Version 2

General Certificate of Education (A-level)
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Geography GEO4A

(Specification 2030)

Unit 4A: Geography Fieldwork Investigation

Post-Standardisation

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 students' 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 students' 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 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.

Further copies of this Mark Scheme are available from: aqa.org.uk

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

Point marking and Levels marking
a) Questions with a mark range of 1-4 marks will be point marked.
b) Levels will be used for all questions with a tariff of 5 marks and over.
c) Two levels only for questions with a tariff of 5 to 8 marks.
d) 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.

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 given double credit for the same point in text and diagrams.

The aim(s) of the investigation is/are expected to be set out clearly. No credit is allocated for this statement.

1 **AO1-2** **AO2-2** **AO3-6**	**Notes for answers** There should be reference to the geographical reasons for the carrying out of the investigation in the area selected. This will include an explanation of reasons for the selection of the location. There is likely to be a description of the geographical characteristics of the area selected and reference to the underpinning theory would therefore be relevant to explain why the area was selected. There is likely to be a multi-layering of response, explaining why the area was selected to carry out the investigation and there may be reference to the theoretical context. Other geographical reasons are also valid, such as restrictions of resources (people and/or equipment), risk assessment, time available, etc., all relevant if linking the geographical reasons to the location. Planning and carrying out are both appropriate. **Mark scheme** **Level 1 Basic (1-4 marks) (mid point 3)** Unclear about the geographical reasons and why the area was selected. Some reference to the location and/or theory, though this will be descriptive, rather than explanatory. Reference to the candidate's own fieldwork absent at the lower end. Some implicit reference at the upper end of the band. **Level 2 Clear (5-8 marks) (mid point 7)** Clear reference to geographical reasons for the selection of the area, with reference to the location. Imbalance will be marked at the lower end and less so at the upper. The explanation of the reasons for the selection of the areas well covered. Reference to the candidate's own fieldwork, with greater conviction at the top of the band. **Level 3 Detailed (9-10 marks) (mid point 10)** Detailed reference to geographical reasons for the selection of the area, with likely detailed reference to the location. Explanation of the reasons detailed. Detailed reference to the candidate's own fieldwork with conviction.	***10 marks***

2 **AO1-2** **AO2-3** **AO3-3**	**Notes for answers** The answer is likely to include reference to the importance of completing a risk assessment to minimise risk before undertaking work in the field. Types of risk assessment documentation and how risk is assessed could be covered; this may be before the investigation is undertaken and also in the field. The value of a preparatory visit to the area and/or testing any equipment to be used as a part of risk assessment could be discussed. The use of group data and the security it provides may also feature; this might include the composition of a group in some cases. There will be continuous risk monitoring as the fieldwork data is collected, leading to modifications of the actual data collection, e.g. a rapid increase in river volume as the day progresses, unforeseen bad weather or emergency roadworks affecting traffic flow and access to, and in, town centres. The response should justify the steps taken to minimise the risks identified for the investigation. **Mark scheme** **Level 1 Basic (1-4 marks) (mid point 3)** Description of the risk assessment measures,(identification of risk) in advance and/or in the field; documentation mentioned. Attempts to show how the risks are minimised; justification lacking. No reference to the candidate's own fieldwork. **Level 2 Clear (5-8 marks) (mid point 7)** Risk assessment measures described well, a clear understanding of the processes involved. Clear attempt to show how the risks were minimised; with justification. Imbalance between the minimising of risks and their justification at the lower end. Reference to the candidate's fieldwork investigation will be present.	***8 marks***

3 **AO1-2** **AO2-4** **AO3-6**	**Notes for answers** Any method of data presentation will be acceptable, as long as it is relevant or likely to have been used in the investigation. Although the most common usage is likely to be graphical, cartographical may also feature. Statistical formats would also be acceptable, used in a presentational format. A description of the method is not required; rather the focus should be on the usefulness of the method of presentation in showing the data collected. Credit usefulness for further analysis. (M) for specific method. **Mark scheme** **Level 1 Basic (1-5 marks) (mid point 3)** Basic identification and description of a method of data presentation. No explanation for its use in the investigation nor assessment of the usefulness in showing the data. No reference to the candidate's own fieldwork investigation. **Level 2 Clear (6-10 marks) (mid point 8)** Clear identification and description of a method of data presentation. Clear assessment of the usefulness of the method of data presentation. Clear reference to the candidate's own fieldwork investigation. **Level 3 Detailed (11-12 marks) (mid point 12)** Detailed assessment of the usefulness of the method, with possibly some reference to alternative presentational methods; the candidate is thinking like a geographer.	***12 marks***

4 **AO1-2** **AO2-3** **AO3-5**	**Notes for answers** There will be a focus on a discussion of the ways in which the investigation contributed to the candidate's understanding of geographical theory. The discussion can be focused in a number of ways, including reference to the conclusions and/or the underpinning theory set out in the aim(s). In addition, there may be reference to the candidate's own perspective with regard to their own personal geographical development. **Mark scheme** **Level 1 Basic (1-4 marks) (mid point 3)** Basic reference to understanding, with little, if any reference to a discussion or vice versa. The conclusions/results described in some detail, but discussion lacking. References to the development of theory absent and not linked to understanding. Little evidence of the candidate's own fieldwork. **Level 2 Clear (5-8 marks) (mid point 7)** Clear attempt at discussion, with reference to the contribution to geographical understanding. The underpinning theory linked to this understanding, but some imbalance between discussion and understanding. Clear reference to the candidate's own fieldwork. **Level 3 Detailed (9-10 marks) (mid point 10)** Detailed attempt at discussion, with detailed reference to the contribution to geographical understanding. The underpinning theory also linked to this understanding and good balance between discussion and understanding. Detailed reference to the candidate's own fieldwork. Evidence that the candidate is thinking like a geographer.	***10 marks***

5 (a) **AO2-2** **AO3-2**	**Notes for answers** The critical value at the 0.05 (5%) significance level is 27 (no credit for this). As the value of the smallest value of U_1 and U_2 is less than 27, there is less than a 5% probability that the difference has occurred by chance. Thus, the null hypothesis (H_0) is rejected and the hypothesis (H_1) accepted. Accept comments on 0.05 significance level and its relevance. Reference to U_1 and U_2 are acceptable. Reference to 0.01 significance level. (1 mark per point) Further interpretative comment.	***4 marks***
5 (b) **AO2-2** **AO3-2**	**Notes for answers** The Mann Whitney U Test assesses the degree of overlap between 2 distributions is more than would be expected by chance. It is a non-parametric test. It is used for very small samples, between 5 and 20, as in this case. The test shows whether the differences between the two sets of data are significant or whether they are due to chance. The probability level that the difference is due to chance can be identified. Comment about calculated value lower than critical value. The distribution can be uneven, i.e. unpaired data. The Mann Whitney U Test can be applied to ranked (ordinal) data and it is relatively easy to convert the original interval data into a ranked form. The null hypothesis is that the 2 samples are drawn from a single population or from populations with the same level of rankings. Use of ranked data means range of raw data is lost. (1 mark per point)	***4 marks***
5 (c) **AO1-2** **AO2-4** **AO3-6**	**Notes for answers** Statistical techniques are used to interpret and analyse data collected in fieldwork investigation and this will aid improved understanding of geographical phenomena under investigation. The reliability of the data with regard to sample size and the significance of the statistical techniques is also assessed. The most commonly used are measures of central tendency and dispersion, such as standard deviation and variance. In addition, Spearman's rank correlation co-efficient, Chi-squared and Mann Whitney represent inferential and comparative tests. A hypothesis/null hypothesis should be established in order to fully exploit the latter techniques. The result of the tests should be tested for significance against relevant tables or a t-test can be used. If the result exceeds the critical value at the 5% and/or 1% levels, the result is significant and the hypothesis can be accepted/null hypothesis rejected (not for Mann Whitney). This is a reliable result and can then be explained/justified to increase understanding. If the result is not significant, the null hypothesis is accepted/hypothesis rejected. In this case, further geographical explanations should be sought to understand this outcome. The skills and techniques can be used with presentational techniques to further develop geographical understanding (e.g. scatter graphs with Spearman's rank). (T) for specific technique. Must be identification of more than one technique for L3.	***12 marks***

	Level 1 Basic (1-5 marks) (mid point 3) Basic awareness of statistical technique(s). The response limited, with a strong focus on description of the techniques, rather than their assistance in analysis. Links to the candidate's own fieldwork, if present, will be unclear. Uncertainty about the links to geographical understanding. **Level 2 Clear (6-10 marks) (mid point 8)** Clear reference to statistical technique(s). Increasing detail toward the upper end of the band and the explanation of the assistance in understanding will become more apparent. References to the candidate's own fieldwork and geographical understanding present, but inconsistent and/or imbalanced. **Level 3 Detailed (11-12 marks) (mid point 12)** Consistent, detailed reference to the statistical techniques available. Consistent evidence of explanation of the assistance of the techniques in and understanding. The role in developing geographical understanding consistently referenced. Thinks like a geographer.	