

**OXFORD**

INTERNATIONAL  
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# INTERNATIONAL A-LEVEL GEOGRAPHY GG05

Paper 5 Fieldwork and Geographical Skills

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Mark scheme

June 2023

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Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same, correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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# International A-level Geography mark scheme

## How to mark

### Aims

When you are marking your allocation of scripts your main aims should be to:

- recognise and identify the achievements of students
- place students in the appropriate mark band and in the appropriate part of that mark band (high, low, middle) for **each** Assessment Objective
- record your judgements with brief notes, annotations and comments that are relevant to the mark scheme and make it clear to other examiners how you have arrived at the numerical mark awarded for each Assessment Objective
- ensure comparability of assessment for all students, regardless of question or examiner.

### Approach

It is important to be **open-minded** and **positive** when marking scripts.

The specification recognises the variety of experiences and knowledge that students will have. It encourages them to study geography in a way that is relevant to them. The questions have been designed to give them opportunities to discuss what they have found out about geography. It is important to assess the quality of **what the student offers**.

Do not mark scripts based on the answer **you** would have written. The mark schemes have been composed to assess **quality of response** and not to identify expected items of knowledge.

### Assessment Objectives

This component requires students to:

AO1	Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change, at a variety of scales.
AO2	Apply knowledge and understanding in different contexts to interpret, analyse and evaluate geographical information and issues.
AO3	Use a variety of relevant quantitative, qualitative and fieldwork skills to: <ul style="list-style-type: none"> <li>• investigate geographical questions and issues</li> <li>• interpret, analyse and evaluate data and evidence</li> <li>• construct arguments and draw conclusions.</li> </ul>

### The marking grids

Do not think of levels equaling grade boundaries.

Depending on the part of the examination, the levels will have different mark ranges assigned to them. This will reflect the different weighting of Assessment Objectives in particular tasks and across the examination as a whole.

## Using the grids

Having familiarised yourself with the descriptors and indicative content, read through the answer and annotate it (as instructed below) to identify the qualities that are being looked for and that it shows. You can now check the levels and award a mark.

### Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptors for that level. The descriptors for the level indicate the different qualities that might be seen in the student's answer for that level. If it meets all the descriptors for the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptors and the answer. With practice and familiarity you will find that for better answers you will be able to skip through the lower levels of the mark scheme quickly.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best-fit approach for defining the level and then use the variability of the response to help decide the mark within the level.

### Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark.

It is often best to start in the middle of the level's mark range and then check and adjust. If there is a lot of indicative content fully identifiable in the work you need to give the highest mark in the level. If only some is identifiable or it is only partially fulfilled, then give the lower mark.

The exemplar materials used during standardisation will also help. There will be an answer in the standardising materials that will correspond with each level of the mark scheme. This answer will have been awarded a mark by the lead examiner. You can compare the student's answer with the example to determine if it is of the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the lead examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

In addition to the levels descriptors, question specific indicative content is provided as a guide for examiners. This is not intended to be exhaustive and you must credit other valid points.

An answer that contains nothing of relevance to the question must be awarded no marks.

## Annotating scripts

You should write a summative comment at the end for each Assessment Objective and indicate the marks for each Assessment Objective being tested at the end of the answer in the margin in sequence. It is vital that the way you arrive at a mark should be recorded on the script. This will help you with making accurate judgements and it will help any subsequent markers to identify how you are thinking. Please do not write negative comments about students' work or their alleged aptitudes.

**Section A**

**Total for this section: 45 marks**

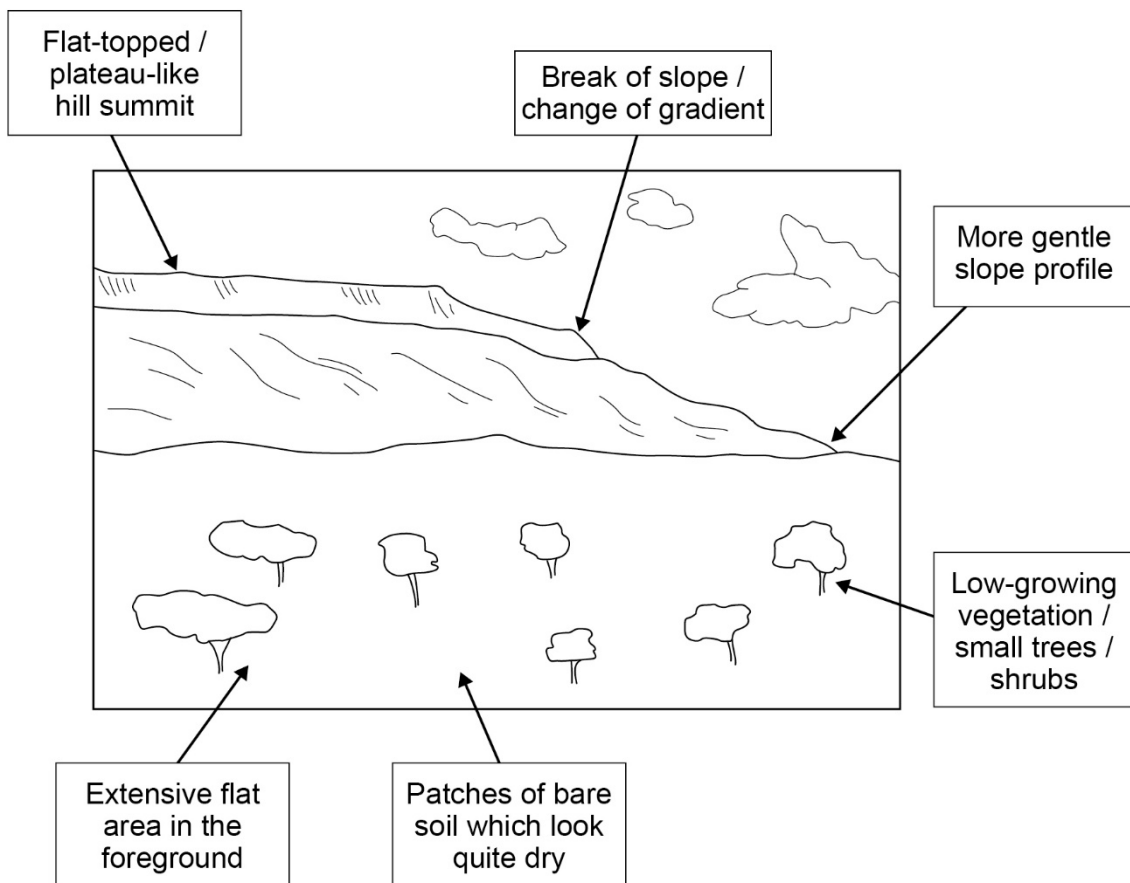
Question	Part	Marking guidance	Total marks
01		<p><b>Remotely sensed data can be used in geographical investigations.</b></p> <p><b>Describe the concept of remote sensing.</b></p> <p><b>AO1</b> – Award up to 4 marks for knowledge and understanding of the concept of remote sensing. Point marked. Allow 1 mark per valid point with extra mark(s) for developed points (d).</p>	<p><b>4</b></p> <p><b>AO1=4</b></p>

Indicative Content

- Remote sensing is a way of collecting data without making physical contact with the environment or objects being studied (1).
- It uses reflected light / energy (1) to measure variations in the phenomena being measured (d).
- It can use satellites (1) (such as LANDSAT or METEOSAT), RADAR (reflected radio waves) and LiDAR (reflected light waves) to gather data (d).
- Data can be collected remotely using drones (1) or unmanned robots (1).
- Data can be collected in this way from previously inaccessible or dangerous locations (1) and large amounts of data can be gathered (d) from a wide area.
- The information can be mapped or incorporated into Geographic Information Systems (GIS) (d).
- Answers may use an example to illustrate the concept such as land use (including agriculture, deforestation, urban development), land height and relief, ocean depths, sea surface data (waves, tides, sea level), ice cover and atmospheric data (cloud cover, rainfall, wind speed, atmospheric composition) (d).

Question	Part	Marking guidance	Total marks
02	1	<p><b>Add <u>three</u> annotations, in the space around Figure 1, which describe characteristics of this physical landscape.</b></p> <p><b>AO3</b> – Award up to 3 marks for appropriate use of geographical skills. Candidates should clearly point out their chosen characteristics. No credit to be awarded without clear links to the chosen characteristics. Information must be added as annotations rather than simple one word labels – there must be an attempt to annotate with some basic description. The focus is on the annotation skill rather than any specific knowledge of this area. Credit any aspects of the physical landscape which may be evident from the photograph.</p> <p>No credit for annotations that relate to the atmosphere / climate.</p>	<p><b>3</b></p> <p><b>AO3=3</b></p>

Indicative Content



Question	Part	Marking guidance	Total marks
02	2	<p><b>Outline <u>two</u> health and safety risks the students would need to consider when planning fieldwork in the area shown in Figure 1.</b></p> <p><b>Suggest how each of these risks could be managed.</b></p> <p><b>AO2</b> – Applies knowledge and understanding to the unfamiliar location / environment and makes effective points in relation to fieldwork health and safety and risk management. Award one mark for each issue (1) and how it may be managed (1).</p>	<p><b>4</b></p> <p><b>AO2=4</b></p>

Indicative Content

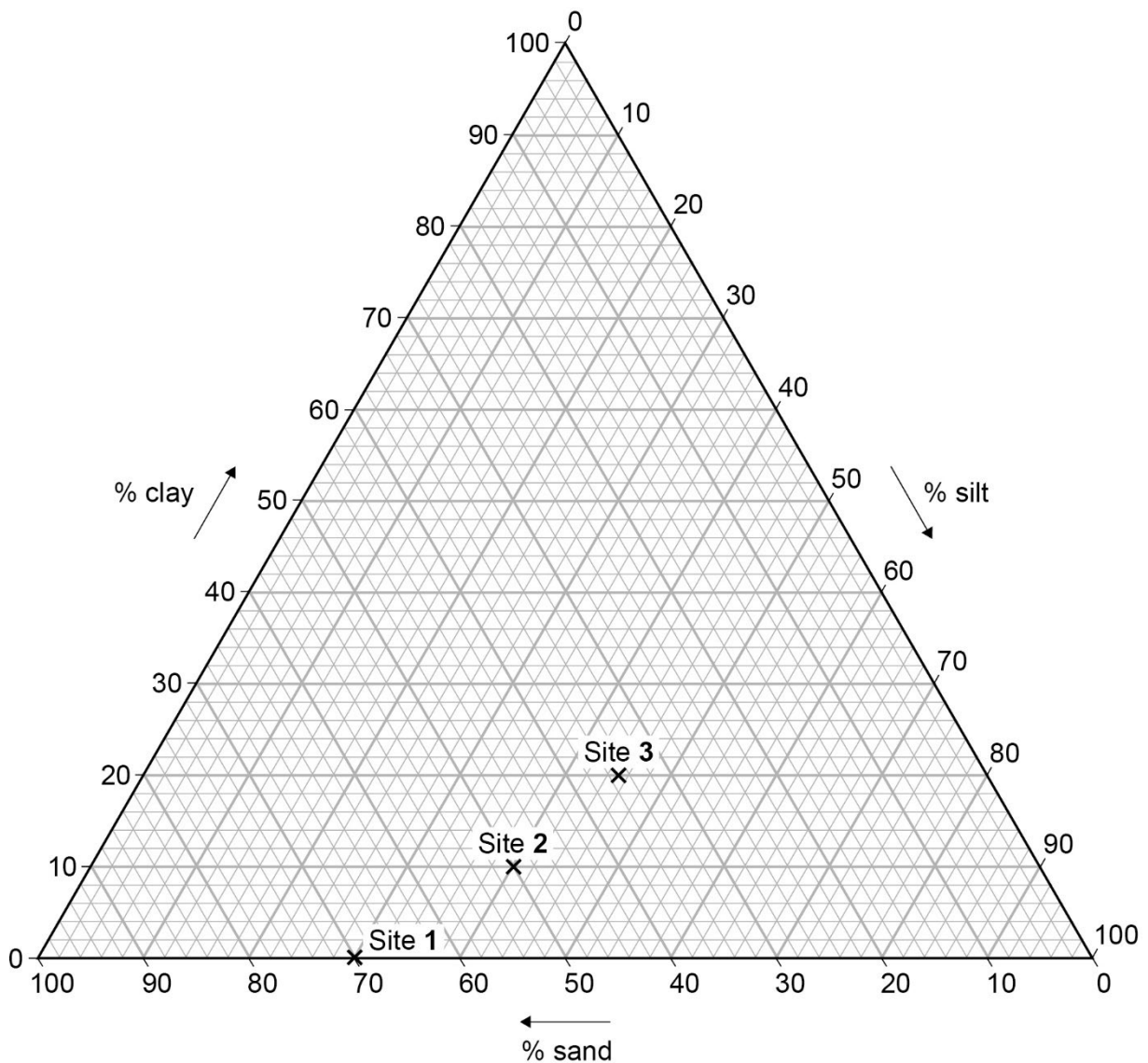
Health & safety risk (1)	Possible management of risk (1)
<ul style="list-style-type: none"> <li>• Weather related hazards – excessive heat / strong sunshine leading to heatstroke, sunburn.</li> <li>• Unexpected rainfall / flash floods leading to students becoming cold, drowning.</li> <li>• Uneven ground – slips, trips, falls.</li> <li>• Getting lost / separated from group.</li> <li>• Bites and stings from animals, plants.</li> <li>• Loose rocks causing injury.</li> </ul>	<ul style="list-style-type: none"> <li>• Use of sunblock / hat / cover bare skin.</li> <li>• Appropriate clothing, evacuation plan.</li> <li>• Wear appropriate footwear.</li> <li>• Inform others of plans / emergency contacts / mobile phone use.</li> <li>• Basic first aid kit carried with antiseptic, anti-inflammatory cream.</li> <li>• Use of hard hats / protective clothing.</li> </ul>





Question	Part	Marking guidance	Total marks
03	3	<p><b>Figure 4 is a triangular graph which shows the soil texture data shown in Table 1.</b></p> <p><b>Complete Figure 4 by adding soil texture data for Site 1 and Site 2.</b></p> <p><b>AO3 – 1 mark for each accurately plotted point for Site 1 (70% sand, 30% clay, 0% silt) and Site 2 (50% sand, 40% clay, 10% silt).</b></p>	<p><b>2</b></p> <p><b>AO3=2</b></p>

Indicative content



Question	Part	Marking guidance	Total marks
03	4	<p><b>Using the information in Table 1 and Figures 2, 3 and 4, analyse changes in soil texture along the hillslope.</b></p> <p><b>AO3</b> – There should be clear analysis of the data showing soil texture (the proportions of sand, silt and clay in the samples) and their location on the hillslope. There should also be data manipulation to support the analysis. The changing relative proportions of the different particles should also be analysed.</p>	<p><b>6</b></p> <p><b>AO3=6</b></p>

Level	Marks	Descriptor
2	4 – 6	<b>AO3</b> – Clear analysis of the quantitative evidence provided, which makes appropriate use of data in support. Clear connection(s) between different soil texture proportions and the hillslope.
1	1 – 3	<b>AO3</b> – Basic analysis of the quantitative evidence provided, which makes limited use of data and location. Basic changes evident.
0	0	No creditable content.

#### Indicative content

- There are clear trends evident in the proportions of the different particles making up the soil from the three locations sampled.
- The proportion of sand shows a steady decrease from 70% to 50% then 35% from Sites 1 to 3, so the proportion of sand particles in the soil has halved.
- At Sites 1 and 2 sand is the largest component of the soil.
- The silt and clay proportions both show an increase, silt changes from 30% to 45% along the surveyed slope down to the valley floor, an increase of 50%.
- Silt is the most dominant particle at Site 3.
- Clay changes from 0% at the higher location to 20% on the valley floor.
- Clay makes up the lowest proportion of the soil particles in all three samples.

Question	Part	Marking guidance	Total marks
03	5	<p><b>The investigation into changing soil texture along the slope involved the systematic collection of samples from three evenly spaced sites at 200m, 600m and 1000m from the top of the slope.</b></p> <p><b>Critically evaluate the sampling method used by the students in this investigation.</b></p> <p><b>AO1</b> – Knowledge and understanding of sampling methods.</p> <p><b>AO2</b> – Application of knowledge and understanding to the investigation outlined to critically evaluate the sampling approach used by the students.</p>	<p><b>6</b></p> <p><b>AO1=3</b> <b>AO2=3</b></p>

Level	Marks	Descriptor
2	4 – 6	<p><b>AO1</b> – Shows clear knowledge and understanding of sampling strategies and the advantages and disadvantages of the approach.</p> <p><b>AO2</b> – Shows some effective application of knowledge and understanding to assess the sampling strategy. Response makes evaluative comments on the validity of the method.</p>
1	1 – 3	<p><b>AO1</b> – Shows basic knowledge and understanding of the sampling method used including advantages or disadvantages of the method.</p> <p><b>AO2</b> – Basic application of knowledge and understanding to assess the sampling approach taken. Unlikely to present a clear view on the validity of the technique.</p>
0	0	No creditable content.

### Indicative Content

- The students employed an approach which obtained samples from three regularly spaced sites – a systematic strategy.
- The advantages of this method are that it is relatively straightforward to determine from where samples are taken and that it ensures an even spread of samples along the slope.
- However, systematic sampling may miss important variations in soil composition and it might be more appropriate to use a stratified approach taking samples from distinctive soil zones down the slope. This would require some prior knowledge of the geography of the area.
- Only taking three samples can be criticised as such a low number may not give a clear idea of the environmental changes along the slope. It may be more useful therefore to increase the sample size, perhaps to every 100 m or 200 m along the slope. The practicalities of this may depend on time and accessibility.
- It could be argued that selecting sites from near the top, the middle and lower slope is also a stratified method as the samples have been taken from different parts of the hillslope.
- Responses may suggest that adopting a random approach to the selection of sites may be better at helping to reduce bias.
- Weaker responses may say little about the sampling strategy itself and focus on the fact that there is no data collected from the hilltop itself. This is valid but would be indicative of level 1.

Question	Part	Marking guidance	Total marks
04	1	<p><b>A Chi-square calculation has been started in Table 3.</b></p> <p><b>Complete the two missing cells in Table 3 and calculate the Chi-square value (to 2 decimal places) for this investigation.</b></p> <p><b>You <u>must</u> show your working.</b></p> <p><b>AO3</b> – Award 1 mark for each accurate completion of the cells in Table 3 and 2 marks for a correct calculation of the final Chi-square result to two decimal places (1 for some element of working).</p>	<p><b>4</b></p> <p><b>AO3=4</b></p>

Indicative content

	Decades					Total
	1970s	1980s	1990s	2000s	2010s	
Number of tropical storms Observed (O)	16	17	25	36	31	125
Number of tropical storms Expected (E)	25	25	25	25	25	125
Observed (O) – Expected (E)	-9	-8	0	<b>11(1)</b>	6	
(O-E) <sup>2</sup>	<b>81(1)</b>	64	0	121	36	
(O-E) <sup>2</sup> / E	3.24	2.56	0	4.84	1.44	

$$\text{Chi-square value} = \sum \frac{(O-E)^2}{E} = (3.24 + 2.56 + 0.0 + 4.84 + 1.44) \text{ (1)}$$

Chi-square value for this investigation = **12.08 (1)**

Question	Part	Marking guidance	Total marks
04	2	<p><b>Table 4 shows an extract from the table of critical values for Chi-square.</b></p> <p><b>Degrees of freedom = number of groups of data –1.</b></p> <p><b>Using the information in Table 4, interpret the statistical significance of your Chi-square result.</b></p> <p><b>AO3</b> – Award up to 3 marks for correct interpretation of the Chi-square result through an understanding of the significance levels and degrees of freedom for this calculation.</p>	<p><b>3</b></p> <p><b>AO3=3</b></p>

Indicative content

- The Chi-square result of 12.08 can be accepted at the 0.05 significance level (1) with 4 degrees of freedom (1) / there is 95% confidence in the result (1) that there is a significant difference between the observed and the expected frequency of Atlantic tropical storms by decade.
- The result can be accepted at the 0.05 significance level (1) (with 4 degrees of freedom) (1) but not at the 0.01 (99% confidence) or 0.005 significance level (99.5% confidence) (1).
- This suggests there is some significance to the frequency of major Atlantic tropical storms in the last 5 decades (1) and that there may be factors behind this distribution (d) rather than it just be through chance.
- Full marks can be obtained for a correct interpretation of an incorrectly calculated Chi-square figure.

Question	Part	Marking guidance	Total marks
05		<p><b>Discuss the benefits and limitations of using different statistical methods to analyse geographical data.</b></p> <p><b>AO1</b> – Knowledge and understanding of statistical methods and their benefits and limitations in the analysis of geographical data.</p> <p><b>AO2</b> – Application of knowledge and understanding of the benefits and limitations of statistical methods to analyse geographical data.</p>	<p><b>9</b></p> <p><b>AO1=5</b> <b>AO2=4</b></p>

Level	Marks	Descriptor
3	7 – 9	<p><b>AO1</b> – Shows a detailed and specific knowledge and understanding of different statistical methods and a detailed knowledge and understanding of their benefits and limitations. Responses at this level show a balance between benefits and limitations.</p> <p><b>AO2</b> – Effective application of knowledge and understanding of different statistical methods and effective discussion of their benefits and limitations.</p>
2	4 – 6	<p><b>AO1</b> – Shows clear knowledge and understanding of statistical methods and a clear knowledge and understanding of their benefits and limitations. Response may be unbalanced.</p> <p><b>AO2</b> – Some effective application of knowledge and understanding of different statistical methods and some effective discussion of their benefits and limitations.</p>
1	1 – 3	<p><b>AO1</b> – Shows basic knowledge and understanding of at least one statistical method and a basic knowledge and understanding of the benefits or limitations.</p> <p><b>AO2</b> – Basic application of knowledge and understanding of at least one statistical method and a basic discussion of the benefits or limitations.</p>
0	0	No creditable content.

### Indicative Content

- Responses should consider the application of statistical methods to geographical data, this could be descriptive statistics and / or inferential (relational) statistical methods.
- The specification requires candidates to have a knowledge and understanding of the following statistical skills but the responses are not limited to these:
  - Measures of central tendency – mean, mode, median.
  - Measures of dispersion – range, inter-quartile range and standard deviation.
  - Inferential and relational statistical techniques to include Spearman’s rank correlation and Chi-square test and the application of significance tests.
- The benefits of descriptive statistical methods are that they can help to summarise data and enable the student to see patterns more clearly and to see variations within and between data sets.
- However, measures of central tendency can be distorted by extremes / outliers within a data set although measures of dispersion can focus more on the bulk of the data and both approaches can enable comparisons to be made between data sets.

- The use of inferential methods can allow students to see more objectively if there are links between data sets or if there is a significant distribution or association between data sets.
- Statistical approaches need to be considered with caution if data sets are small or of questionable origin.
- However these approaches do not mean that there is always a causal relationship between variables or data sets and results must be treated with caution.
- Geographical data does not always lend itself to statistical analysis and a quantitative approach is not always appropriate. A great deal of geographical data is qualitative in nature and requires a more subtle approach to analysis. Students may make reference to qualitative data they have used in their studies.
- Candidates may comment on the difficulties with mathematical formulae and calculation or the potential for mathematical error. Responses which focus on these issues are likely to be of a lower level but are still valid.

**Section B**
**Total for this section: 15 marks**

Question	Part	Marking guidance	Total marks
06	1	<p><b>Explain the ethical considerations involved when collecting and using data in your fieldwork investigation.</b></p> <p><b>AO2</b> – Application of knowledge and understanding of the investigation process and consideration of fieldwork ethics and methods of data collection.</p> <p><b>AO3</b> – Application of fieldwork and investigation skills in consideration of fieldwork ethics and data collection.</p>	<p><b>6</b></p> <p><b>AO2=3</b> <b>AO3=3</b></p>

Level	Marks	Descriptor
2	4 – 6	<p><b>AO2</b> – Clear application of the relevant knowledge and understanding in the investigation process and consideration of fieldwork ethics in collecting and using data. Response clearly relates to the candidate’s specific inquiry.</p> <p><b>AO3</b> – Clear application of fieldwork and investigation skills in consideration of fieldwork ethics in collecting and using data. Response clearly relates to the candidate’s specific inquiry.</p>
1	1 – 3	<p><b>AO2</b> – There is a limited application of the relevant knowledge and understanding of the investigation process and consideration of fieldwork ethics and methods of data collection. Answer may be generic and not clearly linked to the candidate’s inquiry.</p> <p><b>AO3</b> – There is limited evidence of appropriate fieldwork and investigation skills in considering fieldwork ethics and data collection.</p>
0	0	No creditable content.

Indicative Content

In conducting a fieldwork investigation, candidates are required to take into consideration the possible ethical implications of their work and the impacts of data collection on people and the environment. Responses will depend upon the precise nature of the investigation but may relate to the following examples:

- Accurate reporting of findings and a commitment to enabling others to replicate methods of data collection.
- Respect for previous studies and acknowledgement of sources of information and advice.
- Confidentiality or consent from respondents replying to surveys or questionnaires.
- Retaining impartiality in focus groups / interviews.
- Respect for cultural variations within people and places.
- Following the country code / respect for the environment / adherence to the Geological Code of Conduct.
- Ensuring photographs are anonymised as far as possible with any personal information about people, residences and addresses kept invisible.



- Not impacting on other peoples' activities / businesses when conducting surveys, land use studies or questionnaires.
- Respect for habitats and the environment (stick to footpaths, avoid trampling vegetation, take minimal samples from the physical environment).
- Not leaving litter when carrying out fieldwork.
- Obtain access permission for work on private land.
- Adherence to any data privacy regulations such as the European GDPR codes.
- Adherence to copyright / acknowledgement protocols with regard to published sources.

Question	Part	Marking guidance	Total marks
06	2	<p><b>With reference to your results and conclusions, explain how you have improved your understanding of the geographical ideas forming the basis of your investigation.</b></p> <p><b>AO1</b> – Knowledge and understanding of the investigation process and the geographical ideas relating to the candidate’s investigation.</p> <p><b>AO2</b> – Application of fieldwork and investigation skills to develop a conclusion and further understanding of the geographical ideas under investigation.</p>	<p><b>9</b></p> <p><b>AO1=3</b> <b>AO2=6</b></p>

Level	Marks	Descriptor
3	7 – 9	<p><b>AO1</b> – There is detailed knowledge and understanding of the investigation process and the geographical ideas which relate to the candidate’s investigation with links to results and detailed conclusions described.</p> <p><b>AO2</b> – Detailed application of fieldwork and investigation skills linking the candidate’s results and conclusions to their improved understanding of the geographical idea under investigation.</p>
2	4 – 6	<p><b>AO1</b> – There is clear knowledge and understanding of the investigation process and the geographical ideas which relate to the candidate’s investigation, clear links to results and conclusions are clearly described.</p> <p><b>AO2</b> – Clear application of fieldwork and investigation skills linking the candidate’s results and conclusions to their improved understanding of the geographical idea under investigation.</p>
1	1 – 3	<p><b>AO1</b> – There is basic knowledge and understanding of the investigation process and the geographical ideas being studied and basic links to the candidate’s results and conclusions.</p> <p><b>AO2</b> – There is a basic application of fieldwork and investigation skills linking the candidate’s results and conclusions to their improved understanding of the geographical idea under investigation.</p>
0	0	No creditable content.

Indicative Content

- Candidates need to show a clear knowledge and understanding of their investigation and present conclusions that are linked to the inquiry outlined at the start of Q6. There should be clear reference to specific results obtained in their investigation and links to how the candidate's understanding of the geographical idea has improved as a result of the study.
- Precise responses will depend upon the nature of the investigation carried out but the links within the stages of the investigation should be evident.
- For example, students undertaking a sand dune succession investigation may state a conclusion that plant species diversity increased with distance from the shore line and quote changes in numbers/types of plant species with specific distances along the transect. This could then link to a more detailed explanation of the changes observed and a description of how the physical observations made helped to improve the candidate's knowledge and understanding of the psammosere succession and sand dune development. They may now understand how the environment studied in reality does not often conform to the text book models which may have been studied in class.
- Students who have undertaken a human investigation, such as a study of the socio-economic variations within an area may state a conclusion about the polarity in terms of health, wealth and well-being in two parts of a city with specific reference to their results obtained from primary or secondary data collection. This could then lead onto an explanation of their awareness of inequalities in the human environment and the issues this can involve.
- At the higher levels of response it would be expected that candidates provide detailed and specific information relating to their investigation and the improvement in their knowledge and understanding.

**Assessment Objective grid**

	AO1	AO2	AO3	Total
Section A				
01	4			4
02.1			3	3
02.2		4		4
03.1			1	1
03.2			3	3
03.3			2	2
03.4			6	6
03.5	3	3		6
04.1			4	4
04.2			3	3
05	5	4		9
Section B				
06.1		3	3	6
06.2	3	6		9
Unit total	15	20	25	60