

INTERNATIONAL A-LEVEL GEOGRAPHY GG05

Paper 5 Fieldwork and Geographical Skills

Mark scheme

January 2024

Version: 1.0 Final



2 4 1 X G G 0 5 / M S

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">• investigate geographical questions and issues• interpret, analyse and evaluate data and evidence• construct arguments and draw conclusions.

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

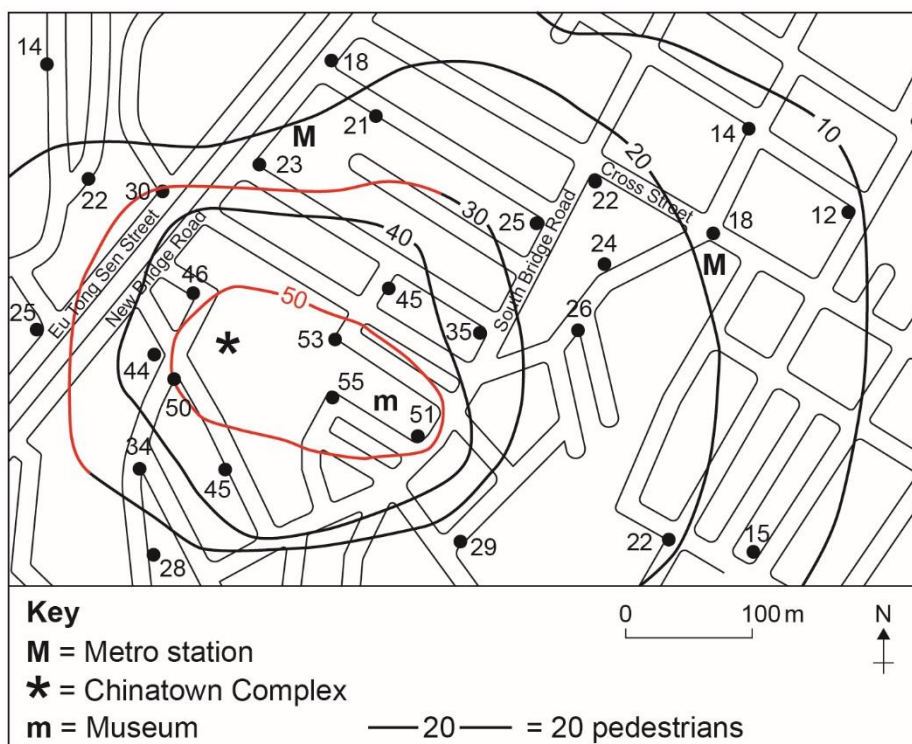
Question	Part	Marking guidance	Total marks
01		<p>Outline factors that should be considered when designing a questionnaire for a geographical investigation.</p> <p>AO1 – Award up to 4 marks for knowledge and understanding of factors considered in the design of a questionnaire.</p>	<p>4</p> <p>AO1=4</p>

Indicative content

- Questionnaires should be clear/unambiguous (1) and therefore straightforward for respondents to understand and complete (d).
- It may be appropriate to use closed questions (1) which offer a set range of possible replies (d).
- Alternatively, open questions (1) may be used which provide opportunities for more varied and in-depth responses (d).
- The questionnaire should not take too long to ask (1) and should be planned to be asked to a suitably large sample of people (1) in order to obtain representative data (d).
- The questionnaire might be asked by the student/researcher or completed by the respondents themselves (1). It could be a paper version or completed online (1).
- Credit any other valid factors.

Question	Part	Marking guidance	Total marks
02	1a	Complete the isoline for 30 pedestrians on Figure 1.	1 AO3=1
	1b	<p>Complete Figure 1 by adding an isoline for 50 pedestrians.</p> <p>AO3 – Award 2 marks for correct application of geographical skills. 2.1a – 1 mark for the completed 30 pedestrian isoline. 2.1b – 1 mark for the addition of a complete 50 pedestrian isoline which includes a '50' label. Lines should be within reasonable bounds, between values above and below them, complete (no loose ends) and not crossing another isoline.</p>	1 AO3=1

Indicative Content



Question	Part	Marking guidance	Total marks
02	2	<p>Describe the pattern of pedestrian flows shown in the completed Figure 1.</p> <p>AO2 – Award up to 2 marks for statements giving a description of the pattern shown in Figure 1.</p>	<p>2</p> <p>AO2=2</p>

Indicative Content

- Pedestrian isolines are closer together towards the centre of the map (1) and are concentrated around the Chinatown complex and museum (1).
- A distance decay effect away from the Chinatown complex can be seen (1).
- Pedestrian counts are lower in the east (south-east and north-east) and north-west corner of the map (1). Here the isolines are further apart (1).
- Pedestrian flows are lower than might be expected around the Metro stations (1).
- Pedestrian flow isolines have a concentric pattern (1).
- Credit any other valid points.

Question	Part	Marking guidance	Total marks
02	3	<p>Outline factors that could affect the reliability of the pedestrian count data.</p> <p>AO2 – Application of knowledge and understanding of the issues linked with data collection in this unfamiliar context.</p> <p>AO3 – Application of fieldwork and investigation skills relating to the data collection and reliability of results in this unfamiliar context.</p>	<p>6</p> <p>AO2=4 AO3=2</p>

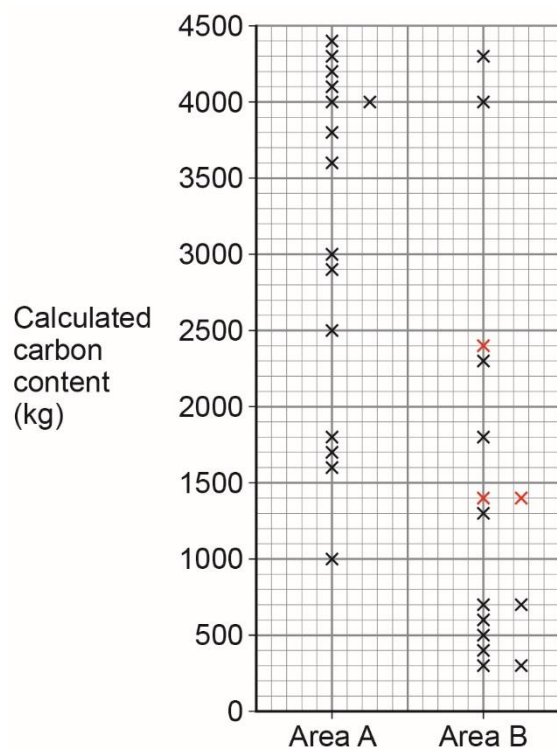
Level	Marks	Descriptor
2	4–6	<p>AO2 – Clear application of the relevant knowledge and understanding of the data collection process and consideration of factors affecting the reliability of data collected.</p> <p>AO3 – Clear application of fieldwork and investigation skills in consideration of data collection and the reliability of results.</p>
1	1–3	<p>AO2 – There is a limited application of the relevant knowledge and understanding of the data collection process and consideration of factors affecting the reliability of data collected.</p> <p>AO3 – There is limited evidence of appropriate fieldwork and investigation skills in consideration of data collection and the reliability of results.</p>
0	0	No creditable content.

Indicative Content

- The field data was collected by students working in ten-minute intervals so data was not collected all at the same time – this may be a source of variation and error.
- Pedestrians may end up being counted more than once if they are walking between points that are covered by more than one recording location.
- The number of pedestrians is likely to be influenced by the time of day – higher counts are likely around the morning or evening rush hours so depending on when the counts were made they could be skewed.
- The weather is likely to play a part. On wet days or particularly hot and humid days the number of pedestrians will probably be lower than on fine/more comfortable days.
- It may be difficult to count pedestrians at very busy locations where there are lots of people moving around. People may end up being counted twice.
- Weekday data may be significantly different from weekend or public holiday data.
- There may be variability in the data collected due to different students using slightly different methodologies, for example, they may take different approaches as to how the pedestrian count might be undertaken eg where exactly to stand, which direction to face, counting people in one direction or both, counting on one side of road or both.
- The fieldwork data could be considered reliable as the groups worked effectively in teams and could have cross referenced locations, changeover times and counting methods.
- Reliability does not have to be negative and positive aspects such as this are valid in the responses.
- Credit any other valid considerations.

Question	Part	Marking guidance	Total marks
03	1	<p>Complete Figure 3 by adding the following data from Figure 2:</p> <ul style="list-style-type: none"> the calculated carbon content for tree number 1 the calculated carbon content for tree numbers 4 and 15. <p>AO3 – Award 2 marks for accurate plotting of the points on Figure 3, the dispersion diagram.</p> <p>1 mark for tree number 1 (2400 kg).</p> <p>1 mark for both trees 4 and 15 (1400 kg) side-by-side (gap between them is not important).</p>	<p>2</p> <p>AO3=2</p>

Indicative Content



Question	Part	Marking guidance	Total marks
03	2	<p>Complete Figure 4 by calculating the mean and median for the calculated carbon content of the trees in Area A.</p> <p>Give your answers to the nearest whole number.</p> <p>AO3 – Award 1 mark for each correctly calculated value.</p>	<p>2</p> <p>AO3=2</p>

Indicative Content

Statistic	Sample from Area A calculated carbon content (kg)	Sample from Area B calculated carbon content (kg)
Mean	3127 (1)	1493
Median	3600 (1)	1300

Question	Part	Marking guidance	Total marks
03	3	<p>Analyse the calculated carbon content of the trees in the two samples. Use evidence from Figure 3 (the dispersion diagram) and the statistics shown in Figure 4.</p> <p>AO2 – Application of knowledge and understanding to compare the calculated carbon content data between the two areas.</p> <p>AO3 – Application of geographical skills and utilisation of descriptive statistics and dispersion diagram to compare the calculated carbon content data between the two areas.</p>	<p>6</p> <p>AO2=3 AO3=3</p>

Level	Marks	Descriptor
2	4–6	<p>AO2 – Clear knowledge and understanding of the use of the statistics and dispersion diagram in order to analyse the two data sets.</p> <p>AO3 – Clear application of the geographical skills and full use of the statistics and dispersion diagram to provide an analysis of the two data sets.</p>
1	1–3	<p>AO2 – Limited knowledge and understanding of the use of the statistics and dispersion diagram in order to analyse the two data sets.</p> <p>AO3 – Limited application of the geographical skills and basic use of the statistics and dispersion diagram to analyse the two data sets.</p>
0	0	No creditable content.

Indicative Content

- Trees in the sample from Area A have a higher mean average calculated carbon content than those from Area B.
- The mean of Area A is more than twice the mean of Area B.
- This is supported by the median value as well as this is much higher in Area A than in Area B, being over 2.5 x greater in Area A.
- The dispersion graph shows that the trees in Area A show less variation in their calculated carbon content.
- The range of values is lower in Area A; 3400 kg compared with 4000 kg in Area B.
- There is a cluster of trees with a higher carbon content in Area A above 4000 kg whilst Area B has a cluster under 1000 kg.
- In Area A, 8 trees of the sample are above the mean, 7 trees are below, however in Area B, only 5 are above the mean and 10 trees are below.
- (Both sets of data have a slight skewness, the trees in Area A show a negative skew and in Area B they have a positive skew. Skewness is not a requirement of the specification but is a valid part of descriptive statistics if candidates refer to it.)

Question	Part	Marking guidance	Total marks
03	4	<p>Assess the extent to which measures of central tendency (mean, median and mode) are useful in the analysis of geographical data.</p> <p>AO1 – Knowledge and understanding of measures of central tendency (mean, median and mode) and their usefulness in the analysis of geographical data.</p> <p>AO2 – Application of knowledge and understanding of measures of central tendency and the extent to which they are useful in the analysis of geographical data.</p>	<p>6</p> <p>AO1=4 AO2=2</p>

Level	Marks	Descriptor
2	4–6	<p>AO1 – Clear knowledge and understanding of the different methods of central tendency (mean, median and mode) and their use in analysing geographical data.</p> <p>AO2 – Clear application of the different methods of central tendency (mean, median and mode) and the extent to which they are useful in the analysis of geographical data.</p>
1	1–3	<p>AO1 – Limited knowledge and understanding of the different methods of central tendency (mean, median and mode) and their use in analysing geographical data.</p> <p>AO2 – Limited application of the different methods of central tendency (mean, median and mode) and the extent to which they are useful in the analysis of geographical data.</p>
0	0	No creditable content.

Indicative Content

- The mean is the arithmetic average and a commonly used ‘average’ in mathematical calculations. It is calculated quite easily (by adding the values together and dividing by the number of items included). It is more useful when the data set has a smaller range as it can be heavily influenced by extreme values.
- The median is used to find the mid-point in the data set; it is easy to find once the data has been put into a rank order. The middle of the values is then the median. It is not as arithmetically sound as the mean as it is based on the rankings rather than the data itself, however it is not affected by extreme values.
- The mode is based on the frequency – ie how many times an item occurs within a data set and therefore has no use if all the data values are different. It is of more value when dealing with non-numeric data.
- Data from **Figure 4** may be used in support of the response but is not a requirement.
- Credit other valid comments.

Question	Part	Marking guidance	Total marks																																																																																																																							
03	5a	<p>Complete Figure 5.</p> <p>AO3 – 2 marks available for the correct completion of the table (1 mark per correctly completed row).</p> <table><tr><th>Tree number</th><th>Height (m)</th><th>Rank height</th><th>Calculated Carbon content (kg)</th><th>Rank calculated carbon content</th><th>Difference (d)</th><th>d²</th></tr><tr><td>1</td><td>26.5</td><td>4.5</td><td>1600</td><td>14</td><td>-9.5</td><td>90.25</td></tr><tr><td>2</td><td>26.8</td><td>3</td><td>1000</td><td>15</td><td>-12</td><td>144</td></tr><tr><td>3</td><td>26.5</td><td>4.5</td><td>4000</td><td>5.5</td><td>-1</td><td>1</td></tr><tr><td>4</td><td>23.5</td><td>9</td><td>4300</td><td>2</td><td>7</td><td>49</td></tr><tr><td>5</td><td>21.9</td><td>14</td><td>3600</td><td>8</td><td>6</td><td>36</td></tr><tr><td>6</td><td>22.9</td><td>11</td><td>4100</td><td>4</td><td>7</td><td>49</td></tr><tr><td>7</td><td>24.6</td><td>8</td><td>3800</td><td>7</td><td>1</td><td>1</td></tr><tr><td>8</td><td>27.5</td><td>1</td><td>4400</td><td>1</td><td>0</td><td>0</td></tr><tr><td>9</td><td>27.2</td><td>2</td><td>4000</td><td>5.5</td><td>-3.5</td><td>12.25</td></tr><tr><td>10</td><td>22.6</td><td>12</td><td>1800</td><td>12</td><td>0</td><td>0</td></tr><tr><td>11</td><td>22.5</td><td>13</td><td>2500</td><td>11</td><td>2</td><td>4</td></tr><tr><td>12</td><td>21.8</td><td>15</td><td>2900</td><td>10</td><td>5</td><td>25</td></tr><tr><td>13</td><td>23.2</td><td>10</td><td>1700</td><td>13</td><td>-3</td><td>9</td></tr><tr><td>14</td><td>26.2</td><td>6</td><td>4200</td><td>3</td><td>3</td><td>9</td></tr><tr><td>15</td><td>24.9</td><td>7</td><td>3000</td><td>9</td><td>-2</td><td>4</td></tr><tr><td colspan="6"></td><td>$\sum d^2$ =433.5</td></tr></table>	Tree number	Height (m)	Rank height	Calculated Carbon content (kg)	Rank calculated carbon content	Difference (d)	d ²	1	26.5	4.5	1600	14	-9.5	90.25	2	26.8	3	1000	15	-12	144	3	26.5	4.5	4000	5.5	-1	1	4	23.5	9	4300	2	7	49	5	21.9	14	3600	8	6	36	6	22.9	11	4100	4	7	49	7	24.6	8	3800	7	1	1	8	27.5	1	4400	1	0	0	9	27.2	2	4000	5.5	-3.5	12.25	10	22.6	12	1800	12	0	0	11	22.5	13	2500	11	2	4	12	21.8	15	2900	10	5	25	13	23.2	10	1700	13	-3	9	14	26.2	6	4200	3	3	9	15	24.9	7	3000	9	-2	4							$\sum d^2$ =433.5	2 AO3=2
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	5b	<p>Calculate the Spearman Rank Correlation Coefficient (r_s) to 3 decimal places.</p> <p>You should show your working.</p> <p>AO3 – 1 mark for the correct calculation of $r_s = \mathbf{0.226}$ (1) 1 mark for evidence of working (including substitution into the equation).</p> <p>Allow credit if mathematics have been correctly applied to the formula printed in the examination paper.</p>	2 AO3=2																																																																																																																							

Question	Part	Marking guidance	Total marks
03	6	<p>Use the information shown in Figure 6 to assess the statistical significance of your calculated value of r_s.</p> <p>AO3 – Award up to 2 marks for correct interpretation of the Spearman Rank result through an understanding of the significance levels for this calculation and a correct interpretation of the relationship/the acceptance of the null hypothesis.</p>	<p>2</p> <p>AO3=2</p>

Indicative Content

- The calculated value of $r_s = 0.226$ is not statistically significant at either of the levels of significance shown in Figure 6 (1).
- There is no statistical relationship between tree height and calculated carbon content (1). Allow variations on this idea such as tree height does not clearly correlate to calculated carbon content (1) or that the null hypothesis 'there is no relationship between tree height and calculated carbon content' can be accepted (1).
- Credit the observation that there is a very weak positive correlation (1).
- Allow 2 marks for a correct interpretation of a calculated value of r_s which is incorrect.

Question	Part	Marking guidance	Total marks
04		<p>Evaluate the usefulness of photographs in geographical investigations.</p> <p>AO1 – Knowledge and understanding of photographs in geographical investigations.</p> <p>AO2 – Application of knowledge and understanding to evaluate the usefulness of photographs in geographical investigations.</p>	<p>9</p> <p>AO1=4 AO2=5</p>

Level	Marks	Descriptor
3	7–9	<p>AO1 – Shows a detailed and specific knowledge and understanding of the usefulness of photographs in geographical investigations.</p> <p>AO2 – Effective evaluation of the usefulness of photographs in geographical investigations.</p>
2	4–6	<p>AO1 – Shows clear knowledge and understanding of the usefulness of photographs in geographical investigations.</p> <p>AO2 – Some effective evaluation of the usefulness of photographs in geographical investigations.</p>
1	1–3	<p>AO1 – Shows basic knowledge and understanding of the usefulness of photographs in geographical investigations.</p> <p>AO2 – Basic evaluation of the usefulness of photographs in geographical investigations.</p>
0	0	No creditable content.

Indicative Content

- Photographs may be taken/included in investigations to show a particular feature or characteristic. As such there are many ways in which they might be considered biased, subjective and limited in their usefulness.
- Photographs may be useful in physical geography investigations to illustrate a landform or landscape. They can be used to provide a visual reference to aid understanding. They can be annotated or labelled to help in the presentation of an investigation.
- They are very useful in human geography to help convey a sense of place or to illustrate the changing nature of places over time.
- Their usefulness may be limited by the fact that views/images can be heavily influenced by the time of day, weather conditions or simply the camera angle.
- Some may consider photographs as 'intrusive' and people may object to having their images included which can limit their usefulness.
- Photographs can be 'photo-shopped' or cropped to present a particular perspective. This might be especially so when they are sourced from the media or social media applications.
- Photographs may be considered useful as they may be more 'up to date' in comparison with a map. They may be useful to contrast or in conjunction with a map.

- However, as with maps, they are a snapshot in time and immediately date so only provide evidence of the time the photograph was taken.
- Photographs can be used to show 'before' and 'after' images.
- Photographs may be used to collect information as well as to present data. They can be a source of primary data, but also a secondary source if used from another published source or research.
- Photographs are very useful in helping the communication of complex ideas and are an aid to understanding.
- They are a useful qualitative tool and can be used in inquiries to gather views, opinions and evidence.
- Consideration of aerial photographs would also be valid.
- Candidates should provide some evaluation as to what extent photographs are useful – any such evaluation is valid as long as it is based on sensible reasoning and clear geographical thinking.
- Credit any other valid responses.

Section B

Total for this section: 15 marks

Question	Part	Marking guidance	Total marks
05	1	<p>Describe and justify a sampling method that you used in the data collection stage of your investigation.</p> <p>AO1 – Knowledge and understanding of the sampling method used in the investigation.</p> <p>AO3 – Application of fieldwork and investigation skills relating to the sampling method used in the investigation.</p>	<p>6</p> <p>AO1=3 AO3=3</p>

Level	Marks	Descriptor
2	4–6	<p>AO1 – Clear knowledge and understanding to describe and justify a sampling method used in the investigation.</p> <p>AO3 – Clear application of fieldwork and investigation skills relating to the description and justification of a sampling method used in the investigation.</p>
1	1–3	<p>AO1 – Limited knowledge and understanding to describe or justify a sampling method used in the investigation.</p> <p>AO3 – There is limited evidence of appropriate fieldwork and investigation skills relating to the description or justification of a sampling method used in the investigation.</p>
0	0	No creditable content.

Indicative Content

In conducting a fieldwork investigation, candidates are required to gather data and to consider the most appropriate sampling strategies for their data collection.

Responses will depend upon the precise nature of the investigation but may relate to the following examples:

- Students undertaking a sand dune succession investigation may have collected slope angle measurements, vegetation measurements or pH values at regular intervals, perhaps every 5 m, along a transect. Expect students to describe the sample interval and the systematic approach that was taken. These systematic, regular measurements would have ensured even coverage along the transect and that measurements were taken from each part of the dune system to enable the hypothesis to be properly tested.
- Alternatively, students may have investigated the opinions of residents about a local issue and therefore they adopted a stratified (structured) sampling approach so that a cross section of the population were interviewed to include both male and female respondents or people from different age categories.
- Students may have completed an investigation which relied upon secondary data, for example from census data or other large data bases. In this case, they will still have needed to employ a sampling strategy to obtain fair data or sufficient quantity.

- Random sampling is hard to employ accurately but if it was used then it can reduce the bias in a sample as there is no input from the student in terms of who or what is recorded as the aspect of the population being sampled would have been selected using an independent random number/selection system.
- Students can also include reference to sample size/frequency as part of their sampling strategy in order to produce a representative sample of data.
- At the higher levels of response it would be expected that candidates provide detailed and specific information relating to their investigation showing full knowledge and understanding.

Question	Part	Marking guidance	Total marks
05	2	<p>Evaluate your investigation.</p> <p>In your answer you should:</p> <ul style="list-style-type: none"> comment on the strengths and weaknesses of different stages of the study suggest improvements. <p>AO2 – Application of knowledge and understanding of the investigation process.</p> <p>AO3 – Use of fieldwork and investigation skills to effectively evaluate different stages of the investigation.</p>	<p>9</p> <p>AO2=4 AO3=5</p>

Level	Marks	Descriptor
3	7–9	<p>AO2 – Detailed application of knowledge and understanding regarding evaluation of the investigation and suggestions for improvement relating to more than one stage of the investigation.</p> <p>AO3 – Accurate use of fieldwork and investigation skills to fully evaluate more than one stage of the investigation and to suggest improvements.</p>
2	4–6	<p>AO2 – Clear application of knowledge and understanding regarding evaluation of the investigation and improvements relating to more than one stage of the investigation.</p> <p>AO3 – Clear use of fieldwork and investigation skills to partially evaluate the investigation and suggest improvements.</p>
1	1–3	<p>AO2 – Basic application of knowledge and understanding of the evaluation of the investigation. Improvements may be basic or absent.</p> <p>AO3 – Basic use of fieldwork and investigation skills to describe simple elements of evaluation or improvements.</p>
0	0	No creditable content.

Indicative Content

- Candidates need to show a knowledge and understanding of their investigation and show the ability to evaluate different stages of it.
- The specification states that they should be familiar with the planning and preparation stage (including deciding on a location for study, establishing hypotheses, research from background sources and health and safety issues), collection of data (methods including sampling), presentation of data, analysis of data and drawing conclusions.
- Responses will depend upon the nature of the investigation carried out.
- Evaluation may consider both strengths and weaknesses of research and deciding upon a question/ title/hypotheses. It may relate to aspects of the methodology (including sample strategies), data presentation or analysis, and the drawing of conclusions.
- For example, students undertaking a sand dune succession investigation may suggest that their original aim could have been different or that hypotheses might relate to different variables.
- They may suggest issues with the ways in which their field methods were carried out, perhaps leading to more accurate measurements of slope angle, distance or vegetation type.
- Responses can refer to ways data was presented and analysed, perhaps a transect graph with overlays could have been used to show more than one variable or a statistical test used to provide a subjective measure of correlation.
- Candidates might reflect upon the validity of their conclusions and how their knowledge and understanding has or has not improved as a consequence of the study.
- Another part of evaluation relates to the consideration of how their inquiry could be used or taken forward in the future.
- At the higher levels of response it would be expected that candidates provide detailed and specific information regarding their investigation and relate to more than one stage of their inquiry.
- Suggestions for improvement can apply to any of the stages, for example:
- Candidates may suggest an alternative location – perhaps sites were inaccessible or other sites could be used for contrast,
- Different hypotheses may be devised on reflection of the inquiry.
- Candidates are likely to suggest improvements to sampling procedures and data collection methods to provide more data, more reliable or accurate data.
- The methods of data presentation or analysis might be considered and alternative graphical or statistical techniques could be suggested.

Assessment Objective grid

	AO1	AO2	AO3	Total
Section A				
01	4			4
02.1a			1	1
02.1b			1	1
02.2		2		2
02.3		4	2	6
03.1			2	2
03.2			2	2
03.3		3	3	6
03.4	4	2		6
03.5a			2	2
03.5b			2	2
03.6			2	2
04	4	5		9
Section B				
05.1	3		3	6
05.2		4	5	9
Unit total	15	20	25	60