

GCSE Geography B Paper 3 Making Geographical Decisions

Pace Yourself
Teacher Support Guide





Geography B: Pace Yourself Guide

The aim of this PowerPoint, and the accompanying Pace Yourself document, is to help teachers to identify content, skills and themes which reoccur within the specification, allowing a timely completion of the course content within 120 hours of guided learning, as suggested by the 2 year course planner.

This guide will help teachers to plan their delivery, identifying opportunities where:

- knowledge and recognition of ideas is necessary, rather than in-depth understanding
- quick recaps of ideas are sufficient rather providing in-depth teaching again;
- and similarly content can be revisited allow regular revision of key ideas;
- ‘flipped learning’ can give responsibility to students to cover previously taught material either as preparatory tasks either before or after the lesson, e.g. recommending a YouTube video, or reading certain pages of the textbook;
- combining related content across different topics to ensure an efficient use of time;
- ideas about linking detailed content to help students formulate extended responses
- the nature of an issues based specification places particular emphasis on assessment and evaluation of content and ideas.

Paper 3 People and Environment Issues – Making Geographical Decisions





What should be prioritised?

- Look at the mark distribution for Paper 3:

People and the Biosphere	8 marks
Forests Under Threat (either Taiga or Tropical)	7 Marks
Consuming Energy Resources Includes 2 resource-based 'assess' questions	33 marks
Making a Geographical Decision	12 marks

- Candidates need to have in-depth knowledge of both the Taiga and Tropical biomes with a good understanding of the processes that operate in these biomes.
- Candidates should be able to recognise these biomes in resources, explain the processes operating with them for shorter questions and use those explanations to help with 'assess' questions.
- Less understanding is needed of the other major biomes covered in Topic 7 (People and the Biosphere).

Topic 7 People and the biosphere





Topic 7 – People and the biosphere

- Suggested teaching time – might be 5–6 hours.
 - In the SAMS and Specimen Papers almost all marks are for MCQ, 1 mark State/Define and Explain 1–2 reasons.
 - There are no extended ‘assess’ or ‘evaluate’ questions based on this detailed content, although candidates might want to refer to them later in the paper, e.g. the ideas of Malthus and Boserup.
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- Note the previous comments about the weighting of marks on the paper. There are only 8 marks for this section. Candidates will be expected to write in more depth about topics 8 and 9



- Global distribution of biomes (7.1a), and the influence of climate require a reminder of global atmospheric circulation (1.1).
- Students could be asked about the characteristics of any of the biomes listed. It can help to study topic 7 first so students have a concrete understanding of the climate in different locations (then less time is needed to teach topic 1)
- The exploitation of the biosphere (7.2a) is covered in more detail in the context of taiga and rainforest – note the ‘state’ command word
- Understanding regulation of the atmosphere, soil and hydrological cycle requires a global systems approach – understanding the movement of gases and water through different pathways and exchanges – rather than the complexities of the processes themselves.

(2)

Question number	Answer	Mark
1(c)	<p>Award 1 mark for each of the following, up to a maximum of 2 marks.</p> <p>Food (hunting, gathering) (1)</p> <p>Traditional medicines (1)</p> <p>Building materials (timber, fibres) (1)</p> <p>Fuels (wood fuel) (1)</p> <p>Water (1)</p> <p>Do not accept oil/gas or other fossil fuels or resources that require destruction of the biosphere, e.g. minerals.</p> <p>Accept any other appropriate response.</p>	(2)

(2)

Question number	Answer	Mark
1(d)	<p>Award 1 mark for basic mechanism and a further one mark for impact on soil health, up to a maximum of 2 marks.</p> <p>Leaf fall leads to litter which decays into humus (1), which provides nutrients for plant growth (1).</p> <p>Source of organisms, such as earthworms (1), which improve soil quality and/or structure (1).</p> <p>Accept any other appropriate response.</p>	(2)



Where is time needed for depth?

- It is likely students will need more time to understand the differences between the theories suggested by Malthus and Boserup. They'll also need to understand how to make the link between different aspects of those theories and food /energy / water supply.
- Unlike the legacy Spec B, they will not be required to evaluate or contrast these theories in the first part of the exam paper – but evaluation might be useful to gain higher marks in the 'Assess' , 'Evaluate' and 'Select one' questions towards the end of the paper.

(ii) Explain why the relationship shown in Figure 1 between population and resources changes over time.

(3)

Question number	Answer	Mark
1(a)(ii)	<p>Award 1 mark for each phase or 3 marks for explained overview</p> <p>A – initially sufficient resources for population, but population growing faster than resources (1) (geometrically/exponentially)(1)</p> <p>B – at point B there are just enough resources for population (1)</p> <p>C – resources grow arithmetically/incrementally(1) so there is a deficit/widening gap as they can't keep up with population growth (1)</p>	(3)

(b) Explain **two** ways in which technology can increase food supplies for the world's people.

(4)

1	Question number	Answer	Mark
	1(b)	<ul style="list-style-type: none">Use of fertilisers (1) – higher yields, increase intensity (1).Use of pesticides (1) – improve reliability/ cut down crop losses (1)Use of agrochemicals (1) – to allow double cropping/overcome rainfall reliability (1).Use of irrigation (1) – to allow double cropping/overcome rainfall reliability (1)Use of Green Revolution – HYV crops supported by fertilisers/irrigation.Use of Gene Revolution (1) – crop breeding to improve resistance to drought/salt (1)Use of mechanisation (1) – ensures more efficient harvest – releases labour for additional work extending area (1)Improved infrastructure (1) – refrigeration/fast railway routes to secure high quality crop access to market (1). <p>Accept any other appropriate response but it must be technology</p>	(4)



How to help your students:

4-mark 'explain' questions will often be springboard tasks, based on resource material:

- AO3 statements: **selective** use of the geographical information provided, **linked to...**
- AO2 statements: some explanation based on learned concepts or relationships

Pairs of resources can be used to gain subject knowledge, whilst developing the integrated skills and learning exam technique.

(c) Study Figure 2 and Figure 3.

Explain why the taiga forest biome has very low levels of productivity.

(4)

Question number	Answer	Mark
2(a)(ii)	<p>Award 1 mark for an identification of a reason, and a further mark for an explanation of the reason, up to a maximum of 4 marks.</p> <p>The hot/wet tropical climate (1) is ideal for growth of tropical forests which have high biodiversity (1); the complex stratification of the rainforest (1) ensures a wide range of ecological niches (1).</p> <p>Peru contains a number of different biomes such as tropical forest and desert (1) parts of these biomes are isolated and relatively untouched (1) so biodiversity has not been effected by human activity (1) so there is a wide range of different species (1).</p> <p>Accept any other appropriate response.</p>	(4)

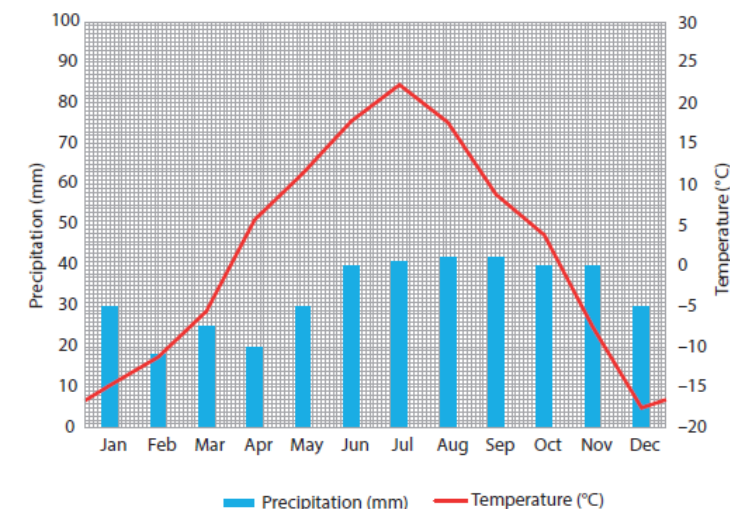
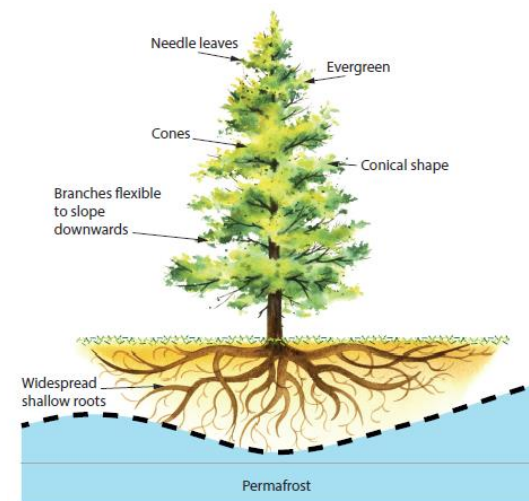


Figure 2
Climate graph for the taiga in Canada



(Source: © Spiritartist / Gettyimages)

Figure 3
How coniferous trees can adapt to their environment

Topic 8 Forests under threat





Topic 8 – Forests under threat

- Suggested teaching time – can be 8–9 hours, with less time spent on either taiga or tropical rainforest
- In the SAMS and Specimen Papers almost all marks are for MCQ, 1 mark State/Define and Explain 1–2 reasons.
- Although there are no 8-mark questions in section B of the exam, students will need to use information from these topics to answer ‘assess’ or ‘evaluate’ questions in Section D (DME) of the exam.



Where is time needed?

- Similarly to topic 5a/b (Coasts/Rivers) there are certain physical processes that need careful focus so that students can write about them clearly.
- Understanding the adaptations that each biome makes to its climate, the associated nutrient cycles, and particularly the reasons for the contrasts.
- It is worth giving spending time in a lesson to help students understand (and write clearly about) the role of precipitation, runoff, decomposition, leaching, soil nutrient take up as a series of linked processes, in the context of the nutrient cycle diagrams.
- Time is also needed to use this understanding to make sense of indirect threats (e.g. forest fires, disease) ; therefore students will understand the impacts on nutrient cycles both initially and over time, e.g. impact of forest fires on regrowth.

(b) Study Figure 3.

The diagram shows how coniferous trees are adapted to their environment.

State how **two** of these characteristics are adaptations to the environment.

(2)

Question number	Answer	Mark
2(b)	<ul style="list-style-type: none">• Triangular/conical shape – protects tree from damage from heavy snow (falls off) (1)• Evergreen – allows instant photosynthesis in short growing season as temperature rises (1)• Needle like leaves - reduces transpiration (1)• Cones – protect seeds from intense cold (1)• Wide shallow roots – allow tree to survive above permafrost in shallow soils (1) or anchors tree in shallow soil to survive strong winds (1)	(2)

(c) Study Figure 2 and Figure 3.

Explain why the taiga forest biome has very low levels of productivity.

(4)

Question number	Answer	Mark
2(c)	<p>Linking concepts and processes to environment. Up to 3 marks for named limiting factors and further mark for link to productivity.</p> <p>Productivity is the rate of energy production (1) long cold winters (1). limited sunlight hours (1). lack of nutrient availability (1) nutrients largely stored in litter (1) are all limiting factors (1) which lead to low levels of productivity (1).</p>	(4)



Where is breath needed (time saved)

- Similarly to topic 1, there are opportunities here for teachers to mix-match parts of the detail content to deliver the key ideas in a way that suits their context.

- Direct threats (e.g. from logging / exploitation) together with / in the context of the nutrient cycle so students understand the environmental consequences of commercial development
- It is possible to teach 8.6a/b together and perhaps address reasons for conflict before looking at management of protected wilderness.
- Some centres might like to teach the Taiga and TRF components separately – an example lesson sequences is shown opposite.

Taiga:

- **Lesson 1** - Characteristics and adaptations (8.2a)
- **Lesson 2** - Productivity, nutrient cycling, biodiversity (8.2b), together with direct threats (8.4a)
- **Lesson 3** – Indirect threats (8.4b)
- **Lesson 4** – Reasons for conflicting views (8.6b)
- **Lesson 5** – Challenges of management (8.6a)

Rainforest

- **Lesson 1** – contrasting nutrient cycles, biodiversity levels and foodwebs, with associated link to climate change (stress on this ecosystem) (8.1B and 8.3B)
- **Lesson 2** – Causes of deforestation (8.3a)
- **Lesson 3** – Global actions to protect rainforests (8.5a)
- **Lesson 4** – Sustainable forests (8.5b)

Topic 9 Consuming energy resources





Topic 9 – Consuming energy resources

- Topic 9 forms a significant part of Paper 3. When planning thought is needed about the sequencing of lessons, as well as remembering how the material is assessed.
- Suggested teaching time could be up to 12 hours, based on a sequence of lessons that shows how the world has moved on from reliance on a carbon economy.
 - This topic could combined be with either taiga/tropical forest to form part of the decision making exercise at the end of Paper 3.
 - In the SAMS and Specimen papers, almost all marks are for MCQ, 1 mark State/Define and Explain 1–2 reasons and Explain (4-mark), together with ‘Assess’ questions that use a resource.
 - In section D, these ideas are also examined through extended writing in combination combined with the resource booklet
 - 2 x 8 mark assess
 - 12 mark select + justify
- ### An example lesson sequence for Energy

 - **Lesson 1** – oil price changes (9.3b)
 - **Lesson 2** – Global energy use (9.2b)
 - **Lesson 3** – uneven distribution and consumption (9.3a)
 - **Lesson 4** – access, based on technology and physical resources (9.2a)
 - **Lesson 5** – new conventional sources (9.4a)
 - **Lesson 6** – unconventional (9.4b)
 - **Lesson 7** – alternative non-renewables, e.g. uranium (9.1a/b)
 - **Lesson 8** – reduce use of fossil fuels, together with efficiency and conservation (9.5a)
 - **Lesson 9** – or renewables, despite other impacts (9.1b)
 - **Lesson 10** – or embrace ‘green growth’ (9.6b)
 - **Lesson 11** – or use new future technologies (9.5b)
 - **Lesson 12** – but remember to include all the stakeholders (9.6a)



Where is breadth needed?

- Questions in the SAMS and specimen papers suggest a need to use the specification to plan carefully
- For 2 and 3 markers**, note that content in brackets, and remember students probably only need to tie it to the rest of the detailed content in one way – for example it could be helpful to check student understanding by asking them to:
 - E.g. 9.1b – outline the environmental impact of landscape scarring
 - E.g. 9.3b – explain how conflict affects oil price / supply?
- For 4-markers**, note that multiple ideas in the brackets could be used to answer a question about the rest of the detailed content:
 - E.g. 9.1b – what are the environmental impacts of renewable energy (pick from HEP flooding / land use etc)

(c) Study Figure 6 which shows the varying prices of crude oil per barrel in recent years in US dollars (\$).

(i) Explain **one** reason why the price of a barrel of crude oil can vary over time.

(3)

Question number	Answer	Mark
3(c)(i)	<p>It depends on the relationships between supply and demand (1)</p> <ul style="list-style-type: none">In times of World Depression less oil needed (1) - a glut and a fall in price (1)In times of wars in the Middle East, eg Iraq, Libya, the oil is not mined (1) so there is a shortage and prices go up (1)Emerging economies such as China, have huge demands for oil (1) so shortages push up pricesDiscovery of new reserves leads to more supplies coming on stream (eg USA) so might lower the price (1)OPEC countries try to control the price of oil (1) and can cut production to raise prices so using it as a political weapon (1) <p>Accept any appropriate answer</p>	(3)

(e) (i) Renewable energy is an alternative approach to fossil fuels. Explain **two** negative impacts on the environment of developing renewable energy resources.

(4)

Question number	Answer	Mark
3(e)(i)	<p>Award 1 mark for basic reason and a further mark for development up to a maximum 4 marks.</p> <p>Renewables such as wind power/solar arrays can have a detrimental impact on the landscape (1) by creating ugly/unsightly installations (1).</p> <p>Wind farms have been linked to disruption of wildlife (1), such as impacts on birds/bats (1).</p> <p>HEP or tidal development are large scale and can cause flooding of large areas (1) with potential loss of biodiversity and / or landscape quality (1).</p> <p>Accept any other appropriate response.</p>	(4)



Where is depth needed?

- There are no located examples in Topic 9, however students need practice at handling 8-mark questions that might utilise the ideas from Topic 9, but asked in the context of the resource booklet.

- For example, can students recognise opportunities for discussion about:
 - Why might local economic benefits of oil and gas typically be better or worse than those on a national scale (9.4a)
 - Why might energy efficiency be seen as better than conservation, and vice versa (9.5a)
 - Why do groups typically have contrasting views about energy (9.6a) – and not just between, but also **within**.

Ways to consider sustainability

- Local vs. global
- Different stakeholders – economic, social, environment
- Benefits vs. costs
- Long-term and short-term
- Business as usual vs. sustainable
- Technology vs.
- Action: Technology and efficiency vs. conservation and education

(f) Study Figure 10 which shows conflicting views within different groups about developing and exploiting the Athabasca Tar Sands.

Choose 2 groups.

Assess the reasons why there are mixed views about the Athabasca Tar Sands development **within your chosen** groups.



Example of depth: conflict within groups in the Taiga

- The exam question on the previous slide highlights a style of evaluation that might seem unfamiliar to some centres – conflicts **within** groups is different to conflict **between** groups. This links to key idea 8.6 of the specification
- To help students to understand this, perhaps consider using a modified conflict matrix, as illustrated below
 - Red box – conflict between groups
 - Green box – no conflict (why?)
 - Orange box – might be conflict. Why? Probably because some in that group agree with another and others do not. So there is conflict within the group.

E.g. Management of Tengis-Shishged National Park (Dukha Reindeer Herders, Mongolia)

Dukha People						
	Gold miners					
		Tourists				
			Tourist companies			
				Rangers		
					NP Authority	
						Richer countries



Example of depth: resource use:

(d) Study Figure 9 which shows possible impacts of oil and gas development.

Using evidence from the resource, assess the local and national economic benefits of developing the oil and gas.

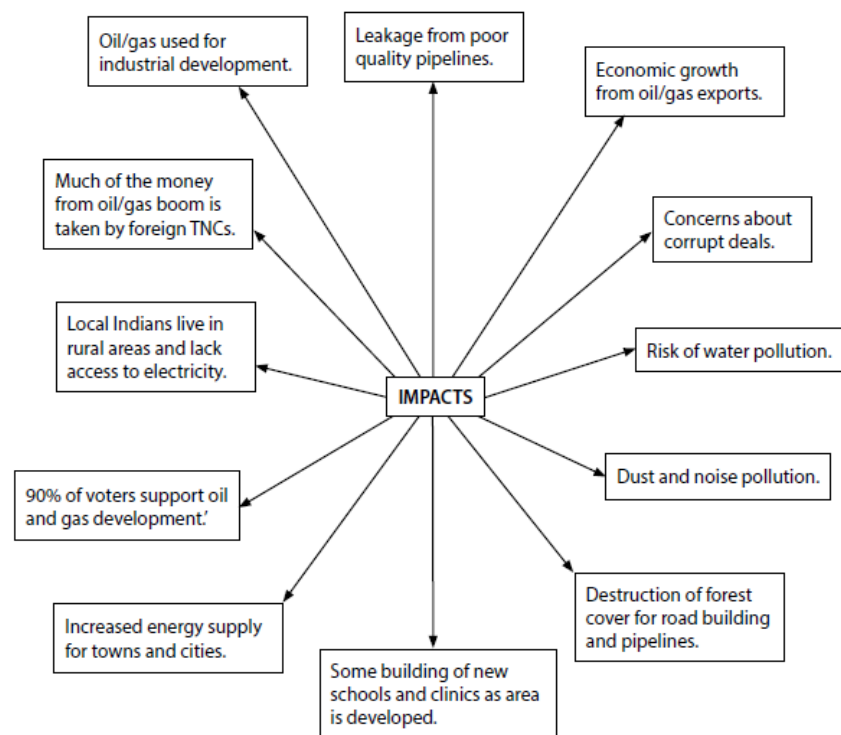


Figure 9

The impacts of oil and gas development on the rainforest

(8)

Key idea	Detailed content
9.4 The world's continuing reliance of fossil fuels increases pressure to exploit new areas	a. Economic benefits and costs of developing new conventional oil and gas sources in ecologically-sensitive and isolated areas.
	b. Environmental costs (negative impacts on water quality and ecosystems) of developing new unconventional oil and gas sources (tar sands, shale gas) in ecologically-sensitive and isolated areas.

On a question like this, successful candidates will be able to

- make links between the different benefits
- sustain a blended response of information and argument throughout the entire piece of writing (each new benefit was, in turn, briefly assessed at the end of each paragraph)
- Reflect the question – i.e. write about both local and national benefits (and unpack what is meant by benefit)
- Introduce, or conclude, the answer by offering an assessment of which was the greatest challenge shown in Figure 9.

It is important that judgements and overviews actually reflect what has been written. A series of points that abruptly conclude that one of them was particularly important do not have sufficient supporting evidence and do not development an argument. Therefore resources like these can be used to drive the teaching of the key ideas and detailed content. Present information quickly **from the beginning of the course** and use activities that encourage students to develop into confident geographical thinkers.

ALWAYS LEARNING