features of a landscape; to examine changes over time, e.g. comparing modern-day uses to those shown by secondary photographic data; to consider the causes and consequences of changes; to make qualitative judgements about a place.</i></p>
<p><b>Bar chart</b></p> 		<p><u>(Data type: _____)</u></p>
<p><b>Histogram with equal class interval</b></p> 		<p><u>(Data type: _____)</u></p>
<p><b>Isoline</b></p> 		<p><u>(Data type: _____)</u></p>
<p><b>Proportional symbols</b></p> 		<p><u>(Data type: _____)</u></p>
<p><b>Sketch map</b></p> 		<p><u>(Data type: _____)</u></p>

<p>Pie chart</p> 		<p>(Data type: _____)</p>
<p>Scatter graph</p> 		<p>(Data type: _____)</p>
<p>Dot maps</p> 		<p>(Data type: _____)</p>
<p>Proportional Flow lines</p> 		<p>(Data type: _____)</p>
<p>Line chart</p> 		<p>(Data type: _____)</p>
<p>Pictogram</p> 		<p>(Data type: _____)</p>
<p>Choropleth</p> 		<p>(Data type: _____)</p>
<p>Desire lines</p> 		<p>(Data type: _____)</p>

## EXAM-STYLE QUESTIONS

3. Study **Figure 1**, a photograph of Stratford shopping centre in East London, and **Figure 2**, a photograph of a corrie and stream in the Lake District National Park.

Figure 1



Figure 2



- a. Suggest one question that could form the basis of a human geography enquiry in the environment shown in **Figure 1**. (1)

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- b. Outline **one** primary data collection technique that could be used in the environment shown in **Figure 1** to help answer this question. (1)

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- c. Suggest **one** possible technique to present the data collected via the technique outlined above. (1)

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- d. Suggest **one** possible risk of collecting data in the environment shown in **Figure 1**. (1)

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- e. Suggest one question that could form the basis of a physical geography enquiry in the environment shown in **Figure 2**. (1)

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- f. Outline **one** primary data collection technique that could be used in the environment shown in **Figure 2** to help answer this question. (1)

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g. Suggest **one** possible technique to present the data collected via the technique outlined above. (1)

h. Suggest **one** possible risk of collecting data in the environment shown in **Figure 2**. (1)

4. Study **Figure 3**, 'Pebble size measured at three sites'.

a. Identify the type of graph shown. (1)

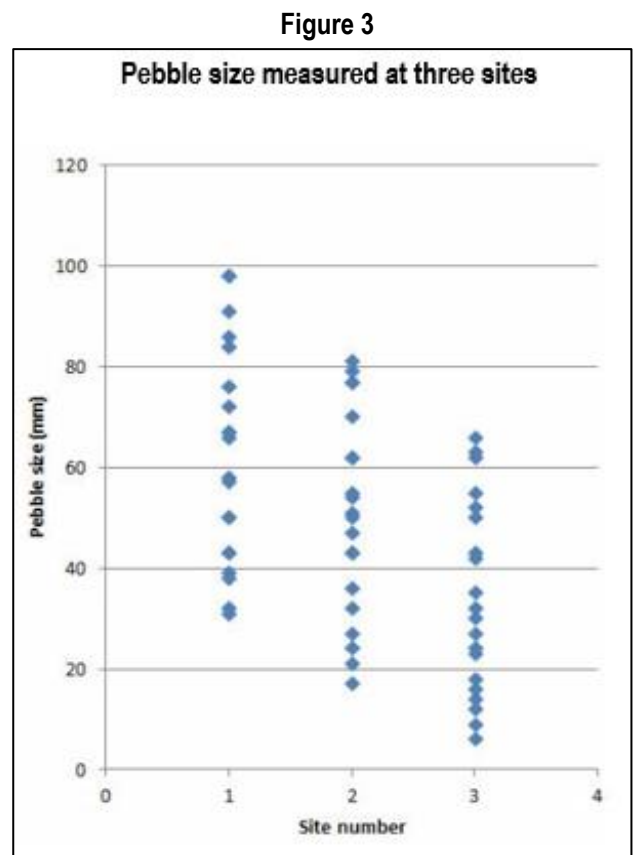
b. At which site were the greatest number of pebbles under 40mm found? (1)

c. At which site were five pebbles recorded between 20mm and 40mm in size? (1)

d. How many pebbles between 40mm and 60mm were recorded at site 3? (1)

e. Complete the graph to record three pebbles between 100mm and 120mm at Site 1. (1)

f. Describe the results shown in Figure 3. (2)



g. Identify **one** advantage of using this data presentation technique. (1)

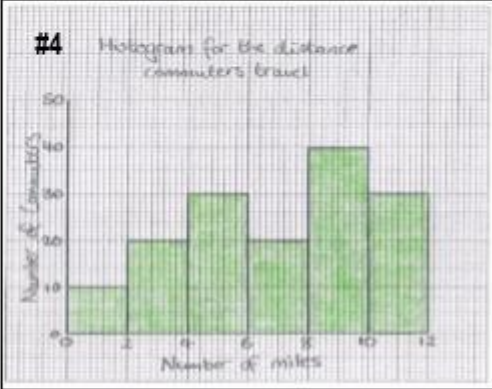
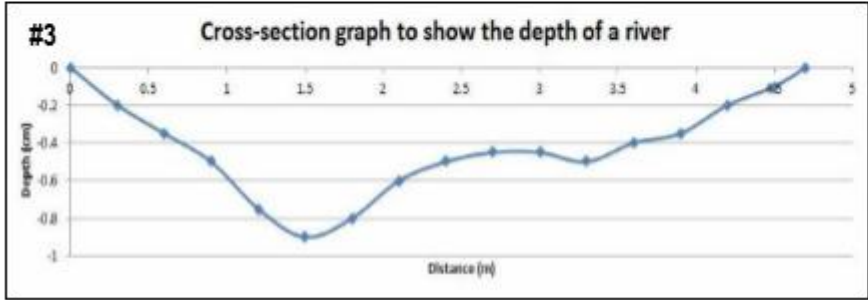
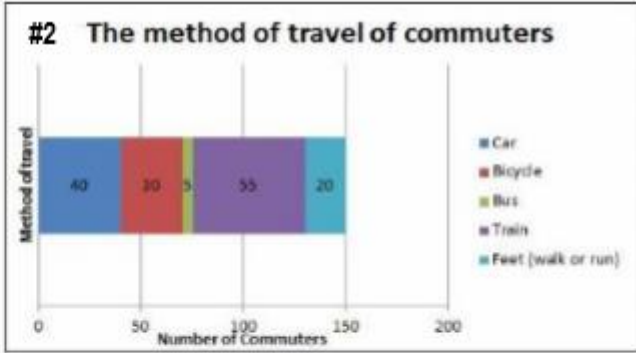
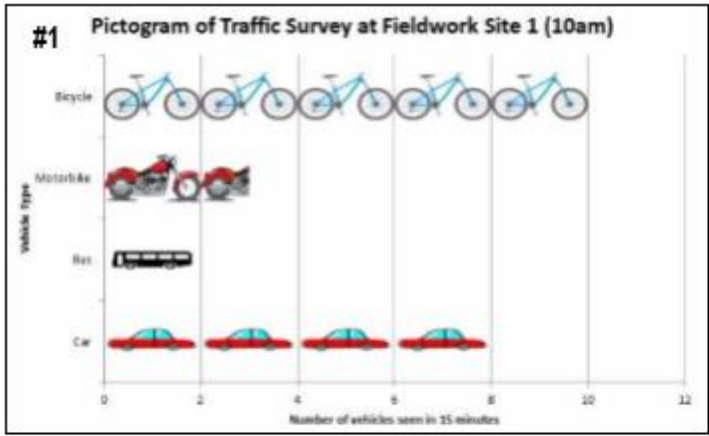
h. Suggest **one** other way in which this data could have been presented. (1)

A good way to prepare for unfamiliar fieldwork questions is to **predict** questions.

5. Predict a series of questions relating to the four graphs below. Use the **command words** and **key terms** to help you.

**Command words:** *calculate, compare, complete, describe, evaluate, identify, justify, outline, suggest*

**Key terms:** *advantage, anomaly, limitation, line of best fit, median, mean, modal class, mode, pattern, primary data collection technique, presentation, problem, range, reason, reliability, results, risk, secondary data source*



#1 \_\_\_\_\_

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#1 \_\_\_\_\_

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#2 \_\_\_\_\_

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#2 \_\_\_\_\_

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#3 \_\_\_\_\_

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#3 \_\_\_\_\_

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#4 \_\_\_\_\_

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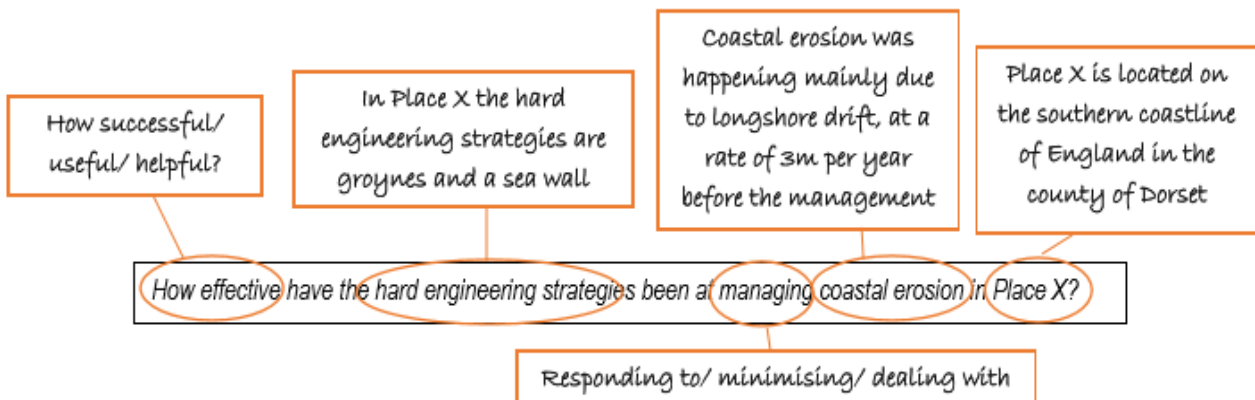
#4 \_\_\_\_\_

## Familiar fieldwork

Your fieldwork enquiries have **titles** that **you need to remember**. You will **almost certainly** be asked to write out the title of one or both of your fieldwork enquiries in the exam. Fieldwork enquiry titles look something like this:

- *How effective have the hard engineering strategies been at managing river flood risk in Guildford?* (physical fieldwork)
- *What economic benefits has the business park at Cheadle brought to the local area?* (human fieldwork)

1. Write out each of your fieldwork enquiry titles in the boxes provided, then **annotate** each one with **basic details** and **key terms** in order to help you remember them. See the example below.



My **physical** fieldwork enquiry title:

My **human** fieldwork enquiry title:

2. Complete the template below to help you revise your **physical** fieldwork enquiry and prepare for possible Paper 3 questions.

<b>PHYSICAL FIELDWORK ENQUIRY</b>		
<b>My enquiry title:</b> _____		
What is the <b>theory</b> or <b>concept</b> underpinning the fieldwork?	<b>Location:</b> include a <b>sketch map</b> showing where the fieldwork took place. Label relevant features.	<b>Justify</b> why this location/s was chosen for the fieldwork.
What <b>secondary research</b> was undertaken to support the physical fieldwork enquiry?	Which <b>risks</b> were involved? How were these <b>managed</b> ?	Which <b>sampling strategy/ies</b> was used? <b>Why</b> ?
<b>Data collection method #1:</b>	<b>Data collection method #2:</b>	
<b>Describe</b> the data collection method	<b>Describe</b> the data collection method	
<b>Justify</b> data collection method	<b>Justify</b> data collection method	
<b>How did you present the data?</b> ( <u>presentation type</u> and <u>description</u> of what it looked like/what the graph/chart is)	<b>How did you present the data?</b> ( <u>presentation type</u> and <u>description</u> of what it looked like/what the graph/chart is)	

<i>(Data collection method #1 continued)</i>	<i>(Data collection method #2 continued)</i>
<b>Why did you present the data this way?</b> (justification)	<b>Why did you present the data this way?</b> (justification)
<b>What were the results?</b> ( <u>Describe</u> , <u>analyse</u> and <u>explain</u> )	<b>What were the results?</b> ( <u>Describe</u> , <u>analyse</u> and <u>explain</u> )
Were there any <b>anomalies</b> in the results? (Can you suggest <b>reasons</b> why?)	Were there any <b>anomalies</b> in the results? (Can you suggest <b>reasons</b> why?)
Can <b>links</b> be drawn between the two sets of data?	
What <b>conclusions</b> did you draw in relation to the original aims of the enquiry?	
<b>Evaluating the enquiry:</b> What <b>problems</b> existed in the data collection methods? What were the <b>limitations</b> of the data collected? What <b>other data</b> might be useful? How <b>reliable</b> were the conclusions you made?	





4. Complete the template below to help you revise your **human** fieldwork enquiry and prepare for possible Paper 3 questions.

<b>HUMAN FIELDWORK ENQUIRY</b>		
<b>My enquiry title:</b> _____		
What is the <b>theory</b> or <b>concept</b> underpinning the fieldwork?	<b>Location:</b> include a <b>sketch map</b> showing where the fieldwork took place. Label relevant features.	<b>Justify</b> why this location/s was chosen for the fieldwork.
What <b>secondary research</b> was undertaken to support the physical fieldwork enquiry?	Which <b>risks</b> were involved? How were these <b>managed</b> ?	Which <b>sampling strategy/ies</b> was used? <b>Why</b> ?
<b>Data collection method #1:</b>	<b>Data collection method #2:</b>	
<b>Describe</b> the data collection method	<b>Describe</b> the data collection method	
<b>Justify</b> data collection method	<b>Justify</b> data collection method	
<b>How did you present the data?</b> ( <u>presentation type</u> and <u>description</u> of what it looked like/what the graph/chart is)	<b>How did you present the data?</b> ( <u>presentation type</u> and <u>description</u> of what it looked like/what the graph/chart is)	

<i>(Data collection method #1 continued)</i>	<i>(Data collection method #2 continued)</i>
<b>Why did you present the data this way?</b> (justification)	<b>Why did you present the data this way?</b> (justification)
<b>What were the results?</b> (Describe, analyse and explain)	<b>What were the results?</b> (Describe, analyse and explain)
Were there any <b>anomalies</b> in the results? (Can you suggest <b>reasons</b> why?)	Were there any <b>anomalies</b> in the results? (Can you suggest <b>reasons</b> why?)
Can <b>links</b> be drawn between the two sets of data?	
What <b>conclusions</b> did you draw in relation to the original aims of the enquiry?	
<b>Evaluating the enquiry:</b> What <b>problems</b> existed in the data collection methods? What were the <b>limitations</b> of the data collected? What <b>other data</b> might be useful? How <b>reliable</b> were the conclusions you made?	

5. Answer the following questions in relation to your **human** fieldwork enquiry.

Give the title of your enquiry that involved the collection of human geography data.

**Title of enquiry:** \_\_\_\_\_

\_\_\_\_\_

a. Identify **one** risk that you needed to manage in your fieldwork location, and describe how you managed it. (2)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. Outline **one** strength of a data presentation technique that you used. (2)

**Data presentation technique:** \_\_\_\_\_

**Strength:** \_\_\_\_\_

\_\_\_\_\_

c. Describe the patterns shown in **one** of your sets of data. (3)

**Data set:** \_\_\_\_\_

**Patterns:** \_\_\_\_\_

\_\_\_\_\_

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d. Assess the effectiveness of your data collection methods in helping you to answer your original question. (6)

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## Skills Checklist

Check off each of the skills in the table below as you acquire them. (A full list of the skills you need to be prepared for the exam is found here: <http://www.aqa.org.uk/subjects/geography/gcse/geography-8035/subject-content/geographical-skills>).

Skill	Got it?
<i>Atlas maps</i>	
Can I understand latitude and longitude on maps?	
Can I use latitude and longitude on maps? (e.g. using L and L to chart something onto a map?)	
Can I recognise (see) distributions and patterns on maps?	
Can I describe distributions and patterns on maps?	
Can I use the scale on a map? (e.g. to measure distances?)	
Can I recognise physical and human features on maps? (e.g. relief, transport networks, population movements)	
Can I link physical and human features on maps? (e.g. temperature patterns and settlement locations)	
<i>Ordnance Survey (OS) maps</i>	
Can I use OS maps at different scales?	
Can I understand and use grid references? (four and six figure)	
Can I use scale, distance and direction? (e.g. measure straight + curved line distances using a variety of scales)	
Do I understand gradient and contour? (e.g. being able to spot height, calculating height differences in two places)	
Can I map gradient and contour? (e.g. drawing contour lines)	
Can I identify landscape features using the key?	
Can I describe the characteristics of landscape features shown on OS maps? (e.g. a floodplain, a corrie etc.)	
Can I identify and describe major relief features? (e.g. upland and lowland areas)	
Can I relate cross-sectional drawings to relief features and maps? (e.g. can I see the links between a cross sectional or long profile of a river to the corresponding OS map extract?)	
Can I describe the physical features as they are shown on large scale maps of two of the following landscapes? (coastlines, fluvial and glacial)	
Can I infer (make educated guesses about) human activity from map evidence, including tourism? (Other examples: deforestation, settlement, migration)	
<i>Maps in association with photographs</i>	
Can I compare maps? (e.g. compare maps with maps, and compare maps with photographs)	
Can I understand and interpret sketch maps?	
Can I draw and label sketch maps?	
Can I understand and interpret photographs? (e.g. ground, aerial and satellite photographs)	
Can I describe physical and human landscapes and other geographical features from photographs?	
Can I draw sketches from photographs?	
Can I label and annotate diagrams, maps, graphs, sketches and photographs? (e.g. to identify key geographical features, processes, landforms etc.)	
<i>Graphical skills</i>	
Can I select and construct graphs and charts that are appropriate to the data I have?	
Can I construct line charts, bar charts, pie charts, pictograms, histograms with equal class intervals, divided bar, scattergraphs, and population pyramids?	
If I'm given a set of data, can I suggest an appropriate way to present it? (i.e. a suitable graph or chart)	
Can I complete graphs and maps that have gaps? (e.g. choropleth, isoline, dot maps, desire lines, proportional symbols and flow lines)	
Can I understand isoline maps? (i.e. the contour and gradient of the land, and the meanings of the numbers)	
Can I extract information from graphs, maps and charts? (e.g. population pyramids, choropleth maps, flow-line maps, dispersion graphs)	
<i>Numerical skills</i>	
Can I design fieldwork data collection sheets?	
Can I collect data accurately?	
Do I have an understanding of data accuracy, reliability, sample sizes, procedures, and control groups?	
Do I understand proportion, percentages and ratio?	
Do I understand magnitude and frequency?	
Can I draw conclusions from data? (e.g. if given data on various development indicators, can I make conclusions about levels of development? If given data on global temperature change, can I draw conclusions about likely future changes to tropical storm intensity?)	
<i>Statistical skills</i>	
Do I understand and know how to use median, mean, range, quartiles and inter-quartile range, mode and modal class?	
Can I calculate percentage changes?	
Can I understand the use of percentiles?	
Can I understand data that uses two variables? (e.g. scatter plots)	
Can I draw lines of best fit? Can I sketch trend lines through scatter plots?	
Can I make predictions based on sets of data?	
Can I identify weaknesses the way that data is presented? (e.g. in chosen graph types)	

## How will my answers be marked?

Questions worth 1, 2 or 3 marks are 'point marked'. This basically means that each valid point gets a mark.

Questions worth 4 or more are 'level marked'. The grid below shows the marks and levels for 4, 6 and 9 mark questions.

4-mark question	6-mark question	9-mark question
	Level 3 (5-6 marks)	Level 3 (7-9 marks)
Level 2 (3-4 marks)	Level 2 (3-4 marks)	Level 2 (4-6 marks)
Level 1 (1-2 marks)	Level 1 (1-2 marks)	Level 1 (1-3 marks)

To get the top level you have to do certain things. What are they?

- ✓ Read the question properly before you begin. Circle the command terms and the key words.
- ✓ Figure out how you will structure your answer before you start. To attain level 2 and 3 your answer needs to be well organised and written logically.
- ✓ If it's a case study question, include lots of relevant details (i.e. place names, specific groups of people, organisations/companies, dates, statistics etc.)

Some 9-mark questions also have 3 marks available for spelling, punctuation, grammar and specialist terminology (SPaG). For top marks:

- ✓ Make sure your SPaG is consistently correct!
- ✓ Make your meaning clear
- ✓ Use a range of geographical terms (e.g. sustainable development, tropical storm intensity, primary and secondary impacts, etc.) correctly.

Sometimes students are not sure how to improve their Level 2 answer so that they reach Level 3. Look at the following examples to help you.

For a major city in a LIC or NEE that you have studied, assess whether urban growth has created more <b>opportunities</b> or <b>challenges</b> . [9]	
<p><b>LEVEL 2 RESPONSE</b></p> <p><b>Named major city:</b> Mumbai Mumbai has over 21 million people and many move to the city each year. This has caused more challenges than opportunities.</p> <p>Large businesses have moved to Mumbai which has created lots of jobs. This increases people's wages. Also, the companies pay tax to the government, which can then be spent improving the society.</p> <p>One of the biggest challenges from urban growth is not enough housing. Because there aren't enough affordable homes, many end up living in slums like Dharavi. The main problems in slums are crime and disease (no clean water). The government wants to get rid of Dharavi to build expensive apartments but deciding what to do with the slum residents will be challenging.</p> <p>Another challenge of urbanisation is increasing pollution from manufacturers who dump waste into rivers. Also, because people don't always have toilets etc, diseases can spread.</p> <p>Although urban growth has created some economic opportunities, the benefits are mainly experienced by governments and companies rather than normal people, and the problems of the poor have not been dealt with.</p>	<p><b>LEVEL 3 RESPONSE</b></p> <p><b>Named major city:</b> Mumbai Greater Mumbai's population is over 21 million people and it has increased by 5 million in the past decade. This has brought significant economic opportunities although these are outweighed by social and environmental challenges.</p> <p>The key opportunities are economic. As Mumbai has experienced urban growth it has attracted major companies like Tata Steel, which provides employment and pays huge taxes. Some of this money is used to improve India's services, e.g. schools.</p> <p>One major challenge of urban growth is providing enough housing. More than 600 new residents arrive in Mumbai every day, and housing construction cannot keep up, so many new residents end up in illegal settlements. Consequently, slums have grown rapidly, for example Dharavi, with more than one million people. Slum conditions are poor, with millions living without access to sanitation or safe water. The Indian government plans to demolish Dharavi and use the land for luxury apartments, but this leaves the huge challenge of where to house Dharavi's residents.</p> <p>While it is true that slums create some opportunities (e.g. many people make a living from recycling waste items into saleable goods), these are minor advantages when compared to the problems caused by slums.</p> <p>Another major challenge of rapid urbanisation is the increasing air, land and water pollution. Residents who lack sanitation are often forced to dump their human waste, which increases the risk of diseases such as typhoid. Textile and manufacturing industries in Mumbai regularly dump waste into river systems.</p> <p>Although some opportunities are created by urban growth, these tend to be enjoyed by governments and companies, while most challenges faced by the poor remain unresolved.</p>

The Level 2 response is good, but it lacks the geographical understanding and detail of the Level 3 response. The Level 3 response also makes a more sophisticated assessment. Go through each answer and highlight a) **the assessment** that is made, b) the **evidence** that is used, and c) the **key geographical terminology** or **concepts**.

## Paper 1 and Paper 2 revision and case study questions

### Paper 1: Living with the physical environment

#### The challenge of natural hazards

1. What is a natural hazard?
2. Outline two factors affecting hazard risk.
3. At what type of plate margin do plates move apart?
4. At what type of plate margin do plates move towards each other?
5. At what type of plate margin do plates move alongside each other?
6. Why do volcanoes form at destructive plate margins?
7. What are the different processes causing earthquakes at conservative, constructive and destructive plate margins?
8. What is the difference between a primary and a secondary effect?
9. Give two primary and two secondary effects of a volcanic eruption.
10. What are your examples of earthquakes in a wealthy and a less wealthy part of the world?
11. Why are the economic costs of earthquakes generally greatest in HICs?
12. Why are the human costs of earthquakes generally greatest in less wealthy places?
13. Why do people continue to live in places that have tectonic hazards?
14. What are the benefits to living in a volcanic region?
15. Give two ways that earthquakes can be prepared for.
16. Give two ways that volcanic eruptions can be predicted.
17. How does global atmospheric circulation lead to high and low pressure belts?
18. What are the three types of tropical storms?
19. Describe the distribution of tropical storms.
20. What conditions cause tropical storms to form?
21. How does the intensity of a tropical storm change when it reaches land? Why?
22. Give two characteristics of the eye of a tropical storm.
23. Give two characteristics of the eye wall of a tropical storm.
24. How might climate change affect the frequency and intensity of tropical storms?
25. List three primary and four secondary effects of tropical storms.
26. For your example of a tropical storm, describe the effects of the TS.
27. For your example of a tropical storm, outline the immediate and long-term responses to the TS.
28. For your example of a tropical storm, assess the effectiveness of the responses to the storm.
29. What types of extreme weather occur in the UK?
30. What evidence exists to support the claim that weather is becoming more extreme in the UK?
31. What is your example of an extreme weather event in the UK?
32. Describe the impacts of your example.
33. Define climate change.
34. What is the Quaternary period?
35. What evidence is there to support the claim that climate change has occurred over the Quaternary period?
36. Which natural factors can cause climate change?
37. Which human factors can cause climate change?
38. List three effects of climate change on the environment.
39. How can renewable energy technologies reduce the causes of climate change?

#### The living world (do questions 40-56 and then **either** Hot deserts (57-65) or Cold environments (66-74))

40. What is an ecosystem?
41. Give two biotic features of ecosystems.
42. What is a consumer?
43. Describe the role of producers in ecosystems.
44. Where are tundra ecosystems found?
45. Give four physical characteristics of tropical rainforests (TRFs).
46. Outline one interdependent relationship that soils have with another component of the TRF ecosystem.
47. Give one plant that has adapted to the TRF conditions, and say how it has adapted.
48. Define biodiversity.

49. Give two ways that TRF biodiversity is harmed by human activities.
50. **Where is your TRF case study located?**
51. **Give two causes of deforestation in your TRF case study.**
52. **Describe the environmental impacts of deforestation in your TRF case study.**
53. Identify two ways that TRFs are valuable to people.
54. Identify two ways that TRFs are valuable to the environment.
55. Give one international agreement about the use of tropical hardwoods.
56. Explain how conservation and education can help in the sustainable management of TRFs.
57. Describe the climate in hot deserts.
58. Give an example of an interdependent relationship in the hot desert ecosystem.
59. Give one adaptation of animals to hot deserts.
60. Describe one issue related to biodiversity in hot deserts.
61. **What is your case study of a hot desert?**
62. **Give two of the development opportunities that exist in your hot desert case study.**
63. **Give two of the challenges of developing that exist in your hot desert case study.**
64. What is desertification?
65. Explain how water management can reduce the risk of desertification.
66. Give three physical characteristics of cold environments.
67. What is permafrost?
68. Give two adaptations of plants to cold environments.
69. **What is your case study of a cold environment?**
70. **Give two of the development opportunities that exist in your cold environment case study.**
71. **Give two of the challenges of developing that exist in your cold environment case study.**
72. Give two of the ways that cold environments are at risk due to economic development.
73. Describe one strategy that can balance the needs of economic development and conservation in cold environments.
74. Why are wilderness areas worth protecting?

#### Physical landscapes in the UK (do questions 75 & 76 then **two** of Coastal (77-91), River (92-106) and Glacial (107-117))

75. Give two upland areas in the UK.
76. Describe where lowland areas are found in the UK.
77. Give two features of destructive waves and two features of constructive waves.
78. Explain the difference between mechanical and chemical weathering.
79. Describe how the process of abrasion causes coastal erosion.
80. What is longshore drift?
81. Give one example of a resistant rock type.
82. Give one example of a non-resistant rock type.
83. Explain how a coastal stack forms.
84. Explain how a sand dune forms.
85. How would you identify a spit on a map?
86. For your **example** of a section of UK coastline, give its major landforms of erosion and deposition.
87. What is hard engineering?
88. Describe one hard engineering strategy and give one cost and one benefit of the strategy.
89. What is soft engineering?
90. Describe one soft engineering strategy and give one cost and one benefit of the strategy.
91. For your **example** of a UK coastal management scheme, identify the management strategy/ies used and the resulting impacts.
92. Explain the difference between vertical and lateral erosion.
93. Describe the process of traction.
94. Why do rivers deposit sediment?
95. What is a gorge?
96. Explain how a gorge forms.
97. How would you identify a waterfall on a map?
98. For your **example** of a UK river valley, identify its major landforms of erosion and deposition.
99. Explain how geology affects flood risk.
100. Explain how land use affects flood risk.
101. What is a hydrograph?
102. Define lag time.

103. Why is lag time generally shorter in areas with impermeable surfaces?
104. Identify one hard engineering strategy and describe how it reduces flood risk.
105. How does flood plain zoning help to reduce flood risk?
106. For your **example** of a UK flood management scheme, say why the scheme was required and outline the resulting issues.
107. What was the extent of maximum ice cover across the UK during the last ice age?
108. Describe the process of plucking.
109. What is bulldozing?
110. Why do glaciers deposit sediment?
111. What is a hanging valley?
112. Explain how a hanging valley forms.
113. How would you identify an arête on a map?
114. For your **example** of a UK upland area affected by glaciation, identify its major landforms of erosion and deposition.
115. What types of farming commonly occur in glaciated landscapes?
116. Describe one conflict between conservation and development that can occur in upland glaciated areas.
117. For your **example** of a UK upland glaciated area used for tourism, identify the attractions for tourists and the impacts of tourism.

## Paper 2: Challenges in the human environment

### Urban issues and challenges

118. Define urbanisation.
119. Why is urbanisation happening more rapidly in LICs than HICs?
120. Explain push-pull theory.
121. Give one economic push factor.
122. Give one social pull factor.
123. How does natural increase affect urbanisation rates?
124. What is a megacity?
- 125. Where is your case study of a major city in an LIC or NEE located?**
- 126. For your case study of a major city in an LIC or NEE, give two of the economic opportunities created by urban growth.**
- 127. For your case study of a major city in an LIC or NEE, give two of the challenges caused by urban growth.**
128. For your example of how urban planning is improving quality of life for the urban poor, outline one of the features of the urban planning strategy.
129. Describe population distribution in the UK.
130. Give three reasons to explain the UK's population distribution.
131. Describe how you could identify the CBD on a map.
- 132. For your case study of a major city in the UK, outline the city's importance in the UK.**
- 133. For your case study of a major city in the UK, explain how migration has affected the character of the city.**
- 134. For your case study of a major city in the UK, give two of the opportunities and two of the challenges created by urban change.**
135. What are commuter settlements?
136. Name your **example** of a UK urban regeneration project.
137. Say why the project was needed.
138. What does sustainable urban living mean?
139. How can creating green space help to make cities more sustainable?
140. How can public transport help to reduce traffic congestion in urban areas?

### The changing economic world

141. What is development?
142. What is meant by the development gap?
143. What does 'quality of life' refer to?
144. What is GNI per head?
145. Give one limitation of using economic measures of development.
146. What might the people per doctor measure indicate about a country's level of development?
147. Identify two physical causes of uneven development.
148. Outline the relation between colonisation and uneven development.
149. What is the Demographic Transition Model?
150. How has uneven development influenced international migration?
151. Explain how microfinance loans can help to reduce the development gap.

152. For Fairtrade, give one way that it can help to reduce the development gap, and identify one problem.
153. Where is your **example** of tourism in an LIC or NEE reducing the development gap located?
154. Give two ways that tourism has helped to reduce the development gap in your example.
- 155. For your case study of an LIC or NEE, describe how its employment structure is changing.**
- 156. For your case study of an LIC or NEE, outline two advantages and two disadvantages of TNCs in the country.**
- 157. For your case study of an LIC or NEE, describe how economic development is affecting quality of life.**
158. What are the causes of economic change in the UK?
159. Why has there been an increase in the number of science and business parks in the UK?
160. Using your **example**, give two ways that modern industrial development can become more sustainable.
161. Why do some areas of the UK suffer population decline?
162. What is the north-south divide?
163. Give two examples of the UK's strong links with other countries.

The challenge of resource management (do questions 164-175 and then **one** of Food (176-182), Water (183-189) or Energy (190-196))

164. Outline one way that each of the following are important for wellbeing: food, water, energy.
165. Define water security.
166. Describe the global pattern of water insecurity.
167. Define energy insecurity.
168. Give one physical and one economic reason for the global inequality of energy supply.
169. Describe the global pattern of food consumption.
170. Give one reason why the UK's changing pattern of food consumption has led to a larger carbon footprint.
171. How has water demand in the UK changed?
172. Give one reason why water transfers are needed in the UK.
173. How is use of renewables changing the UK's energy mix?
174. Give one reason why the UK's domestic supply of coal has reduced.
175. Give two problems associated with the extraction of shale gas in the UK.
176. Explain why economic development is causing increased food consumption.
177. Give two factors affecting food supply.
178. Describe one impact of food insecurity.
179. How can use of biotechnology increase food supply?
180. Give two advantages and two disadvantages from your **example** of a large scale agricultural development.
181. How can organic farming help to secure more sustainable food supplies?
182. Using your **example** of a local scheme in an LIC or NEE, describe how sustainable food supplies can be increased.
183. Explain why economic development is causing increased water consumption.
184. Give two factors affecting water availability.
185. Describe one impact of water insecurity.
186. How can desalination increase water supply?
187. Give two advantages and two disadvantages from your **example** of a large scale water transfer scheme.
188. How can water conservation help to secure more sustainable water supplies?
189. Using your **example** of a local scheme in an LIC or NEE, describe how sustainable water supplies can be increased.
190. Explain why economic development is causing increased energy consumption.
191. Give two factors affecting energy supply.
192. Describe one impact of energy insecurity.
193. How can the development of renewable energy sources help to increase energy supply?
194. From your **example**, give two advantages and two disadvantages of the extraction of a fossil fuel.
195. How can demand reduction help to move towards a more sustainable resource future?
196. Using your **example** of a local renewable energy scheme in an LIC or NEE, describe how sustainable energy supplies can be provided.