

2017 VCE Geography examination report

General comments

Students were able to use knowledge and skills learnt during the year to respond to questions on the 2017 Geography examination. The majority of students attempted the whole examination. Most students were able to respond clearly to questions, using appropriate geographical language and within the allocated time. Many showed a very good understanding of the study and were able to respond in depth to questions using appropriate examples, case studies and evidence.

Advice to students

- Students are encouraged to read each question thoroughly, identifying and highlighting or noting key terms and directions in the questions.
- Students are encouraged to have a thorough knowledge and understanding of the relevant study design and the Areas of Study for both Units 3 and 4, including key knowledge and key skills.
- Students are encouraged to draw on connections between specific dot points and statements in the study design and the examination questions, where appropriate.
- Students should focus on appropriate examples and case studies guided by the study design. It is important to draw on specific case studies where required, such as from Area of Study 2 in Unit 3 and Area of Study 2 in Unit 4.
- Students are encouraged to practise using cross-study specification skills throughout their study of Unit 3 and Unit 4.
- Students need to avoid cliché and generalised statements and instead focus on evidence-based discussion, utilising case studies learnt in Units 3 and 4.
- Students who utilised geographical skills in response to questions often provided responses that showed a great depth of understanding.
- Students could break down each question into component parts through highlighting key parts of a question and annotating the requirements, examples or case studies to be utilised, to ensure that all parts of a question have been answered.

Areas of strength

- evidence of a sound understanding of outcomes in both Units 3 and 4
- appropriate responses to each question, often with examples and elaborations that were relevant and detailed; incorporating relevant data and appropriate examples, case studies and evidence enabled students to demonstrate their understanding when responding to questions
- the ability to analyse the provided data and utilise evidence from the data book in responses was especially strong
- the ability of the majority of students to answer all questions appropriately
- the confidence displayed by most students when using geographical language or geographical data in their answers
- identifying key directive terms, which enabled students to address the specific geographic requirements of a question and structure their response accordingly

Areas of weakness

- The cross-study specifications of key geographical concepts, geographical skills and fieldwork require greater emphasis, with some students unclear on how each could be incorporated into a response. Students who used and/or referenced the specifications well provided responses that had greater depth and showed a greater understanding of the question. Cross-study specifications need to be integrated within a study across both Units 3 and 4 and should not be standalone aspects of the study, so that students have a comprehensive understanding of these components of the study design.
- Some case study examples for Unit 3, Area of Study 1 fieldwork were not appropriate, in that the fieldwork was not focused on land use change. Often students' fieldwork investigated aspects that did link to land use change but in a very convoluted way. In these cases students found it difficult to clearly identify the fieldwork question in relation to land use change (Question 1a.).
- Application of learnt knowledge to a question requires students to think through all components of the study and then make links between what they have learnt and what the question is asking. Some students provided examples that were learnt but not relevant, memorised to incorporate into any response or too generalised to respond to a question in a higher-order way. Students are encouraged to work through all aspects of the study design rather than look for generalised case studies that provide generalised responses to a number of aspects of the study design.
- The term 'working class' was often used to describe the economically active component of a population. Students need to develop a better understanding of where to use such terminology in order to better utilise geographical language in responses.

Specific information

Note: Student responses reproduced in this report have not been corrected for grammar, spelling or factual information.

This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding resulting in a total more or less than 100 per cent.

Question 1a.

Marks	0	1	Average
%	35	65	0.7

Students needed to state the location of their fieldwork together with the required research question appropriately aligned to land use change. A justification was not required. While most students could confidently state the location of the fieldwork, many struggled to state their fieldwork question in question form. Many statements that identified a fieldwork area did not relate the area to land use change, either directly or through implication, instead focusing on aspects that were not in any way related to land use change. This highlighted the need for students to have clear knowledge of their fieldwork focus question and then, where included, sub-questions or related investigation questions.

Understanding of the study design as a whole was important in responding to this question. Unit 3, Area of Study 1 clearly identifies the focus of the fieldwork as an investigation into the processes and impacts of land use change and the fieldwork question needed to clearly relate to this, as this is the focus of every other aspect of the investigation. The cross-study specifications state that 'a clear statement of the research question' be included when defining the topic for fieldwork

investigation (*VCE Geography Study Design 2016–2020*, page 13). While the geographical context of the fieldwork question may be expanded upon, the research question needed to clearly relate to land use change. It was not appropriate to structure the fieldwork question around aspects that are not clearly related to land use change, for example, an investigation of the impacts of noise pollution on a locality.

While the use of sub-questions that relate in a secondary manner to the topic may be appropriate to the investigation, students needed to be clear of the land use change being investigated and this was not always the case.

Appropriate responses included:

- The fieldwork location was Phillip Island. The fieldwork question was: ‘What are the land use changes that have occurred at the Summerlands Estate?’
- The fieldwork location was Little Stringybark Creek in Mount Evelyn in the outer eastern suburbs of Melbourne. The fieldwork question was: ‘What are the land use changes occurring in the locality?’
- The fieldwork location was Fishermans Bend in Melbourne. The fieldwork question was: ‘What are the most recent land use changes at Fishermans Bend?’

Question 1b.

Marks	0	1	2	3	4	5	6	Average
%	2	2	11	13	28	19	25	4.2

Students were confident in responding to this question, and this was reflected in the marks obtained overall. For each component students were required to identify the primary fieldwork technique and secondary source utilised in the fieldwork and then justify the use of the technique and source in relation to the land use change investigated. Most students were able to clearly identify both the fieldwork technique and source and were able to distinguish between primary fieldwork techniques (survey, interview, photographs) and secondary sources (online websites, newspaper articles, data provided during an interview). Justification in relation to the context of land use change was not always clear and concise.

The following is an example of a high-scoring response.

Primary fieldwork technique: Upon visiting the fieldwork location, the Foy and Gibson building, we each took photographs of the building itself and the area surrounding it, as a means of primary data collection. This was done in order to be able to realise the change that occurred to the building itself and also the changes occurring to the surrounding area. ...

Secondary source: The online resource, Google Maps was used to obtain accurate details of the Foy and Gibson building in relation to absolute and relative location and key environmental features of the area. This allowed for precise representation of the area to be presented in a sketch map.

Question 2

Students showed excellent geographical skills knowledge and understanding to respond correctly to Question 2. Strong topographical map analysis and data interpretation skills were evident in responses.

Question 2a.

Marks	0	1	Average
%	14	86	0.9

Most students were able to state open forest as the correct response.

Question 2b.

Marks	0	1	2	Average
%	1	2	97	2

Most students were able to respond appropriately with any two of the following: bare land, open woodland, agriculture.

Question 2c.

Marks	0	1	Average
%	5	95	1

Most students responded appropriately with open forest.

Question 2d.

Marks	0	1	Average
%	5	95	1

Most students were able to state dense forest.

Question 3

Marks	0	1	2	3	4	5	6	7	8	Average
%	4	3	4	10	18	22	20	12	9	5

Students needed to describe one significant spatial technology – for example, Geographic Information Systems (GIS) or satellite imagery – at an appropriate specific location. Students were then required to provide an explanation of how the spatial technology can be used to assess or manage land cover change related to desertification with relevant evidence from the specific location. Students who provided generalised descriptions of spatial technologies that could relate in any situation did not obtain full marks.

While most students were able to identify a specific spatial technology in relation to desertification at a specific location, the depth of discussion related to how the technology helped to assess or manage the land cover change varied from very generalised statements that may have been applied to any case study to very detailed and specific examples of how spatial technologies could be used to assess and manage changes in land cover due to desertification. Students also found it difficult to describe the spatial technology; they needed to expand on exactly what the spatial technology does rather than simply state the type of spatial technology. Higher-scoring responses were strong on providing the assessment and management of land cover component of the question.

The following is an example of a high-scoring response.

GIS has been used to assess the land cover change to the process of desertification in Niger. GIS is a spatial technology which uses layers of maps to usually show different layers in comparison the regions. In Niger, census data of population as well as regions affected by desertification have been layered onto a map using GIS. Approximately 80% of Niger is arid land, so by putting a layer of the population distribution in Niger, organisations such as the UNCCD can access which areas are most vulnerable to the negative aspects of desertification such as degrading land productivity. By doing so UNCCD can target these areas which are vulnerable to desertification which have a high population.

Question 4

In planning their response to questions such as this, students are encouraged to highlight and annotate the question and key components that need to be answered. Students are also encouraged to provide appropriate elaboration that relates directly to the question, rather than including a range of elaborations that may have been learnt but are unrelated. When students attempted to demonstrate their understanding of their case studies – especially material rote-learned to include anywhere a specific topic was mentioned – the response tended to move away from the question itself. Students who used their knowledge of the study design to draw together their understanding provided stronger, detailed responses.

Question 4a.

Marks	0	1	2	3	4	5	6	7	8	9	10	Average
%	1	2	5	10	15	17	16	13	11	6	4	5.5

Students were required to:

- identify one selected location correctly – the location could be local, regional or national in scale
- discuss the role and interconnection of one natural process and one human activity in causing melting glaciers and ice sheets
- effectively use key geographical concepts and terminology in the response.

Most students scored in the mid-range for this question. Higher-scoring responses showed evidence of high-order understanding of the processes (both natural and human) and their interconnection at a specific location, using appropriate evidence to support discussion, together with effective use of geographical terminology. The discussion of the interconnection between human activity and natural process required the students to move beyond simplistic statements towards a discussion that highlighted the complexity of the interconnections, for example, ‘climate change has both natural and human aspects that interconnect to accelerate melting of glaciers and ice sheets’. Some lower-scoring responses detailed aspects of the impact of carbon dioxide without clearly addressing the question, while others lacked detail on the impact at the selected location and responded in very general terms that could be linked to many locations.

Students who were able to draw upon a clear and strong case study related to melting glaciers and ice sheets were able to bring together a detailed response. A strong understanding of the study design was evident in higher-scoring responses.

The following is an example of a high-scoring response.

Human activities will often enhance or diminish the influence of natural processes. This can be seen extensively in places such as Greenland where the impact of humans is greatly felt in terms of melting glaciers and icesheets as it will be 98% certainty that at least half of observable changes can be traced back to human induced global warming and climate change.

The earth’s climate has always been shifting from warmer temperatures, such as during the Holocene period 8,000 years ago, to colder temperatures, such as the Last Glacial Maximum 20,000 years go. These climate variations play an important role in causing glaciers and icesheets to expand or shrink, as during warmer periods these massive bodies of ice will be largely confined to higher altitudes or to polar areas. During the Last Glacial Maximum glaciers that cover Greenland used to extend across more of the Arctic Ocean, creating an ice sheet that covered parts of Northern Europe, Asia and North America. However, as temperatures rose these icesheets started receding and were only found further north. Thus the natural process of climatic variation plays a large role in causing ice sheets and glaciers to either grow or shrink.

However, this natural process was greatly exacerbated by human activities, the most notable being the mass release of greenhouse gases, such as carbon dioxide and methane. The

interconnection between the two is highly evident, as the presence of humans seems to have a direct correlation with rising global temperatures. Since the industrial revolution, human activities such as burning fossil fuels and deforestation last year alone, over 38 billion tonnes of carbon dioxide were released causing temperatures to rise by 0.8C since 1880. This plays a significant role in causing glaciers and ice sheets to melt, as the warmer temperatures cause them to melt at a faster rate. In Greenland, the Jacobshavn glacier doubled its velocity from 1985 to 2010, and the Heshheim glacier increased its rate of melting by 9% from 2003 to 2005. Overall, Greenland's glaciers lost 20% more mass than they could replace in the last decade. Thus, human activities such as releasing greenhouse gases have exacerbated and interconnected with the natural process of climatic variations, causing the global temperatures to increase, which in turn causes the melting of glaciers and ice-sheets.

Question 4b.

Marks	0	1	2	3	4	5	6	7	8	9	10	Average
%	11	5	9	9	13	12	13	10	10	5	3	4.7

Students were required to:

- clearly state an appropriate criterion to evaluate the success of one local response
- clearly state one local response developed primarily at the local level and incorporate evidence and elaboration when stating the response
- evaluate the success of the local response at the selected location using the appropriate criterion.

Higher-order responses showed an understanding of the success of one local response at a selected location to the impacts of the process. These responses incorporated appropriate evidence (data, examples, locations) to support discussion together with effective use of geographical terminology.

Students were able to respond using an appropriate criterion, with some responses clearly evaluating the success or otherwise of the response at the locality. Some students provided generalised responses that were not local in any aspect or that could be applied to many locations without focus on one local response.

While there may be overlap between responses to melting glaciers and ice sheets and desertification and deforestation at the local level – for example, at Mount Kilimanjaro – it is wise for students to avoid giving a prepared response and instead focus on key components of the outcome in the study design.

The following is an example of a high-scoring response.

A local response to the impacts of Melting Ice Sheets and Glaciers (MISAG) is mining. This is a response to the impact of more land becoming uncovered due to the melting of the ice. In Greenland, most of the mining occurs near the town of Narsaq. The major mining company involved is Tanbett Mining. Mining for coal, oil, gas, uranium, zinc and copper is all occurring and also mining for rare-earth minerals given that Greenland could potentially contain 50% of all the Earth's rare Earth minerals. A criterion which can be used to evaluate the success of mining in Narsaq is sustainability. This is an important criterion to consider because a response must be sustainable to ensure its success in the long-term and also to ensure that it does not have any major impacts on the surrounding environment. Overall, mining in Narsaq is not considered sustainable for several reasons.

Firstly, resources in Greenland are finite and therefore mining is not a sustainable response to use land becoming uncovered. With mining becoming increasingly common on Narsaq in the past 5 years, it is likely that the scale of the mining will increase significantly in the near future. This could deplete Narsaq of resources by the end of the century is a reason why mining in Narsaq is not sustainable.

In terms of environmental sustainability, mining in Narsaq is not sustainable because it degrades the landscape. Pollutants from the mining industry are resulting in a decline of biodiversity, including fish which is significant because fishing accounts for 40% of Greenland's exports. Greenland is also home to the world's largest national park (North East Greenland National Park) and there pollutants for mining in Narsaq can degrade the landscape of the national park, making the mining not sustainable.

Finally, in terms of social sustainability, mining in Greenland is not sustainable. Many residents in Narsaq are impacted by pollution created by the mining. Also an influx of foreign workers has diminished some of Narsaq's traditional culture, which is particularly significant because Greenland only has a population of about 56,000 people. Overall, mining in Narsaq is not socially sustainable.

Overall, mining in Narsaq is not a sustainable response to more land becoming accessible (due to MISAG), because resources are finite, it degrades the landscape and reduces biodiversity and because it is not socially sustainable. Given that this response is not sustainable, it is also not a successful response because it cannot be maintained in the long term and impact the surrounding environment negatively.

The following is another example of a high-scoring response.

The local response of the study of Kulusuk lake responds to the process of melting glaciers and ice sheets by drilling ice cores from the glacial meltwater filled lake and analysing the cores in order to discover past glacier melting events. The response was able to discern when the silt of the cores was deposited due to radiocarbon dating, and evidence of the relationship between increased levels of carbon dioxide in the atmosphere and increased rates of decay of melting was found. In addition, the scientists collected data and learnt that the overall melting of Greenland's Kulusuk glacier began approximately 100 years ago as this 100 year time period showed the fastest rate of melting, and this is reflective of most of the country's glaciers.

According to the criterion of if the response was able to show the rate or amount of melting, the Kulusuk lake study was not effective at all. The response is only local and lacked significant financial support, therefore was not able to develop programs to effectively slow the process of melting ice, which has actually increased significantly from 44 cubic kilometres of ice lost in 2002 to 249 cubic kilometres lost in 2006. The response only collected information and data about past and current glacial melt, however they did assess the possibility of glacial outburst floods (GLOF) of the Kulusuk glacier and warned villages and towns downstream of the likelihood of a natural disaster in order to reduce future impacts, hence the local study responded somewhat to impacts of melting glaciers and ice sheets. However, according to the criterion the response was not effective.

The following is another example of a high-scoring response.

The Uummanaq municipality located in southern Greenland responded to the process of melting ice sheet by increasing the use of renewable energy sources and expanding their tourism campaign to increase awareness. The Greenland government invests 1% GDP annually in increasing renewable energy sources and the Uummanaq municipality has utilised this by increasing renewable energy sources by approximately 45%. However, in order to evaluate Uummanaq's response, the total impact of Uummanaq's response must be addressed to see if Greenland's temperature decreased. The Uummanaq municipality's increase in renewable energy sources have not decreased Greenland's rise in temperature as the scale of the response is too small. Greenland's temperatures are still continuing to rise at a high rate (approx. 0.5 oC annually) not because of Greenland's greenhouse gas emissions, but because of Greenhouse gas emissions produced worldwide. Therefore, The Uummanaq Municipality has had no success in decreasing Greenland's rising temperatures as the scale of the response is too small, however, the response has been successful in increasing renewable energy sources in the Uummanaq municipality.

Question 5**Question 5a.**

Marks	0	1	2	3	4	Average
%	9	11	25	27	28	2.6

Question 5b.

Marks	0	1	2	3	4	Average
%	11	12	26	27	24	2.4

Question 5 required students to present one reason why Malthus's ideas on future population growth are still relevant today (Question 5a.) and then not relevant today (Question 5b.). The response required the student to show a clear understanding of the relevance of Malthus's ideas, as well as providing some exemplification, evidence or elaboration that explained the student's reasoning. Most students were able to describe Malthus's ideas and provide some exemplification but the depth of the exemplification varied. Students are encouraged to gain an understanding of the ideas posed by Malthus through case studies such as the Green Revolution and specific countries' abilities to increase food production (such as that of Bangladesh, China and India). Some students were able to identify the development of contraception as an aspect of population checks that Malthus did not foresee.

The following is an example of a high-scoring response to Question 5a.

There is belief that the theory is still relevant today due to the population growth in Africa. Africa has proven the theory to be true as the population has grown exponentially with Mali, Niger and Uganda all having growth of over 3% in 2015, whilst food production has only grown arithmetically. Therefore the population has been subject to starvation as the population is too large for the amount of land which they're living on can produce.

The following is an example of a high-scoring response to Question 5b.

With advances in technology, scientists are able to grow food due to GMO and store foods for longer thus rapidly increasing the food supply in the population. This therefore implies that Malthus's theories too be not relevant in the 21st century, for example developed countries such as USA and the UK, all have large, dense populations, however, able to be sustained by food and is indicated by their proportionally small poverty and malnutrition rates.

Question 6a.

Marks	0	1	2	3	4	5	6	Average
%	1	3	10	31	26	17	12	3.8

This question required students to identify a specific population that is or was transitioning towards an ageing population, and most students were able to do this. Students were then required to provide a statement about how the population moved towards an ageing population, using evidence, data and trends of the population over time. Students finally needed to explain with evidence and elaboration an issue that had arisen from the transition to an ageing population.

Most students could clearly identify a country that has transitioned to an ageing population. Popular answers included Japan, Australia and Germany. Higher-scoring responses could clearly explain how the country has aged, including the trend and also including very good use of data backing up the trend (that is, declining fertility rate). Lower-scoring responses could not elaborate on why their chosen country has aged.

The issue as a result of ageing was answered well. Most students could identify an issue, such as a declining workforce or pressure on social services, and they could back this up with evidence and quantifying statistics and data. Students with lower-scoring responses did not know their case study well enough and were too general in their attempts to explain the issue.

The following is an example of a high-scoring response.

Japan has an ageing population of 126 million, which is experiencing the issue of a high dependency ratio. Declining fertility rates which reached a low of 1.2 in 2010 have caused Japan's population structure to become weighted towards its elderly population. 20% of Japan's population is over 65 a number that must be supported by its dwindling workforce that is projected to fall from 81.7 million in 2016 to 44 million by 2050. Japan's dependency ratio is 64.5% and there are now only 2 workers per person aged over 65. This means that the Japanese government has been forced to increase funding for the aged which comprises 25% of all government funding. Japan's high dependant population is due to the 4-2-1 conundrum in which 2 working age adults must support 4 parents and 1 child. As such 4 million elderly residents live alone as their children are unable to support them. In this way, Japan's transition to an ageing population has resulted in an unsustainably high dependency ratio.

Question 6b.

Marks	0	1	2	3	4	5	6	Average
%	5	4	9	17	23	21	21	4

Students needed to correctly identify one strategy developed in response to the population issue outlined in Question 6a. They needed to elaborate on the strategy through provision of specific detail, evidence or data and then provide a viewpoint or explanation of the effectiveness – for example, rating it as effective, not effective or somewhat effective – supported with appropriate data.

Higher-scoring answers could clearly identify one correct strategy in response to the issue. Well-prepared answers were very strong in the elaboration of the strategy, through outlining the name, dates, who implemented it, organisations involved, the aim, etc. Lower-scoring answers were too general, not detailed enough and did not demonstrate a thorough understanding of the strategy. Students with higher-scoring answers supported their effectiveness statement with excellent data and quantifying support.

The following is an example of a high-scoring response.

The Angel Plan was a national response developed by the Japanese Health Ministry in 1994 in response to a record low fertility rate of 1.57 in 1989, The Angel Plan aimed to a reduce Japan's dependency ratio by encouraging women to have more children. This was to be achieved by offering women 8 weeks paid maternity leave at 60% salary and a planned 50,000 day cares near train stations. The angel Plan has been highly ineffective at lowering Japan's fertility rate from 1.57 in 1989 to 1.4 by 2016. 70% of women continue to quit work to raise their first child, providing a disincentive for women to choose to have children. Furthermore, 20,000 children are still waiting for day care in Tokyo indicating that the planned 50,000 day cares were insufficient. With Japan's fertility rate predicted to decline further to 1.3 by 2050, the Angel Plan has been ineffective in increasing the nation's fertility rate and has thus done little to reduce the country's rising dependency ratio.

Question 7a.

Marks	0	1	2	3	4	5	Average
%	10	10	19	23	20	16	2.8

This question required students to show an understanding of Stage 3 of the Demographic Transition Model, identifying a falling birth rate and a lower but levelling death rate resulting in a

high natural increase. Students were required to provide appropriate and quantified evidence from the graphed data to support their viewpoint.

Students were able to identify aspects of a typical Stage 3 population, but students varied in their ability to clearly show an understanding of Stage 3 and provide clear evidence from the population profile graph. Some students confused Stage 2 and Stage 3. Students were not required to provide specific examples in this part of the question.

Responses that disagreed with the statement were not awarded marks as students were asked to account for a viewpoint rather than agree or disagree with the statement.

The following is an example of a high-scoring response.

During Stage 3, the birth rate remains high, beginning to decrease and the death continues to decrease, but at a slower rate than in Stage 2. As a result, the total population is increasing exponentially. In the population profile of Country X, the birth rate is high as shown by 6.8 million males 0–4 and 6.4 million females aged 0–4. The death rate is low as shown by only a small taper at the 65+ area of the profile. The signature pyramid shape of Stage 3, indicates a growing population however, the evidence of a higher proportion of 65+ of around 4 million compared with Stage 1 and 2 indicates that the country is in Stage 3.

Question 7b.

Marks	0	1	2	3	4	5	6	Average
%	12	9	17	23	17	12	10	3

This question required students to identify an appropriate population (this could reference populations that are currently in Stage 3, 4 or 5 but have moved through the DTM or a specific population in Stage 2) and provide an outline of one issue and subsequent challenge that the population face.

Generalised responses that did not refer to a specific country did not obtain full marks. Most students were able to identify characteristics of countries in Stage 2 as well as a subsequent issue and challenge, but not all were able to identify an appropriate country, either currently or historically in Stage 2. Some students showed an ability to utilise understanding of a growing population from Unit 4, Area of Study 2 to highlight the interconnection between population dynamics and resulting issues and challenges. Other students used their understanding of examples from Area of Study 1 and highlighted their understanding of the five-stage Demographic Transition Model.

The following is an example of a high-scoring response.

Afghanistan in Stage 2 have a high birthrate and a falling death rate. This overall leads to a rapid, high increase in population growth which the country may be unable to financially support effectively. There is a chance that the country will be unable to meet the peoples needs whether it be through changing healthcare systems, increasing infrastructure and housing, food security and substantial education levels. There will need to be an increase in facilities to meet and promote health and sustainable populations.

Question 8a.

Marks	0	1	2	3	Average
%	7	6	15	72	2.6

Responses to Question 8a. highlighted students' ability to interpret and analyse geographical data very well. Students were required to identify a numbered Malawi district that had a strong spatial association between population density and the distribution of health facilities. Students then needed to justify this number in a way that showed a clear understanding of the concept of spatial

association, and most students were able to do this very well, using evidence from the mapped data.

The following is an example of a high-scoring response.

There is a strong spatial association between a scarce population density and fewer health facilities in district 1. District 1 has a density of under 100 persons per km², the equal lowest in Malawi. Because of this there are only 10 facilities, the least of all the districts.

Question 8b.

Marks	0	1	2	3	4	5	6	Average
%	7	8	18	26	21	12	8	3.2

Students were able to use the example provided in the data book but were able to use other examples learnt during their study of Unit 4.

The response required students to describe the role of spatial technology, such as GIS data collected in Malawi, as a strategy in response to a population issue – for example, the location of health centres and then layers of population density, income levels, ethnic groups or funding distribution can be added. Students then needed to discuss the effectiveness of the specific spatial technology in responding to a specific population issue, with appropriate evidence, data and elaboration.

Students who had specifically investigated a spatial technology associated with Area of Study 2 in Unit 4 generally produced higher-scoring responses than students who attempted to use the evidence provided within the data book or who attempted to use a spatial technology in more general terms.

The following is an example of a high-scoring response.

The use of geographic Information Systems can prove to be highly beneficial in managing and responding to contemporary population issues, given that GIS is capable of manipulating a wide range of data (census data for example) and categorise this data into comprehensive 'layers'. Governments and non-government organisation can effectively utilise this data in order to assess the implications of population issues towards infrastructure, the environment etc., and thus be able to develop appropriate policies and strategies once evident conflictions of issues can be identified from this spatial data. The effectiveness of such data is exemplified through Niger's Famine Early Warning System, given that food insecurity is a prevalent issue with Niger (as a consequence of population growth). Governments and independent organisations alike are able to identify regions in which need more funding/support as the categorisation system of the severity of food shortages from "moderate" to "severe" can provide clear indications as well as generate appropriate responses within specific regions thus highlighting the effectiveness of Global Information Systems in responding to population issues.