

**GEOGRAPHY G4****SUSTAINABILITY****Mark Scheme****Q.1 Outline ways in which fossil fuels and renewable sources of energy may result in damage to the environment. [10]**

Evidence to support answers is scattered throughout the resource in both country information and on extracts about individual sources of energy. Figure 18 summarises the global warming problem from fossil fuels, and nuclear power problems are given in Figure 19. Figure 22 outlines some of the problems of HEP, and Figure 29 discusses biofuels. Figure 24 may be used to illustrate small-scale environments. Nuclear energy may be put forward as either a fossil fuel or a renewable, accept either interpretation. Full mark answers can come from candidates who use only the Resource Folder, but credit information that goes beyond the Resource Folder provided it is relevant to the answer.

<b>Level 3 (8-10 marks)</b>	Outline is very clear on damage in more than one way for both fossil fuels and renewables. Focus is on the environment. Extensive supporting evidence.
<b>Level 2 (4-7 marks)</b>	Answers may lack either balance between fossil fuels and renewables, or lack clarity about the ways. Some support given.
<b>Level 1 (1-3 marks)</b>	Ways may be named, but not made clear. Answer may stray from damage to the environment. Evidence may not be given or be merely the name of a place.

**Q.2 Explain why countries have different mixes of energy sources. [10]**

The mix of energy sources is given for Botswana, Malaysia and France in the Resource Folder. Candidates may wish to select from countries other than those in the Resource Folder, so credit any other mixes provided they are well detailed and involve clear explanation. Explanations can cover a range of factors such as availability, cost, environmental factors, demand etc. There is no set range of factors required. Answers should account for differences between countries. Supporting information should be well founded and relevant to the country being considered. It is likely that Figures 4, 5 & 7 may be used for the mix for Botswana, Figures 9 to 11 for Malaysia, and Figures 13 and 14 for France. Allow a generous interpretation of mix.

<b>Level 3 (8-10 marks)</b>	The mix for at least two countries will be explained in some detail. The answer will explain clearly why they are different. Extensive supporting evidence is given.
<b>Level 2 (4-7 marks)</b>	Only one country explained well. There may be imbalance in detail between countries, or the range and/or depth of explanation may be limited. There may be some explaining why they are different. Answers may dwell on description. Some evidence given.
<b>Level 1 (1-3 marks)</b>	A few isolated points may be made. Answers will be poorly related to any countries or differences. Evidence may not be given or just a name tagged on at the end, 'e.g. Canada', and could be applied anywhere.

**Q.3 Explain why the demand for water differs throughout the world. [10]**

Figure 2 on page 4 gives some starting points to aid recall of factors that influence demand. Figure 11 on page 8 introduces the link between hydro-power and water supply. Figure 22 on page 14 develops this idea and introduces others. Figure 30 on page 18 has information on water conservation. Figures 31 & 32 on page 19 shows the rainfall distribution throughout the world, and where water stress is being experienced. It should be possible for good candidates to select this information and produce a full mark answer. It is possible that candidates will recall class case study material or research carried out in the six weeks leading up to the exam and such material should be credited. Good answers will outline the demand for water in at least two locations, and will bring out differences between the locations selected. Locations may be selected from within the same country, e.g. North and South California.

<b>Level 3 (8-10 marks)</b>	Demand for at least two contrasting locations will be considered. Explanation will be clear and logical. Reasons for differences will be explained. Evidence will be used. Answers may use two locations in depth or make a wide range of points from many.
<b>Level 2 (4-7 marks)</b>	There may be imbalance between locations chosen, or be limitations in explanations. There may be little to explain differences. Some evidence given. General reference to one location limited to top of Level 2.
<b>Level 1 (1-3 marks)</b>	Some isolated points are made, but not organised into an answer to the question. Evidence may not be given or just a name provided.

**Q.4 'Global economic development is the greatest threat to the sustainability of world energy supplies.'**

**How far do you agree with this statement?**

**[25]**

Candidates should recognise the existing high levels of energy usage by economies that are already developed, and that the rapid economic development in certain areas of the world (India and China are likely examples) is creating further demand. From this perspective some assessment is possible. Material may be drawn from many sections of the resource Folder. Figures 9 -11 may be used to illustrate rapid growth in Malaysia, Figures 12 to 14 can be used to show existing high levels in France. Much of the material in Figures 15 to 29 deals with sustainability. Accept answers that argue that economic development can support sustainability. It is likely that material from other parts of Geography studies could well be introduced, and this should be rewarded.

Full answers (Level 5) should consider:

1. economic development;
2. threats to energy supply;
3. sustainability;
4. global element;
5. assessment - how far;
6. support.

Level 4 may be weak on two or more of these.

Level 3 and below may have one or more of these elements missing.

<b>Level 5 (22-25 marks)</b>	Current and likely future demands for energy will be discussed for a range of levels and stages of economic development. Knowledge of several supplies is good. Other threats/opportunities identified. Evaluation of evidence leading to it, will account for a large part of the answer. Evidence in support is extensive. The answer will be logically structured, and expressed in clear language.
<b>Level 4 (17-21 marks)</b>	Demands for energy will be discussed for different levels or stages of economic development. Role of supplies and/or some other threat/opportunity recognised. Some sound evaluation in parts of the answer. Evidence given to support several points. The answer will mainly be logically structured, and mainly expressed in clear language.
<b>Level 3 (10-16 marks)</b>	Demands for energy linked to economic growth. Some different levels/stages of development described. May mention supply/other threat/opportunity, but limited. Some evidence in support. Minor flaws in structure or expression.
<b>Level 2 (5-9 marks)</b>	Simple points about energy demand/supply. Level/stage of development simplistic if introduced. Any evidence given relates poorly to points made. Structure and expression weak in several places.
<b>Level 1 1-4 Marks</b>	Some potentially relevant points made, but not organised into an answer. At this level, candidates are likely to just agree (or just disagree) with the statement with no justification for doing so. Poorly organised and expression may be ambiguous and/or contradictory.

**Q.5 Outline the factors that influence the sustainability of food supplies. Assess their relative importance. [25]**

There are many factors that could be introduced. For good answers, we can expect extensive discussion of influences from at least two factors. From both their A2 and AS studies, candidates should have knowledge of other threats from land use for house building, industry, retailing, various kinds of transport, environmental degradation, etc. There is the opportunity to bring in mining, other resource exploitation and damming of rivers leading to areas being flooded. They may link such ideas not only to the amount of land available, but also to changes in agricultural production. The sustainability of the use of chemicals, irrigation, machinery, hybrid seeds and GMOs may be used. It would be possible to introduce ideas on population growth. The answer can be developed in a number of ways, so it is not possible to insist on particular content. Good answers should show considerable assessment.

Level 5 answers should contain:

1. food supplies;
2. factors influencing them;
3. sustainability;
4. assessment;
5. support.

Level 4 may be weak on two or more of these.

Level 3 and below may have one or more of these elements missing.

<b>Level 5 (22-25 marks)</b>	Good knowledge and understanding of at least two factors. Assessment, or evidence leading to it, dominates the answer. Extensive evidence given in support. The answer will be logically structured, and expressed in clear language.
<b>Level 4 (17-21 marks)</b>	Some knowledge and understanding of at least two factors. Some sound assessment. Good supporting evidence in several places. The answer will mainly be logically structured, and mainly expressed in clear language.
<b>Level 3 (10-16 marks)</b>	Good knowledge of one factor, or more sketchy knowledge if more. Some evidence in support. Minor flaws in structure or expression. Answers referring to factors only limited to top of Level 3.
<b>Level 2 (5-9 marks)</b>	Basic knowledge of one factor. Any other introduced will be very superficial. Any evidence given relates poorly to points made. Structure and expression weak in several places.
<b>Level 1 1-4 Marks</b>	Some potentially relevant points made, but not organised into an answer. At this level, candidates are likely to make an assessment but with no reasons for doing so. Poorly organised and expression may be ambiguous and/or contradictory.