

Revision Booklet GCSE Geography

AQA 8035

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

Name: _____

Contents

How to use this booklet	2
Course information	3
Case studies and examples	4
My case studies and examples	5
Command words	6

Paper 1- Living with the physical environment

Section A: The challenge of natural hazards	10
Tectonic hazards	11
Weather hazards	16
Climate change	21
Section B: The living world	24
Ecosystems	24
Tropical rainforests	27
Hot deserts	31
Cold environments	35
Section C: Physical landscapes in the UK	39
Coastal landscapes in the UK	40
River landscapes in the UK	47
Glacial landscapes in the UK	55

Paper 2- Challenges in the human environment

Section A: Urban issues and challenges	66
Section B: The changing economic world	75
Section C: The challenge of resource management	89
Resource management (UK)	92
Food	97
Water	104
Energy	110

Paper 3- Geographical Applications

Section A: Issue evaluation	118
Section B: Fieldwork	126
Skills checklist	140

How will my answers be marked?	141
Paper 1 and Paper 2 revision questions	142

How to use this booklet

This booklet has been designed to cover every aspect of the <u>AQA 8035 specification</u> 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. brainstorms, 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.

Physical stuff like this ...

Human/economic stuff like this

Skills stuff like this ...

Paper 2: Challenges in the

human environment

Paper 1: Living with the physical environment

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

Paper 1: Challenges in the human environment

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

Paper 3: Geographical applications

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

- What's assessed What's assessed What's assessed 3.1.1 The challenge of 3.2.1 Urban issues and 3.3.1 Issue evaluation, 3.3.2 challenges, 3.2.2 The natural hazards, 3.1.2 The living world, 3.1.3 Physical changing economic world, skills landscapes in the UK, 3.4 3.2.3 The challenge of resource management, 3.4 Geographical skills Geographical skills How it's assessed How it's assessed Written exam: 1 hour Written exam: 1 hour • 30 minutes 30 minutes 88 marks (including 88 marks (including 3 marks for SPaG) 3 marks for spelling, punctuation, grammar 35 % of GCSE and specialist terminology (SPaG)) 35 % of GCSE exam Questions Questions
 - Section A: answer all questions (33 marks)
- Section B: answer all questions (25 marks)

Paper 1: Living with the

physical environment

- Section C: answer any two questions from questions 3, 4 and 5 (30 marks)
- Question types: multiplechoice, short answer, levels of response, extended prose
- Section A: answer all questions (33 marks)
- Section B: answer all questions (30 marks)
- Section C: answer question 3 and one from questions 4, 5 or 6 (25 marks)
- Question types: multiplechoice, short answer, levels of response, extended prose

Fieldwork, 3.4 Geographical

applications

Paper 3: Geographical

How it's assessed

- Written exam: 1 hour 15 minutes
- 76 marks (including 6 marks for SPaG)
- 30% of GCSE
- Pre-release resources booklet made available 12 weeks before Paper 3

Questions

- Section A: answer all questions (37 marks)
- Section B: answer all questions (39 marks)
- Question types: multiplechoice, short answer, levels of response, extended prose

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

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 <u>safari tourism in Kenya</u>. On the following page, you should write down which specific cases you will use.

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.

My case studies and examples

	The specification requires	My specific case…	Have I learnt it?
Paper 1	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 case study of a tropical rainforest		
	A case study of a hot desert OR a cold environment		
	TWO OF 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		
	TWO OF 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		
Paper 2	A case study of a major city in an LIC or NEE		
	An example of urban planning (LIC or NEE)		
	A case study 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 case study of an LIC or NEE		
	An example of modern industrial development		
	STUDY EITHER FOOD, WATER OR ENERGY 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 tossil tuel 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 <u>reasons</u> 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 <u>reasons why</u>!

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!



7





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 spark were felt.

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).



POINT



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.

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** <u>one</u> 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 2nd 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 $\underline{\textit{describe}}$ 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 southeast in London and surrounding counties, where the population is generally 1000+ people per km². Dense populations also exist in S.Wales and SW.Scotland. Populations are sparse (less than 140 people per km²) 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.

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.

that a natural hazard occurs. To count as a hazard, the event has to affect Hazard risk is the 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

Command words, p.6

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

Tectonic hazards

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

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

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



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.

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

Destructive plate margin

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

Constructive plate margin

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

Conservative plate margin

- a. The plates move together / apart / alongside each other
- b. At a conservative plate margin, _____
- c. Earthquakes occur here / volcanoes occur here / earthquakes and volcanoes occur here

d. Example: _____



12

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**.'



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).

	HIC named example	LIC named example
	Earthquake or volcano?	Earthquake or volcano?
	Place?	Place?
	Year?	Year?
Primary effects		
Secondary		
effects		
Immediate		
responses		
-		
Long-term		
responses		

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

Key idea: Management can reduce the effects of a tectonic hazard.

13. Using the vocabulary provided, explain why people continue to live in areas at risk from a tectonic hazard. Vocabulary : advantages, opportunities, fertile, tourism, apathy, sites of religious or cultural importance, denial, financial hardship
14. Think about the examples of monitoring, prediction, protection and planning below, then say how each can reduce the risks from a tectonic hazard.
Monitoring examples: seismometers, thermal imaging, volcano observatory, laser beams to detect plate movement, gas samples to measure sulphur levels, monitor radon gas levels, groundwater level changes. Monitoring helps to reduce tectonic hazard risks by
Prediction examples: tracking hazard frequency, tremor detection, volcano observation Prediction helps to reduce tectonic hazard risks by
Protection examples: earthquake-proofing buildings, strong and flexible materials for bridges and roads, lahar channels Protection helps to reduce tectonic hazard risks by
Planning examples : training people e.g. earthquake drills, emergency supplies stored by local services and emergency kits in the home, good communication systems, being ready to evacuate, constructing new buildings away from areas of risk <i>Planning helps to reduce tectonic hazard risks by</i>

Key idea: Global atmospheric circulation helps to determine patterns of weather and climate.

- 15. On the blank global circulation model, label:
 - a. Polar cells
 - b. Ferrel cells
 - c. Hadley cells
 - d. The north-east trade winds, the south-east trade winds, and the westerly winds
 - e. Rising warm moist air/low pressure
 - f. Sinking cool dry air/high pressure

You may wish to use the **letters a-f** to do this so that you can fit it all in!

Particity
\underline{C}
Succession

16

Key idea: Tropical storms (hurricanes, cyclones, typhoons) develop as a result of particular physical conditions.

- 16. Remind yourself of what 'distribution' means (page 9).
- 17. Using the map provided, **describe** the global distribution of tropical storms.

Command words, p.7

Ń	S-	A Ser	R
Hurricanes	Hurricanes	Cyclones	Typhoons
Equator	- 7	Cycones	-
	- U .		
		Constant of	

- 18. You need to be able to see the links between the tropical storms and atmospheric circulation. Using the map on this page, the model on the previous page and what you have learnt in class, make a series of dot points to explain why tropical storms form where they do (and why they do not form in other areas!). You should refer to factors such as low and high pressure, water temperature, wind, etc.
 - а.
 - b.
 - C.
 - d.
 - e.

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 <u>copy and number the events onto the diagram to show that you know the correct order</u>.

<u>Jumbled sequence of events</u>: 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 south	ern hemisphere and _	d in the northern hemisphere. T	
centre of the storm is called the It is u		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 ey	e is surrounded by the	Here there
is spiralling rising air, v	very strong	(around 100 mile	es per hour), storm clouds, torrential	
	and a low temperature. Tow	ards the edges of the	storm the wind	_ falls, the clouds
become	and more scattered	, the rain becomes	intense and the t	emperature

- 21. On the aerial image of a tropical storm, label:
 - a. the eye
 - b. eyewall
 - c. edge of the storm
 - d. fastest winds
 - e. 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?					
EFF	EFFECTS						
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		Heavy rain, l strong winds; cause death which ruin	ightni lightn is and prope	ing and hing can t fires, erty.		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
Snow and ice			Г	This con	dam	ana arana damaga aranatu		may cost millions of pounds to recover.
Hailstorms	May cause injuries from slipping or deaths due to cold. Schools and businesses may be			and r	nake	age crops, damage property driving very dangerous.	ĺ	Can cause deaths from breathing difficulties
Wind			bols and may be			or heat exhaustion. Roads can melt which disrupts transport, but tourism may benefit.		
Drought	forced to close, and crops may be ruined.			This ma	y up can	root trees and destroy property e.	g. ripp	ping off roofs. Flying
Heatwaves				000113	oun	init i orooto may be damaged with		

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 EXTREM Weather event type? Place? When?	ME WEATHER EVENT IN THE UK
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	

The specification requires that you know evidence to show that weather is becoming more extreme in the UK. To be able to answer the question below, you should revise the evidence, for example evidence showing that temperatures have become more extreme in recent years, evidence to show that it's raining more, and evidence to show that flooding occurs more often. Evidence should include examples and data: without this, you cannot attain more than 2 marks out of 6.

EXAM-STYLE QUESTION: 'The weather of the UK is becoming more extreme.' Use evidence to support this statement.
 (6)

Climate change

Key idea: Climate change is the result of natural and human factors, and has a range of effects.

29. What does the term 'climate change' refer to?

30. What does 'Quaternary period' refer to?

31. Some evidence for climate change is found using data collected from **tree rings**, **ice core samples**, **pollen analysis** and **temperature records**. Select **one** of these and say how it provides evidence that climate change is occurring.

provides evidence that climate change is occurring because _____

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	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.		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.	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.		
EXPLAIN HOW IT REDUCES THE CAUSES OF CLIMATE CHANGE		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.				

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 <u>decide which strategy you think should be prioritised</u>. 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: _____

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 <u>examples</u>.



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.'



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

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

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	A TOWN			
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, <u>climate</u>, <u>water</u>, <u>soils</u>, <u>plants</u>, <u>animals</u> and <u>people</u> are **interdependent**.

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

Chosen plant: _____

Chosen animal: _____

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



Key idea: Deforestation has economic and environmental impacts.



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

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



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 DEFORESTAT My case study:	ION IN A	TROPICAL RAINFOREST
	Subsistence and commercial farming		Economic development
N	Logging	NO	
RESTATIC	Road building	RESTATION	Soil erosion
= DEFOR	Mineral extraction	F DEFOF	
USES OI	Energy development	ACTS O	Contribution to climate change
CAI	Settlement	IMP	
	Population growth		Local livelihoods destroyed (e.g. rubber tapping)



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 <u>people</u> and the <u>environment</u>.

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 <u>decide which strategy you think should be prioritised</u>. 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	RAINFOREST			
Ecotourism	A sector			
International hardwood agreements	ှို FSC			
Debt reduction	DD DD			

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.

Chosen option: _____

This is the best option to manage the rainforest because...

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.



17. Using the **figure** below, **describe** and **explain** the <u>interdependence</u> of climate, water, soils, plants, animals and people in a hot desert.



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



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

'Development opportunities' refers to the <u>options that exist</u> to improve income and quality of life. 'Challenges of developing' refers to the <u>difficulties</u> 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							
HOT DESERT	Tourism	LOCATION	Draw or stick in a map showing the location of your chosen hot desert.				
RTUNITIES IN A	Licity						
VELOPMENT OPPOI	Farming	IN A HOT DESERT	 Explain how the following challenges make development difficult. Link the challenges to the opportunities you've already mentioned. Extreme temperatures Water supply Inaccessibility 				
DE	Mineral extraction	CHALLENGES OF DEVELOPING					

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.



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

		_
 	· · · · · · · · · · · · · · · · · · ·	

Figure 1- climate of a tundra						
MONTH	AVERAGE TEMPERATURE	AVERAGE RAINFALL				
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.



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 smal	I, low to the ground and to he	Ip them survive	winds. Leaves are
generally small as thi	is reduces the amount of moisture that is lost three	ough Mo	ost plants have shallow roots in
order to avoid the	layer beneath the soil. Most pla	nts become	(stop growing) to survive the
, c	lark winters. Animals have also had to adapt. Th	ey are a	gainst the cold, for example via a
fatty layer (e.g	and whales) or thick fur (e.g	and polar bea	ars). This reduces the amount of
th	ney use keeping warm. Some animals	to conserve energy	y 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 terms 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.	0
b. Biodiversity is lower in tropical rainforests than in cold environments.	0
c. Biodiversity increases as average temperature drops.	0

Key idea: Development of cold environments creates opportunities and challenge	es.
--	-----



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

'Development opportunities' refers to the <u>options that exist</u> to improve income and quality of life. 'Challenges of developing' refers to the <u>difficulties</u> 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:				
COLD ENVIRONMENT	Tourism	LOCATION	Draw or stick in a map showing the location of your chosen cold environment.	
DEVELOPMENT OPPORTUNITIES IN A	Fishing Mineral extraction Energy	CHALLENGES OF DEVELOPING IN A COLD ENVIRONMENT	Explain how the following challenges make development difficult. Link the challenges to the opportunities you've already mentioned. • Extreme temperatures • Inaccessibility • Provision of buildings • Infrastructure	

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 <u>economic development</u>, 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?
Use of technology	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.		
Conservation groups	These groups put pressure on governments to protect wilderness areas and fragile cold environments (e.g. <u>Greenpeace</u>).	No ARCTIC OIL	
International agreements	Agreements such as the <u>1959 Antarctic Treaty</u> limits visitors landing at one site to 100 at a time, and prohibits nuclear activities.		
Role of governments	Governments can make laws to protect fragile environments, such as the <u>1964 Wilderness Act</u> which protected wilderness areas from development.		

- In this section, you MUST study <u>UK physical landscapes</u>
- You will also study TWO from <u>Coastal landscapes in the UK</u>, <u>River landscapes in the UK</u>, and <u>Glacial landscapes in the UK</u>
- 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.

b.	Flat land tends to be found in upland / lowland areas.	
C.	Two lowland areas in the UK are	and
d.	The River Ouse is found in the lowland area of	
e.	The lower valley of the River Clyde is home to the Scottish city of	
f.	Two upland areas in the UK are	and
g.	 The mountain of Ben Nevis is found in the	Mountains in the country of
h.	The Mount Snowdon is found in	National Park in the country of
i.	 Two areas in England with glaciated features are	and
j.	Along the Dorset coastline , it is the alternating bands of	and
	rock that has caused a ja	agged coastline.
k.	The Holderness Coast is very quickly,	at around 1m per year and up to 10m in some places.

Coastal landscapes in the UK

a.

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

Study the diagrams of waves types.



3. Define 'swash'.

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:	

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



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

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: <i>swash</i> , <i>backwash</i> , <i>erosion</i> , <i>transportation</i> , <i>deposition</i> .	land
Which <u>key terms</u> should you highlight in this question?	direction of prevailing wind

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)

12. Which of the following statements are $\ensuremath{\textit{true}}\xspace$ Shade $\ensuremath{\textit{two}}\xspace$ ovals only.

a.	Depositional landforms occur where swash is strong.	0
b.	A spit is an erosional landform.	0
C.	A coastal bar forms when longshore drift deposits sediment across the entrance to a bay.	0
d.	A headland is a depositional landform.	0
e.	A wave cut platform is a depositional landform.	0

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.

A NAMED EXAMPLE OF A SECTION OF COASTLINE IN THE UK My example:		
Identify the location of your chosen stretch of coastline on the map.	Sketch map of the geology of your chosen stretch of coastline.	
Describe <u>the erosional processes</u> at play along this section of coastline.	An example of one erosional landform 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.	
Describe <u>the depositional processes</u> at play along this section of coastline.	An example of one depositional landform 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.	

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

15. Define 'hard engineering'.

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	Mode: the most common
Annual costs (thousand £)	20	30	18	62	36	20	24	Mean: the average
								Range: the difference between the greatest and smallest values
Mode:	Media	n:			_ Me	ean:		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: _____

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	
Advantage:	
Disadvantage:	

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

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 Example alert! MAPPLETON. Simply discussing groynes in general would not be not sufficient). D 20. Complete the template below to help you learn/revise your example of a coastal management scheme in the UK. AN EXAMPLE OF A COASTAL MANAGEMENT SCHEME IN THE UK My example: Identify the location of your chosen coastal Provide a sketch drawing of your chosen coastal management management scheme on the map. Be sure to scheme. label the place name. Explain the reasons why management was needed along this stretch Describe the management scheme and explain how it helps to protect of coastline. the coastline. Describe the impacts/effects of the management scheme. Outline the conflicts or problems that have arisen from the scheme. (You might refer to economic or environmental problems, or to disagreements between stakeholders.)

River landscapes in the UK

Key idea: The shape of river valleys changes as rivers flow downstream.

21. The figure below shows the long profile and cross profile of a typical river. Using the figure and your own knowledge, **compare** the **width**, **depth** and **gradient** of the **upper** and **lower** courses of a typical river.



22. Complete the spider diagram below by summarising each of the fluvial (river) processes.



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	Formation					
	_	(and where it is found-	(step-by-step explanation)					
		upper/middle/lower)						
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	S							
Oxbow lake								

Fluvial (river) landforms resulting from deposition								
Landform	Image	Characteristics	Formation					
		(and where it is found- upper/middle/lower)	(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:

- i. How high is the land at point 1? _____
- ii. What is the river feature at point 2? _____
- iii. What is the difference in land height between points A and B?
- iv. 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 <u>erosion</u> and <u>deposition</u>.



elde 1 Ben Hurworth-	P Bridge Cold	Comfort Fm	34
		Nos The Holmer	sham Bi
	Charles Charles	Source of the second	Pettala
w Rockliffa ² 0	- An	holme	Whinny Rain Plantn Break House
on-on-Tees	0.12	A Eryholme Grange	S.



Major landform/s caused by erosion	Major landform/s caused by deposition
An example of a landform caused by erosion in the valley is a:	An example of a landform caused by erosion in thevalley is a:
t is located:	It is located:
he characteristics of the landform are:	The characteristics of the landform are:
Sketch map showing location	Sketch map showing location
shalled diagram of the landform	Labelled diagram of the landform
Jescription of how the landform may change in the future and explanation why.	Description of how the landform may change in the future and explana 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:		
Relief:		
· · · · · · · · · · · · · · · · · · ·	 	

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:	
Deforestation:	

- 28. Study the storm hydrograph to the right to remind you of the key components of a hydrograph. Below, say what each part of the hydrograph tells us about a river:
- 1. Peak discharge:
- 2. Lag time:
- 3. Rising limb:
- 4. Falling limb:



29. Using the river discharge data provided, identify the mode, median, mean and range.

Sample	1	2	3	4	5	6	7
River discharge (cumecs)	184	90	159	142	64	64	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:

30. The hydrographs below show two instances where the rainfall data is exactly the same, yet the peak discharge and lag time differ. Suggest and explain reasons for these differences. Try to use data in your response.



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.

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 <u>why this is the best option</u>, <u>identify any problems with your</u> <u>choice</u>, and <u>say why it is a more appropriate choice than the rejected options</u>.

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: _____

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.

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

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.



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.

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 calle						
	_, and is made up of sand,	and rocks. The material is tra	nsported 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. Be	ecause sand, clay and rocks are				
transported by a sol	id mass (), they arer	n't sorted by weight and	like river deposits.				
Rocks of all shapes	and sizes tend to be deposited	However, at the front of t	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. _____
- В. _____
- 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.



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 r	neltwater	r data pi 2012	rovided,	identify 2014	/ the mo	de, me 2016	dian, me 2017	an and range	e. [<i>Mode</i> : the most common <i>Median</i> : the middle value (when values are in order of size) <i>Mean</i> : the average
Annual glacial meltwater (in millions of cumecs) Mode:	80 Media	109 n:	112	98	95 Mea	160 an:	95	Ra	nge:	Range : the difference between the greatest and smallest values
Figure 2		K.A. Game		11. V	Vhat is t	he depo	ositional	glacial landfo	orm dep	icted in Figure 2 ?
Map View (contour direction of ice flow Figure 3	r lines)	\geq	Fe	12. lo ature 1:	dentify t	wo feat	ures of t	he landform y	you ider	ntified in Q11.
			Fe —	ature 2: 	Vhat is t	he depo	ositional	glacial landfo	orm dep	icted 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.



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:





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

60

- 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.

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 <u>erosion</u> and <u>deposition</u>'.



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



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 <u>four key economic activities</u> that occur in glaciated upland areas and their <u>resulting conflicts</u>.

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.

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

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

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

Example alert!

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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 <u>descriptive language</u> (e.g. increasing/decreasing, slow, steady, rapid, exponential, equal, overtake) and <u>data</u> (numbers).



Which key terms should you

highlight in this question?

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	nt rates in places at different levels of
In high-income countries (HICs) like,	urbanisation happened during the (in
the 19th Century) meaning that today, most people	live in urban areas. This means that rates of urban
growth are in HICs because almost e	verybody in the country already lives there! (For example, in
Germany, between 1960 and 2016 the proportion of people living	g in urban areas rose from 71% to
76%.) In LICs such as, urbanisation is	s happening more rapidly. LICs are less economically developed,
meaning that it is only in recent years that many LICs have begu	n 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	e, 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 happ	pening 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 <u>push factor</u> is something that encourages someone to *leave* an area; a <u>pull factor</u> 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'.

- 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?

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.



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.



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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: _____

What are the problems? (Say why the QOL needs to be addressed in your chosen location. Try to include statistics.)	Which urban planning strategies are being used? (Describe them, and say how they address QOL issues.)	How effective are the strategies?



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.

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 <u>YouTube clips</u> about your chosen city is one useful way. Finding <u>relevant
images of the city</u> and creating a <u>visual brainstorm with annotations</u> is another.)

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

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

EXAM-STYLE QUESTIONS

11. Explain how an urban planning scheme in an LIC or NEE has had a positive effect on people living in the area. (4)

12. Using a named example of a city in an LIC or NEE, discuss the challenges created by urban growth. (9 + 3 SPaG)

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.



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 ${\bf B}$ and ${\bf C}$ vary so much.

- 14. **ISSUE EVALUATION-** *MAKING LINKS BETWEEN TOPICS...* Think back to the 'physical' topics of paper 1 (e.g. <u>River</u> <u>landscapes in the UK</u> and <u>Glacial landscapes in the UK</u>). 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 <u>Ecosystems</u> 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 <u>urban growth</u>
 and <u>uk cities</u> because it is the spread of people and industries that puts these ecosystems at risk.

70



The specification says that you need to know '*A case study of a major city in the UK*' to illustrate the <u>location & importance of the city</u>, <u>impacts of migration on the city's character and growth</u>, and how urban growth has created <u>opportunities</u> and <u>challenges</u>. As a **case study**, you need to know about <u>many aspects</u> of your chosen city. It is possible that an <u>entire 9-mark question</u> will be based on <u>only one</u> key idea, so take the time to <u>research and revise each section</u> 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 <u>YouTube clips</u> and <u>documentaries</u> about your chosen city is one useful way. Finding <u>relevant images of the city</u> and creating a <u>visual brainstorm with annotations</u> is another. Looking up <u>online articles</u> about the city can help to shed light on the character of the city, *especially if you look at newspapers from the city itself*.)

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

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

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.

\leq	Example alert!	~ 3

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

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

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 <u>balance of economic, social and environmental concerns</u>, with a view to the <u>long-term</u> '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 <u>un</u>sustainable. Similarly, if a government only focuses on protecting the environment but does nothing about inequality, this is also <u>un</u>sustainable. 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.

21. Describe how traffic congestion can cause environmental and social problems in urban areas.

22. Identify and explain one urban transport strategy to manage traffic congestion.

Strategy: ____

MINI-ISSUE EVALUATION EXCERCISE: The mayor of London Sadik Khan is faced with a decision to try to minimise the environmental impacts of the rapidly growing population, which suffers the environmental and social impacts of traffic congestion and crammed living. However, he is working to a budget and can only implement one of the following strategies. All of them are worthwhile, but you need to decide which **one** should be chosen and why. <u>Identify your choice</u> below, <u>outline its advantages</u> and briefly <u>say why it is a better option than the other two</u>.

Options:

- 1. Introduce higher congestion charges for people driving through the city centre during peak times
- 2. Build park-and-ride facilities in two locations on the outskirts of London
- 3. Clear three major derelict sites near council flats and turn them into urban green spaces with play areas

Chosen option: ______

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 <u>life gets better</u> for people living there because they have <u>better economic opportunities</u> and <u>guality of life</u>.

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**.

Development indicator	What it is	What it	As a country	An example where	An example where it is
malcator		measures	gets	it is nigh	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		

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.

Each development indicator is useful in some way, but they often have <u>problems</u> 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.

3. Outline one criticism of the HDI.

Ways of grouping countries has changed over time. In the past, countries were divided into More Economically Developed Counties (MEDCs) and Less Economically Developed Counties (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

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.

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

8. Create a brainstorm to show **reasons for unequal development across the world**. Your brainstorm should have three main arms: <u>physical</u>, <u>economic</u> and <u>historical</u>. 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.
- 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.

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

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.

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

Industrial development		Developing industries such as manufacturing can help a country to develop by increasing the revenue that is earned from exports. It also diversifies the economy, meaning that the economy now relies on more than one main industry. This provides more financial stability. Industries such as manufacturing generate more money than primary sectors such as farming, so governments have more funds with which to invest into social development such as health, education and housing. Developing new industries also develops the training and skills of the workforce.		
Investment			Governments receive increased revenue, mainly from the taxes paid by foreign companies. Jobs are generated by investing companies, which can improve employment options and wages for workers, which may improve quality of life . Locally owned businesses may also benefit, because as people's wages improve they may spend more in the local economy.	Foreign multinational companies are often allowed to get away with poor treatment of workers (e.g. harsh conditions and low wages) and environmental harm (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 profits flow out of the country and back to the 'headquarter' country.
Microfinance			Poor people who wouldn't ordinarily qualify for loans from big banks because they have no assets tend to benefit most from microfinance. Women 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 businesses. Families can benefit because their overall household income may improve.	Microfinance has not been proven to help development on a national scale . Often, better-educated communities tend to receive the loans while less-educated or less- literate communities miss out because they cannot lobby as effectively for microfinance loans. This can mean that the quality of life of the neediest does not improve.
Tourism	Tourism brings in enormous amounts of money, and foreign currency can strengthen a poor country's economy. For many countries, tourism is its main industry . 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 tour companies although the financial benefits may not extend to the neediest . Tourism can often leave the environment vulnerable , for example as tourists extend into ever more remote regions, leave rubbish behind, cause erosion , use large amounts of the host country's natural resources (e.g. water), etc. Tourism can also turn indigenous cultures into tourist attractions, for example many people in the Masai tribe in Kenya have ceased their nomadic lifestyle in order to stage daily dances for tourists.
Using intermediate technology			Individuals and communities (often the neediest) 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. Governments 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'.



14. Complete the template below.

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

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

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



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 <u>many aspects</u> of your chosen LIC/NEE. It is possible that an <u>entire 9-mark question</u> will be based on <u>only one</u> key idea, so take the time to <u>research and revise each section</u> in depth.

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

CASE STUDY OF AN LIC OR NEE		
Background information (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.	Location (include a map showing the location of your chosen LIC/NEE within its region)	
	What is the importance of the country within its region (<i>regionally</i>) and within the wider world (<i>globally</i>)?	
The industrial structure- 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> .	How can manufacturing stimulate economic development in the LIC/NEE?	
TNCs- what is their role in the country's industrial development?	TNC's- advantages and disadvantages for the LIC/NEE?	

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

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?

18. Explain why the UK experienced de-industrialisation.

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

 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?
- 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, <u>% contribution to GDP or GNI</u>, 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.

N

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



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

AN EXAMPLE OF HOW MODERN INDUSTRIAL DEVELOPMENT CAN BE MORE ENVIRONMENTALLY SUSTAINABLE My example:

Description of the industry (What is produced? How is it produced? Why is it important to the area in which it is produced, and to the UK?)	Location - show the location of the industry. Label relevant nearby settlement/s or environmental features.
How is this example of modern industry striving to be more sustainable?	Assess how sustainable this example of modern industrial development is.

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.

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.

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



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



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

Command words, p.7

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

Tip: You should also revise how <u>devolving powers</u> and the <u>'Northern Powerhouse</u>' attempt to resolve regional differences 33. The UK has formed strong links with other countries. Using what you already know, information learnt in class, and independent research complete the table below. This will give you confidence to write about the UK's global links.

LINK	HOW DOES IT LINK THE UK TO	EXAMPLE/DETAIL
	OTHER COUNTRIES?	
Trade	The UK trades its good and services globally	
Culture	The English language spread via colonisation, linking the UK with countries all over the world. Creative industries (e.g. fiction and films) are exported globally.	
Transport		The Channel Tunnel links the UK to Europe by rail. Heathrow links the UK to the rest of the world, bringing people and goods in and out of the country.
Electronic communications	The UK is home to many foreign IT firms. Most phone and internet cables linking the UK with Europe and the USA are routed via the UK.	
European Union (EU)		
The Commonwealth	The Commonwealth is an association of 52 independent states including the UK.	The Commonwealth promotes democracy, economic development and participates in trade negotiations. This links the UK to other countries and provides a forum for them to negotiate together about their current and future relationships.

MINI-ISSUE EVALUATION EXCERCISE: The council responsible for Barnsley in Yorkshire is faced with a decision to try to improve the area, which has suffered from significant deprivation and unemployment since the coal industry declined in the 1980's. Barnsley has a population of approximately 92,000. Despite its industrial heritage, 70% of Barnsley's surrounding area is rural which makes it attractive as a place to live. The council is working under the banner 'Re-making Barnsley' and is trying to decide which of the following three strategies to implement to regenerate the town. All of them are worthwhile, but you need to decide which **one** should be chosen and why. Identify your choice below, outline its advantages and briefly say why it is a better option than the other two. **Options:**

- 1. A subsidised housing scheme whereby first home owners and people moving into the area pay no stamp duty
- 2. **Improve the train services** so that trains to Leeds, Sheffield, Huddersfield and other towns and cities are more frequent and reliable (the current provider has come under fire for poor services and high costs)
- 3. Extend the existing enterprise zone and develop a new business park just outside the northern limits of Barnsley where it is easily accessible from Wakefield, Huddersfield and Leeds

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.

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



Study the model below, 'Access to energy affects social and economic wellbeing'.



3. Outline some of the ways that poor access to energy limits social and economic wellbeing.

Study Figures A and B, on the following page.

4. Using Figures A and B and your own knowledge, suggest why some places with high precipitation experience water scarcity.



Figure A: Average annual precipitation across the world

Figure B: Estimated population per kilometre² 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.

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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.



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.

- 10. Annotate Figures D and E below with the following information:
 - a. Places with high annual rainfall
 - b. Places with low annual rainfall
 - c. Places with dense populations
 - d. Places with scarce populations



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.

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

- a. The UK's population is predicted to increase by 1 million / 10 million / 100 million by 2040
- b. Most new homes will be built in the north-east / north-west / south-east
- c. Wales, northern Scotland and south-west England have dense populations / sparse populations
- d. London, Manchester and Glasgow have dense populations / sparse populations
- e. The north of England and all of Scotland tends to have a water surplus / water deficit
- f. The south-east of England and the east of Northern Ireland tend to have a water surplus / water deficit
- *g.* 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



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!

Causes of water pollution in the UK

Nitrates and phosphates from fertilisers used in farming are washed into rivers and groundwater

Chemical and oil spills from factories pollute local water sources and groundwater supplies

Vehicles emit pollutants which are transported into water sources via runoff when it rains

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.



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



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

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



political impacts as long as they relate to economic issues.)

b.

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: <u>Fugitive emissions of methane</u> 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.

is likely to affect the environment because...

is likely to affect the environment because ...

 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/



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

22. Define 'food security'.

Study the Food Security Risk Index 2013.



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

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 arisk 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 Asi	a and the produce
a lot of food, while Central America and	only produce small amou	nts. (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	e amount of food people	also varies across the world.
HICs such as the USA and UK can afford to	lots of food and mos	t 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 les	s 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**.

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

I IQUIC D. AVCIAUC YCALLY IIICUIIIC (YVD UAL	Figure	B: Average	vearly income	(WB data
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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
Climate		
Water stress	 Water is necessary for crops and livestock to survive. Areas with low rainfall or with limited groundwater availability for irrigation struggle to grow enough food. Climate change is increasing the degree of water stress in many places, as temperatures rise and rainfall becomes more unreliable. 	The Sahel region in northern Africa receives low annual rainfall and the 'wet season' is short and unreliable. In 35 of the last 40 years , rainfall in the Sahel has been below the level previously considered normal.
Pests and diseases		

	HUMAN FACTORS AFFECTING FOOD SUPPLY	
	Explanation of how it affects food supply	Example
Poverty		
Technology		
Conflict	 Fighting can ruin agricultural land and crops or kill livestock. In some cases, the land is ruined for decades. When people are forced to flee it is difficult to ensure food supply. Conflict disrupts trade routes which reduces or stops access to food. Conflict also prevents people working which reduces income and thus their capacity to purchase food. In some cases, withholding food is used as a weapon of war. 	In Cambodia and Bosnia landmines made large areas of land too unsafe to use, even decades after the wars ended. Right now (2017) in Somalia , food aid to drought -prone areas is being withheld by al-Shabaab as a way to control the population, so famine is widespread.

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

- 31. Practising your *evaluation* skills... <u>Think</u>: 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: ______

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:		_
Strategy 2:		

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.

AN EXAMPLE OF A LARGE SCALE AGRICULTURAL DEVELOPMENT My example: _____

A map to show the location of your chosen large scale agricultural development.	Background information (What is produced? Provide details e.g. size of the development, amount of produce, etc.)
Advantages (social/economic/environmental, statistics, stakeholder views, etc.)	Disadvantages (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**.

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

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 <u>low impact farming</u> 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?

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?





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?



35. Write paragraphs to describe and explain how <u>eating seasonally</u> and <u>reducing waste</u> 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?



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?



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?



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.

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



Water

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

11. Define 'water insecurity'.

Study the Food Security Risk Index 2013. 'most prevalent' = where it occurs most 12. **Describe** where risk of water insecurity is most prevalent. Water Security Risk Index 2010 13. List three countries with **low** risk of water insecurity. а Medium risk Low risk b. No Data C. 14. Using the map, complete the following sentences: The two regions with the highest risk of water insecurity areandand Two NEEs with a high risk of water insecurity are 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. _____ levels of rainfall and _____ population densities tend to enjoy water Places with 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 and people's changing lifestyles result _____ use rises, and as wages _ increasing as 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.

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

Figure	B	Average	vearly	income	(WB	data)
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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		
Climate				
Geology				

HUMAN FACTORS AFFECTING WATER SUPPLY				
	Explanation of how it affects water supply	Example		
Pollution of supply	 If water sources such as rivers and lakes are polluted, the supply of safe water decreases. Fracking for gas can release toxic chemicals into underground water sources. Rapidly developing countries produce a lot of industrial waste and this is often untreated and dumped into water sources. Air pollution can affect water supply when acid rain occurs Poor sanitation can affect water supply as water becomes contaminated and unsafe to drink. Sharing water sources with animals is also hazardous. 	 Water sources in the USA have been contaminated by fracking (e.g. in Killdeer, North Dakota) Chemical and power plants, textile and food production factories have polluted 70% of China's rivers and lakes. In India, the largest cause of water contamination is untreated sewage 		

Over- abstraction		
Limited infrastructure	 Population growth and urbanisation rates may be so rapid that water pipes and sewers cannot be built quickly enough, e.g. in LICs and NEEs Availability will be insufficient if a country cannot afford to access its own water, e.g. to access groundwater and aquifer supplies. Conflict may prevent infrastructure from being built, or may damage it. Agreements or laws may limit access to water. In very dry places, strategies such as dams can help to conserve water but these may be unaffordable, meaning that water is not conserved for droughts and dry seasons. 	 In Mauritania, the urban pop increased from 7% in 1960 to 60% in 2015, yet only 58% of urban dwellers have access to safe water The 1959 Nile Water Agreement gave water rights to Egypt and Sudan and excluded Ethiopia despite its desperate need for water
Poverty		

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

20. Practising your *evaluation* skills... <u>Think</u>: 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.

- This is because: ______
- It is similar/different for HIC and LICs because: ____

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:	
Strategy 2:	

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.



AN EXAMPLE OF A LARGE SCALE WATER TRANSFER SCHEME My example: _____

A map to show the location/s of your chosen large scale water transfer scheme.	Description (Where does it operate (area of surplus and area of deficit; the features of the water transfer scheme, i.e. the technology)
Advantages (Who benefits? Economic gains? Environmental improvements? Include statistics and reference to stakeholders.)	Disadvantages (Who loses out? Economic issues? Environmental degradation? Include statistics and reference to stakeholders.)
You've already looked at the idea of **sustainability**, and now you need to apply it to the challenges of **providing enough water** to **rising populations**.

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

Less than 1% of global water supplies are available for human use (most water is frozen, underground, or saltwater), and yet we are using it at such a rate that it cannot be replaced quickly enough. For example, we irrigate crops with water from underground, and although the water cycle will eventually return that water as it cycles through air, land and sea, it can take thousands of years to do so. And we don't have that long! In the meantime, groundwater and other supplies are depleting fast, and this has dangerous effects on people, economies and the environment. Thankfully, some sustainable approaches to managing water supplies exist!

23. Write a paragraph to describe and explain each of the three strategies below, using the questions provided as a guide.

Water conservation:

- a. What does 'water conservation' mean?
- b. How can people conserve water in their own homes?
- c. How can farming practices change to conserve more water?
- d. How can education and public awareness help to conserve water?



Groundwater management:

- e. What is 'groundwater management'?
- f. How can farming practices change to protect groundwater?
- g. What sorts of laws and agreements can be implemented to manage groundwater supplies?
- h. Why is it difficult for countries that share underground water sources (e.g. aquifers) to make and follow agreements?



Recycling and 'grey' water:

- i. What does 'recycling water' mean? How does recycling water help to conserve it (as opposed to returning water to rivers/the sea immediately after one use)?
- j. What is most recycled water used for?
- k. What is 'grey' water and how can it be used?
- I. How does recycling water and using 'grey' water conserve energy?



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.

AN EXAMPLE OF A LOCAL SCHEME IN AN LIC OR NEE TO INCREASE SUSTAINABLE SUPPLIES OF WATER My example: _____

Location (identify the country on the world map. Also, say where the scheme operates <i>within</i> that country)		Describe what the scheme involves
Say how it helps to important part!)	increase sustainable supplies of water (most	Are there any problems with the scheme?

Energy

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

11. Define 'energy security'.

Study the Energy Security Risk Index.

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





13. Identify three **continents** that contain at least one country with an **extreme** risk of energy insecurity.

- a. _____ b. _____ c.
- 14. Using the map, complete the following sentences:

Two HICs with a high risk of energy insecurity are	and
Two NEEs with a medium risk of energy insecurity are	and
Two LICs with an extreme risk of energy insecurity are	and

15. Complete the paragraph below on **energy supply and consumption**, using the vocabulary provided. **Vocabulary**: *import, manufacturing, wealth, needs, energy security, reserves, standard of living, supply, energy surplus, population, USA, Saudi Arabia, Venezuela, Mongolia, Australia, Russia.*

A country's	is based on how much energy it has (_) and how much it consumes.
Supply is affected by whether a count	ry has energy	_ (and whether it can afford to access them) and also
by whether it can afford to	energy (e.g. oil). The co	untries with the two largest oil reserves are
and	, and	has the greatest gas supply. If a country
produces more energy than it consum	nes, it can export its	Energy security is also affected by
consumption, and how much energy a	a country consumes is determined by _	and
Wealthy countries (e.g. UK,) consume a lot of ener	gy because they can afford to, and because people
expect a high	_ (electricity in homes, fuel in cars, imp	ported goods etc.). Some wealthy countries are not
able to meet their own energy	so they import energ	y (e.g imports oil). Poorer
countries (e.g.) use less energy as people are less	able to afford it, and lifestyles and industries are less
dependent on energy (e.g. low levels	of).	

16. Describe the trends shown in **Figure A**.



Figure B: Average yearly income (WB data)

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

Figure C: Seismic airgun testing to locate gas and oil deposits



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

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.

	PHYSICAL FACTORS AFFECTING ENERGY SUPPLY	
	Explanation of how it affects energy supply	Example
Distribution	 Fossil fuels are distributed unevenly so some countries have fewer resources than others. In some places, energy reserves are hard to access 	 USA has limited oil supply Antarctic oil: hard to reach
Some resources are non- renewable		
Climate and geography	 Some places have greater opportunities to develop renewable energies such as solar, wind, wave, geothermal and hydroelectric power. 	 Australia has huge solar energy potential The UK and Norway have huge wind energy potential
Natural disasters		

	ECONOMIC FACTORS AFFECTING ENERGY SUPPLY				
	Explanation of how it affects energy supply	Example			
Access	 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. 	The UK's remaining coal is no longer cost-effective to extract as it is too deep			
Volatile prices					
Infrastructure					

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

	POLITICAL FACTORS AFFECTING ENERGY SUPPLY					
	Explanation of how it affects energy supply	Example				
Wars and instability						
International agreements	 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. 	Kyoto ProtocolParis Climate Agreement				
Concerns over safety						

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

20. Practising your *evaluation* skills... <u>Think</u>: 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 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:						
Non-renewable e	nergy strategies: <i>in</i>	creasing supply of	fossil fuels, increa	asing supply of	nuclear energy	
Strategy 2:						
The specificat extraction of	tion says that you nee of a fossil fuel has b	d to use 'an examp oth advantages and	le to show how the d disadvantages'.		Example a	lert!

0

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

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

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

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

Sustainable energy provides sufficient energy **today** without ruining **future generations**' chances of meeting their own energy requirements. It is **crucial** that sustainable approaches are used for a number of reasons: relying on fossil fuels is causing enormous damage via **climate change**; fossil fuels are finite so they are **running out**; and **populations are increasing** so demand is rising. If we can find more **efficient** ways of using our energy, this will enable us to reduce our carbon footprints. **Carbon footprint** refers to the direct and indirect emissions each **individual** is responsible for. **Direct emissions** are produced from those things that **use energy** (e.g. heating and lighting in our homes), while **indirect emissions** are produced making the things that we **buy** (e.g. clothing, food and skin care products). Thankfully, some **sustainable approaches** to ensuring energy supplies do exist!

23. Write a paragraph to describe and explain each of the three <u>energy conservation strategies</u> below, using the questions provided as a guide.

Designing homes, workplaces and transport for sustainability:

- a. What is insulation and how does it help to conserve energy?
- b. How can modern boilers help to conserve energy?
- c. How can switching to electric cars help to conserve energy?
- d. How might solar energy panels help businesses to reduce emissions?



Demand reduction:

- e. What does 'demand reduction' refer to?
- f. How can people reduce their energy demands in the home?
- g. How can people change their purchasing to reduce energy demand?
- h. How can improving public transport reduce energy demand?



Use of technology to increase efficiency in the use of fossil fuels:

- i. How do hybrid vehicles increase energy efficiency?
- j. What is regenerative braking and how does it increase efficiency?
- k. How can power stations become more energy efficient?



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.

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

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 <u>evidence/data</u> from the resources!) <u>This is the</u> 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	NIGER
Population:	154.7 million (2009) (UK 61 million)	
Capital:	Abuja	Kano)
Largest city:	Lagos	Z
Area:	923 768 km² (UK: 244 000 km²)	Jos /
Major languages:	English (official), Yoruba, Ibo, Hausa	NIGERIA
Major religions:	Islam, Christianity, indigenous beliefs	•ibadan
Life expectancy:	47 years (men), 48 years (women) (UK: 77 years for men, 81 years for women)	Lagos CAMEROON
GDP per capita:	\$1160 (2008) (UK \$39750)	GUINEA km N



Figure 3- Average annual exposure radiation across Nigeria



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 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.



<u>*Tip*</u>: **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)



- 2. Which country provides the largest market for Nigeria's oil?
- 3. Using Figure 4 ('Nigeria's exports'), calculate what percentage of Nigeria's oil is exported to Indonesia. (1)
- 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)

5. What is a transnational corporation?

(1)

6. Study Figures 9 and 10.	
'Economic development creates environmental problems.'	
Use Figures 9 and 10 and your own understanding to discuss this statement.	(6)

Using Figure 6 ('Oil reserves and production in Nigeria and other nations'), explain why oil-producing nations may need to develop industries other than oil in the future.
 (3)

Using Figure 8 ('Nigeria's mangrove ecosystem') and your own understanding, outline how developing the oil industry in the Niger Delta may affect the mangrove ecosystem.
 (4)

Using Figure 9 ('Environmental impacts of the oil and gas industry in the Niger Delta'), suggest one way that burning off gas could affect people's health in the Niger Delta.
 (2)

10. Using Figure 10 ('Comparing social and environmental impacts of oil spills in the Niger Delta and the Gulf of Mexico'), suggest why the death toll associated with oil production is higher in some places than others. (3)

11. Three options have been suggested as responses to the challenges posed by Nigeria's oil industry. These are described in Figure 11.

Which of the three options do you think will best help Nigeria to develop economically, whilst balancing social and environmental concerns?

Use evidence from the resources booklet and your own understanding to explain why you have reached this decision. (9) (+ 3 SPaG)

Section B: Fieldwork

Fieldwork is assessed in <u>Paper 3: Geographical Applications</u>. 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, <u>or both</u>.

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

1. 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 <u>data collection techniques</u> (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 <u>and</u> physical primary data collection techniques from the <u>selected list</u> below (or others that your teacher mentions). <u>You should select different techniques to the ones you used in your physical and human physical fieldwork enquiries</u>. 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)

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

Data collection	Description	Aims	Considerations
technique			

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, <u>describing</u> what each presentation technique **is**, and <u>explaining</u> **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)
Field sketch	A diagram drawn by hand to show physical and/or human features of a place. It should complement the other FW techniques & show scale and direction (compass points).	Data type: landscape/place image 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.
Bar chart		(Data type:)
Histogram with equal class		(Data type:)
Isoline		(Data type:)
Proportional symbols		(<u>Data type:</u>)
Sketch map		(Data type:)

Pie chart	(Data type:)
Scatter graph	(Data type:)
Dot maps	(Data type:)
Proportional Flow lines	(Data type:)
Line chart	(Data type:)
Pictogram	(Data type:)
Choropleth	(Data type:)
	(Data type:)

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)
- b. Outline one primary data collection technique that could be used in the environment shown in Figure 1 to help answer this question.
 (1)
- c. Suggest **one** possible technique to present the data collected via the technique outlined above.
- d. Suggest **one** possible risk of collecting data in the environment shown in **Figure 1**.

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

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

(1)

(1)

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

(1)

h. Suggest one possible risk of collecting data in the environment shown in Figure 2.

- 4. Study Figure 3, 'Pebble size measured at three sites'.
- Figure 3 Identify the type of graph shown. (1) a. Pebble size measured at three sites 120 b. At which site were the greatest number of pebbles under 40mm found? (1) 100 4 ۵ ź 80 At which site were five pebbles recorded between 20mm and C. -Pebble size (mm) 40mm in size? (1) 60 d. How many pebbles between 40mm and 60mm were recorded ٠ 40 at site 3? (1) è į \$ 20 ł Complete the graph to record three pebbles between 100mm e. 3 and 120mm at Site 1. (1) 0 0 2 3 4 1 f. Describe the results shown in Figure 3. (2) Site number

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, suggestKey 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

#1	 		
#2			
#2	 	 	
#3			
#3	 	 	
#4			
#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 human fieldwork enquiry title:

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

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

(Data collection method #1 continued)	(Data collection method #2 continued)
Why did you present the data this way? (justification)	wny did you present the data this way? (justification)
What were the results? (Describe, analyse and explain)	What were the results? (Describe, analyse and explain)
Were there any anomalies in the results? (Can you suggest reasons why?)	Were there any anomalies in the results? (Can you suggest reasons why?)
Can links be drawn between the two sets of data?	
What conclusions did you draw in relation to the original gives of the ensuin?	
What conclusions did you draw in relation to the original aims of the enquiry?	
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3. Answer the following questions in relation to your **physical** fieldwork enquiry.

Give the title of your enquiry that involved the collection of physical geography data. **Title of enquiry**:

a. Describe **one** primary data collection technique that you used and explain why you used it.

Primary data collection techni	que:
Description and explanation: _	

b. Explain the limitations of your data collection methods.

- c. Outline **one** limitation of the primary data you collected.
- d. Assess the effectiveness of your data collection methods in helping you to answer your original question.

_ (3)

(4)

(6)

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

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

(Deterrelle the set of	
(Data collection method #1 continued)	(Data collection method #2 continued)
wny aid you present the data this way? (justification)	wny aid you present the data this way? (justification)
What were the results? (Describe, analyse and explain)	What were the results? (Describe, analyse and explain)
Were there any anomalies in the results? (Can you suggest reasons why?)	Were there any anomalies in the results? (Can you suggest reasons why?)
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What conclusions did you draw in relation to the original aims of the enquiry?	
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Evaluating the enquiry: What problems existed in the data collection methods	s? What were the limitations of the data collected? What other data might be
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Evaluating the enquiry: What problems existed in the data collection methods useful? How reliable were the conclusions you made?	s? What were the limitations of the data collected? What other data might be

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:

Identify one risk that you needed to manage in your fieldwork location, and describe how you managed it.	
Outline one strength of a data presentation technique that you used.	
Data presentation technique:	
Strength:	
Describe the patterns shown in one of your sets of data.	
Data set:	
Patterns:	
Assess the effectiveness of your data collection methods in helping you to answer your original question.	

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?
Atlas mans	00111
Can Lunderstand latitude and longitude on mans?	
Can Luse latitude and longitude on maps? (e.g. using L and L to chart something onto a map?)	
Can Liecognise (see) distributions and natterns on mans?	
Can I describe distributions and patterns on mans?	
Can Luce the scale on a man2 (e.g. to measure distances2)	
Can Liceographica physical and human features on mana? (a g ratiof transport naturation movements)	
Can Link physical and human features on maps? (e.g. feller, it ansport fieldworks, population movements)	
Ordnanaa Survey (AS) mana	
Contraince Survey (OS) maps	
Can Lunderstand and use prid references?	
Can Luca escla, diatance and direction? (rour 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 neight, calculating neight differences in two places)	
Can I map gradient and contour? (e.g. drawing contour lines)	
Can Lidentify 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,	
Mans in association with photographs	
Can Learnare mans? (a.g. compare mans with mans, and compare mans with photographs)	
Can Lunderstand and interpret skatch mans?	
Can I draw and label ekoteb mane?	
Can Lunderstand and interpret photographs? (a.g. ground, parial and catallite photographs)	
Can I describe abycical and human landscapes and other geographical features from abstographs?	
Can I describe physical and numan landscapes and other geographical realures from photographs?	
Can Liabel and empetate diagrams, mans, graphs, sketches and photographs? (e.g. to identify key geographical features, processes	
landforms etc.)	
Graphical skills	
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)	
Numerical skills	
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?)	
Statistical skills	
Do I understand and know how to use median, mean, range, quartiles and inter-quartile range, mode and modal class?	
Can L calculate percentage changes?	
Can Lunderstand the use of nercentiles?	
Can Lunderstand data that uses two variables? (e.g. scatter plots)	
Can I draw lines of best fit? Can I skatch trand lines through scatter plote?	
Can I make predictions based on sets of data?	
Can Lidentify weaknesses the way that data is presented? (a.g. in chosen graph types)	
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.
- <u>If it's a case study question, include lots of relevant details</u> (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 <u>correct</u>!
- ✓ Make your meaning <u>clear</u>
- ✓ Use a range of <u>geographical terms</u> (e.g. sustainable development, tropical storm intensity, primary and secondary impacts, etc.) <u>correctly</u>.

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 opportunities or challenges. [9]		
LEVEL 2 RESPONSE	LEVEL 3 RESPONSE	
Named major city: Mumbai Mumbai has over 21 million people and many move to the city each year. This has caused more challenges than opportunities. 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.	Named major city: 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. 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.	
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.	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.	
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.	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.	
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.	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.	
	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.	

The Level 2 response is good, but it lacks the <u>geographical understanding</u> and <u>detail</u> of the Level 3 response. The Level 3 response also makes a more <u>sophisticated assessment</u>. 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 plate 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.
- For your example of a tropical storm, outline the immediate and longterm 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.
- 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.

142

- 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 adaption 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.
- 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?
- 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.

For your example of a UK river valley, identify its major landforms of

- 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?

98.

99.

96. Explain how a gorge forms.97. How would you identify a waterfall on a map?

101. What is a hydrograph?

102. Define lag time.

erosion and deposition.

Explain how geology affects flood risk.

100. Explain how land use affects flood risk.

- 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?
- 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.

<u>The challenge of resource management</u> (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.