



General Certificate of Education (A-level)
January 2013

Geography **GEO4A**
(Specification 2030)

Unit 4A: Geography Fieldwork Investigation

Mark Scheme

Mark schemes are prepared by the Principal Examiner 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 examiners participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for standardisation each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' 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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General Guidance for GCE Geography Assistant Examiners

The mark scheme for this unit includes an overall assessment of quality of written communication. There are no discrete marks for the assessment of written communication but where questions are "Levels" marked, written communication will be assessed as one of the criteria within each level.

Level 1: Language is basic, descriptions and explanations are over simplified and lack clarity.

Level 2: Generally accurate use of language; descriptions and explanations can be easily followed, but are not clearly expressed throughout.

Level 3: Accurate and appropriate use of language; descriptions and explanations are expressed with clarity throughout.

Marking – the philosophy

Marking is positive and not negative.

Mark schemes – layout and style

The mark scheme for each question will have the following format:

- Notes for answers (nfa) – exemplars of the material that might be offered by candidates
- Mark scheme containing advice on the awarding of credit and levels indicators.

Point marking and Levels marking

- Questions with a mark range of 1-4 marks will be point marked.
- Levels will be used for all questions with a tariff of 5 marks and over.
- Two levels only for questions with a tariff of 5 to 8 marks.
- Three levels to be used for questions of 9 to 15 marks.

Levels Marking – General Criteria

Everyone involved in the levels marking process (examiners, teachers, students) should understand the criteria for moving from one level to the next – the “triggers”. The following general criteria are designed to assist all involved in determining into which band the quality of response should be placed. It is anticipated that candidates' performances under the various elements will be broadly inter-related. Further development of these principles will be discussed during the standardisation process. In broad terms the levels will operate as follows:

Level 1: attempts the question to some extent (basic)

An answer at this level is likely to:

- display a basic understanding of the topic
- make one or two points without support of appropriate exemplification or application of principle
- give a basic list of characteristics, reasons and attitudes
- provide a basic account of a case study, or provide no case study evidence
- give a response to one command of a question where two (or more) commands are stated e.g. “describe and suggest reasons”
- demonstrate a simplistic style of writing perhaps lacking close relation to the terms of the question and unlikely to communicate complexity of subject matter
- lack organisation, relevance and specialist vocabulary
- demonstrate deficiencies in legibility, spelling, grammar and punctuation which detract from the clarity of meaning.

Level 2: answers the question (well/clearly)

An answer at this level is likely to:

- display a clear understanding of the topic
- make one or two points with support of appropriate exemplification and/or application of principle
- give a number of characteristics, reasons, attitudes
- provide clear use of case studies
- give responses to more than one command e.g. “describe and explain..”
- demonstrate a style of writing which matches the requirements of the question and acknowledges the potential complexity of the subject matter
- demonstrate relevance and coherence with appropriate use of specialist vocabulary
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which do not detract from the clarity of meaning.

Level 3: answers the question very well (detailed)

An answer at this level is likely to:

- display a detailed understanding of the topic
- make several points with support of appropriate exemplification and/or application of principle
- give a wide range of characteristics, reasons, attitudes
- provide detailed accounts of a range of case studies
- respond well to more than one command
- demonstrate evidence of discussion, evaluation, assessment and synthesis depending on the requirements of the assessment
- demonstrate a sophisticated style of writing incorporating measured and qualified explanation and comment as required by the question and reflecting awareness of the complexity of subject matter and incompleteness/tentativeness of explanation
- demonstrate a clear sense of purpose so that the responses are seen to closely relate to the requirements of the question with confident use of specialist vocabulary
- demonstrate legibility of text, and qualities of spelling, grammar and punctuation which contribute to complete clarity of meaning.

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Mechanics of marking

- Various codes may be used such as: 'rep' (repeated material), 'va' (vague), 'NAQ' (not answering question), 'seen', etc.
- Unless indicated otherwise, always mark text before marking maps and diagrams. Do not give double credit for the same point in text and diagrams.

Annotation of Scripts

It is most important that examiners mark clearly, according to the procedures set out below.

- The right hand margin should be used for marks only.
- Where an answer is marked using a levels response scheme, the examiner should annotate the scripts with 'L1', 'L2', or 'L3' at the point where that level has been reached in the left hand margin. At each point where the answer reaches that level, the appropriate levels indicator should be given. In addition, examiners may want to indicate strong material by annotating the script as "Good Level... ". Further commentary may also be given at the end of the answer. Where an answer fails to achieve Level 1, zero marks should be given.
- Where answers do not require levels of response marking, the script should be annotated to show that one tick equals one mark. The tick should be positioned in the part of the answer which is thought to be creditworthy. For point marked question where no creditworthy points are made, zero marks should be given.

Other mechanics of marking

- All errors and contradictions should be underlined.
- Various codes may be used such as: 'rep' (repeated material), 'va' (vague), 'NAQ' (not answering question), 'seen', etc.
- Use a wavy line to indicate weak dubious material (avoiding crossing out).

Unless indicated otherwise, always mark text before marking maps and diagrams. Do not give double credit for the same point in text and diagrams.

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1 AO1 - 2 AO2 - 2 AO3 - 4	<p>Notes for answers</p> <p>There should be reference to the hypothesis or argument or assertion or issue or problem and the subsequent explanation. This may include reference to the selection of the location and why this was the case. Reference to the underpinning theory is also relevant to explain why the hypothesis or argument or assertion or issue or problem was selected and this may be linked to the explanation of the location. There is likely to be a multi-layering of response, explaining why the hypothesis or argument or assertion or issue or problem was selected in relation to a number of reasons, including reference to the location, underpinning theory, risk assessment and location relative to the candidate.</p> <p>Mark scheme</p> <p>Level 1 (1 – 4 marks) (mid-point 3) The candidate will be unclear about <u>why</u> the hypothesis or argument or assertion or issue or problem was selected. There will be a reference to the hypothesis or argument or assertion or issue or problem and/or location and/or theory, though this will be <u>descriptive</u>, rather than explanatory. Reference to the candidate's own fieldwork will be absent at the lower end, though there may be some <u>implicit reference</u> at the upper end of the band.</p> <p>Level 2 (5 – 8 marks) (mid-point 7) There will be clear reference to an <u>explanation</u> for the selection of the hypothesis or argument or assertion or issue or problem with varying reference to points of explanation. This variability will be most evident at the lower end and less so at the upper. The <u>reasons</u> for the selection of the hypothesis or argument or assertion or issue or problem will be well covered and explanation may focus on a variety of points including theory, location, risk assessment, access, etc. There will be reference to the candidate's <u>own fieldwork</u>, with greater conviction towards the upper end of the band.</p>	(8 marks)
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2	Notes for answers	(8 marks)
AO1-2	The method(s) selected must relate to the investigation.	
AO2-2	One or more methods can be included.	
AO3-4	<p>There is likely to be reference to the reasons for the need to obtain reliable data, focusing on the integrity of the investigation. There may also be some comment on ‘reliable’ as a distinct term and the steps taken to look for this reliability. There will be varying detail on the rigour with which data is collected. Comment and details on the use of sampling is relevant here, but it is not essential. There are other means of collecting reliable data which may be covered in the responses. Reference to the candidate’s own fieldwork will be present at the higher levels.</p> <p>Mark scheme</p> <p>Level 1 (1 - 4 marks) (mid-point 3) Basic identification and <u>description</u> of a technique of data collection. There is <u>basic or no justification</u> of the steps taken to ensure reliability in the investigation. <u>Basic or no reference</u> to the candidate’s own fieldwork investigation.</p> <p>Level 2 (5 – 8 marks) (mid-point 7) Clear description of measures taken to ensure reliable data collection. There is clear reference to <u>justification</u> for these measures. There is clear reference to the candidate’s own <u>fieldwork investigation</u>.</p>	

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3 AO1-2 AO2-4 AO3-6	<p>Notes for answers</p> <p>Any method of analysis can be used, but there must be explanation why it was used with reference to the investigation. Statistical tests are most likely, but the use of an alternative method, if demonstrating analysis, will gain credit.</p> <p>The response should identify the method used and explain why it was included in the investigation.</p> <p>The use of diagrams or part worked examples would be an appropriate way to show how the method used is relevant to the investigation. Responses will then be able to develop how and why the method used analyses the data to explain its inclusion. This will often be a development of the aim(s); for example, an aim with two variables is likely to provide opportunity to use Spearman (r_s). Unpaired data sets may lend themselves to Mann Whitney or broad comparative data to Chi².</p> <p>There is the opportunity to explain the method used with regard to significance and what this means for the analysis of the data and the investigation as a whole.</p> <p>Mark Scheme</p> <p>Level 1 (1-5 marks) (mid-point 3)</p> <p>Basic identification and <u>description</u> of a method of data analysis. The <u>method used may not be related</u> to the investigation. No reference to the candidate's own fieldwork investigation, nor why the method was used. May be a basic, straightforward attempt at explanation.</p> <p>Level 2 (6-10 marks) (mid-point 8)</p> <p>Clear identification of a relevant method of data analysis, linked to the investigation. There may be clear description of the use of the method of analysis and a clear attempt to <u>explain</u> how this was appropriate to the investigation. There may be some reference to the <u>results of the analysis</u>. There will be <u>clear reference</u> to the candidate's <u>own fieldwork investigation</u>.</p> <p>Level 3 (11-12 marks) (mid-point 12)</p> <p>There is a <u>detailed account</u> of the use of the method of analysis, applied to this investigation, with <u>convincing reference</u> to the <u>candidate's own fieldwork</u>. The results of the analysis are <u>explained</u> in the light of data collected and the appropriateness of the method used in the investigation. The link to the investigation will be covered. There will be evidence that the candidate is '<u>thinking like a geographer</u>'.</p>	<i>(12 marks)</i>
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4 AO1-2 AO2-4 AO3-6	<p>Notes for answers</p> <p>There will be a focus on the success of the investigation and this will be linked to the aim(s). The success can be evaluated in a number of ways, including reference to the conclusions, the underpinning theory, extensions and improvements and/or the choice of location. A full range is not expected. In addition, there may be reference to the candidate's perspective on the success of the investigation with regard to their own personal geographical development.</p> <p>Mark Scheme</p> <p>Level 1 (1-5 marks) (mid-point 3)</p> <p>There will be a basic reference to the conclusions, without reference to evaluation. The conclusions may be <u>described</u> in some detail, but evaluation will be <u>basic</u>. References to theory will be limited, gaining some credit at the upper end of the band, but will only be loosely linked to the aim(s). There will be no reference to the candidate's own fieldwork. There may be <u>straightforward reference</u> to improvements and/or extensions.</p> <p>Level 2 (6-10 marks) (mid-point 8)</p> <p>There will be a clear attempt at <u>evaluation</u>, with <u>clear reference to the conclusions, linked to the aim(s)</u>. The underpinning theory may also be referred to and there may well be reference to the location. There will be <u>clear reference to the candidate's own fieldwork</u>. There may be <u>clear reference to improvements and/or extensions</u>, related to the investigation.</p> <p>Level 3 (11-12 marks) (mid-point 12)</p> <p>There will be a well-developed <u>evaluation</u>, with <u>detailed reference</u> to the aim(s). There may be reference to the conclusions and underpinning theory in some detail and also references to location. Reference to the candidate's own fieldwork will be <u>detailed and convincing</u>. <u>Improvements and/or extensions may be detailed</u>, related to the investigation. There will be evidence that the candidate is '<u>thinking like a geographer</u>'.</p>	(12 marks)
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5 (a)	Notes for answers	(8 marks)
AO1- 1 AO2-4 AO3-3	<p>This involves an assessment of the strengths and weaknesses of kite diagrams and pie charts for showing data.</p> <p>These techniques show the change of a percentage vegetation cover over distance along a transect. The example given, from a sand dunes investigation, shows changes in the percentage cover of vegetation with distance inland. The changes along the transect show the environmental gradient. Allow reference to the transect profile.</p> <p><u>Kite diagrams</u> are used to see trends in statistics in a visual way. The central line for each diagram has a value of 0. The 'kite' is then drawn symmetrically both above and below the line to represent the data. Thus they show the percentage cover/abundance of a specific species along a transect, the X-axis is the distance, and the actual kite shape represents the amount of that species at that set distance.</p> <p>Strengths (S) Kite diagrams are visually effective and changes between species (or other similar data) and over distance can be easily identified; thus comparisons can be made between vegetation types. It can be used with any species (irrespective of size) or combination of species(or other similar data). You are able to distinguish one individual species (or other similar data) from another. It is relatively quick to draw and specific % can be read off.</p> <p>Weaknesses (W) It is visually subjective as the scale can affect the visual effect of the diagram. There may be other species not shown. The dominant species may be over-estimated. Data is discrete, but plotted lines show continuity.</p> <p>Strengths (S) <u>Pie charts</u> – give a clear visual impression of the relative proportions of the components, though actual amounts are not specifically shown. This data is plotted as the % of vegetation cover per site as a % of 360°. The changes are shown along the transect, thus showing linear change in vegetation cover. Comparisons can be made between charts and spatially over distance from the sea, thus showing distributional changes in patterns.</p> <p>Weaknesses (W) The amount of data shown is complex as there are 17 pie charts though the pattern of change is relatively simple. This can make interpretation more challenging. Individual species are not shown in this case. They could be added to the pie charts, but this would be a complicated and possibly confusing way of presenting the data.</p> <p>The two figures show different aspects of vegetation along the transect - % species and % cover. Each is appropriate to show the specific data, so can be seen as complementary. Any viewpoint can be taken by the candidate, as long as it is justified, including the suggestion of alternative techniques. There may be balance between the strengths and weaknesses or comparatively between the two techniques.</p>	

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	<p>Mark scheme</p> <p>Level 1 (1-4 marks) (mid-point 3) There is a <u>basic description</u> of the techniques and what they are used to show. There may be some <u>imbalance</u> between coverage of the two techniques, which may include good coverage on one only. There will be <u>little reference to the assessment of the techniques</u> to show the data. One technique covered only.</p> <p>Level 2 (5-8 marks) (mid-point 7) There will be a <u>clear summary</u> of both techniques. There will be some reference to strengths and weaknesses, with some imbalance at the lower end. <u>An assessment of the suitability</u> for presenting this data will be present. This may be theoretical, rather than <u>application to Figures 1a and 1b</u>. There may be greater knowledge shown on one technique than the other, but any <u>imbalance will be absent at the upper end of the mark band</u>. Balance can be by comparison or by strengths/weaknesses or by coverage</p>	
5 (b) AO1 – 1 AO2 – 4 AO3 – 7	<p>Notes for answers</p> <p>Any presentational technique is acceptable, with the exception of kite diagrams and pie charts. Those selected are likely to come from the list of cartographic and graphical skills set out in the specification (p16), though reference may also be relevantly made to ICT and statistical skills it used for presentation (e.g. measures of dispersion, digital images).</p> <p>Credit will be gained by the quality of the explanation offered, the support provided in evidence and the effectiveness of presentation in geography. There will need to be consideration of both breadth and depth in a question of this type as a consequence of the range of options available in the response. An effective technique of presentation helps to interpret the data.</p> <p>Mark scheme</p> <p>Level 1 (1-5 marks) (mid-point 3) There is a <u>basic description</u> of the variety of techniques of presentation and what they can be used to show. One technique may be covered more strongly than others (<u>imbalance</u>). There will be no reference to the importance of the effectiveness of presentation. The approach may be by straightforward reference to strengths and weaknesses.</p> <p>Level 2 (6-10 marks) (mid-point 8) There will be a <u>clear summary of more than one technique</u>, with an attempt at an <u>explanation</u> of the importance of using techniques for <u>effectively</u> presenting data. This may be theoretical, rather than referring to examples and the links to display and/or geographical interpretation. There may be <u>greater knowledge shown on some techniques than others</u>.</p> <p>Level 3 (11-12 marks) (mid-point 12) There will be a <u>detailed awareness of the effectiveness</u> of presentational techniques to show data. There may be reference to relevant examples and application of the techniques. May show awareness of the interpretative qualities of effective data presentation. There will be evidence that the candidate is '<u>thinking like a geographer</u>'.</p>	(12 marks)