A-LEVEL

# Geography

GEO4A Geography Fieldwork Investigation
Mark scheme

2030
June 2016

Version 1.0: Final Mark Scheme

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 Assessment Writer.

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.

**GEO4A 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.

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| **1**<br><br>**AO1 - 2**<br>**AO2 - 2**<br>**AO3 - 4** | **Notes for answers**<br><br>There should be an explanation of the purpose of the investigation with reference to the geographical characteristics of the area selected and explanation of why the underpinning theory, concept or issue would be relevant with regard to this location. There are likely to be several approaches the response can take in explaining why the theory or concept or issue is related and/or well suited to the investigation in this location. The balance between these elements may vary, according to the candidate's individual fieldwork experience.<br><br>**Mark scheme**<br><br>**Level 1 (1 – 4 marks) (mid-point 3)**<br>Unclear about or descriptive of locational characteristics and theory, concept or issue. References to the purpose of the investigation are unclear. Descriptive references to purpose of the investigation. Reference to the candidate's own fieldwork absent at the lower end; some implicit reference to fieldwork at the upper end of the level<br><br>**Level 2 (5 – 8 marks) (mid-point 7)**<br>Clear reference to locational characteristics and theory, concept or issue. Explanation of the purpose of the investigation is clearly identified; location and theory, concept or issue are explained. Imbalance between these elements will be at the lower end of the band; good balance at the top of the band. Clear reference to the candidate's own fieldwork, with greater conviction at the top, less at the bottom of the level. | ***(8 marks)***<br><br>**1-4 marks**<br><br>**5-8 marks** |

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| **2**<br><br>**AO1-2**<br>**AO2-4**<br>**AO3-6** | **Notes for Answers**<br><br>A description of the method of data collection and an assessment of the relevance of this method to the investigation is required to gain the highest marks. Any relevant method of primary or secondary data collection can be described. Relevance to the investigation could be by the way in which data was collected; the reliability of the data collected; how the aim(s) were supported; whether the data could be suitably presented, analysed and interpreted; the validity of the results to enable the conclusion(s) to be drawn. Reference to the relevance of this method may include strengths, limitations and the candidate's experience in the field, including possible/actual improvements. The use of sampling is relevant here. Reference to the candidate's own fieldwork will be present at the higher levels.<br><br>**Mark scheme**<br><br>**Level 1 (1-5 marks) Mid-point 3 marks**<br>There is basic description only of the method selected. There may be a basic description of the strengths and/or weaknesses. Reference to any sampling used will be basic, if present. There may be a very basic reference to relevance and/or the candidate's own fieldwork at the upper end.<br><br>**Level 2 (6-10 marks) Mid-point 8 marks**<br>There is clear description of the method and an attempt at an assessment of the relevance of the method to the investigation, but this assessment will be partial. This will be very marked at the lower end, with implicit assessment of relevance or strengths and weaknesses, whereas, at the upper end, there will be clear, balanced assessment. There will be clear reference to the candidate's fieldwork experience.<br><br>**Level 3 (11-12 marks) Mid-point 12 marks**<br>There is detailed description of the method and assessment of the relevance of the method to the investigation. There will be convincing, detailed reference to the candidate's own fieldwork experience. The candidate will be 'thinking like a geographer'. | **(12 marks)**<br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br>**1-5 marks**<br><br><br><br><br><br><br>**6-10 marks**<br><br><br><br><br><br><br><br>**11-12 marks** |

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| **3**<br><br>**AO1-2**<br>**AO2-2**<br>**AO3-4** | **Notes for answers**<br>Any technique of analysis can be used, but the technique selected must be related to the investigation. The most likely are statistical tests, but the use of an alternative technique, if justified to show analysis, will be acceptable.<br><br>The answer should explain how the technique of data analysis helped in interpreting the data collected to gain the highest marks.<br><br>The use of diagrams or part-worked examples could be a suitable way of showing how the technique was used. A summary of the results of the analysis may be anticipated and thus show how this helped the interpretation e.g. whether the result was significant or not (if a statistical test was used) and what that would mean for the interpretation of these data.<br><br>**Mark Scheme**<br><br>**Level 1 (1-4 marks) Mid-point 3 marks**<br>Basic identification of a technique of data analysis. Descriptive only: explanation of how the technique helped to interpret the information collected is absent. Lacks reference to the candidate's own fieldwork investigation.<br><br>**Level 2 (5-8 marks) Mid-point 7 marks**<br>Clear identification of a relevant technique of data analysis. There is a clear understanding of the use of the technique and an attempt to explain how this was helpful in interpreting the data collected. There will be some reference to the results of a technique of data analysis. There is clear reference to the candidate's own fieldwork investigation. | ***(8 marks)***<br><br>**1-4 marks**<br><br>**5-8 marks** |

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| **4**<br><br>**AO1-2**<br>**AO2-4**<br>**AO3-6** | **Notes for answers**<br><br>This requires a focus on to what extent the results obtained in the investigation contributed to the development of the candidate's understanding of the topic. The assessment can be focused in a number of ways, but reference to the results and understanding is essential to gain the highest marks. There may be reference to the candidate's own perspective with regard to the development of their own personal understanding of the topic. Reference to the experience of fieldwork is expected, linked to the development of understanding of the topic.<br><br>The thrust of the question is on results; conclusions are acceptable in this context and should be credited.<br><br>**Mark Scheme**<br><br>**Level 1 (1-5 marks) Mid-point 3 marks**<br>There will be a basic reference to the results and/or the experience of fieldwork, with little, if any, reference to the development of an understanding of the topic. The results may be described in some detail, but assessment will be lacking. There will be little or basic reference to the candidate's own fieldwork.<br><br>**Level 2 (6-10 marks) Mid-point 8 marks**<br>There will be a clear attempt to show how the results have developed the candidate's understanding of the topic. There may be some imbalance between the assessment and development of understanding at the lower end. There will be confident reference to the results and clear reference to the candidate's own fieldwork at the upper end of the mark band.<br><br>**Level 3 (11-12 marks) Mid-point 12 marks**<br>There will be a detailed attempt to show how the results have developed the candidate's understanding of the topic. There will be a balance between the assessment and development of understanding. There will be confident reference to the results and detailed reference to the candidate's own fieldwork.<br>The candidate is thinking like a geographer. | ***(12 marks)***<br><br><br><br><br><br><br><br><br><br><br><br><br><br>**1-5 marks**<br><br><br><br><br><br><br>**6-10 marks**<br><br><br><br><br><br><br>**11-12 marks** |

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| **5 (a)**<br><br>**AO1-1**<br>**AO2-4**<br>**AO3-3** | **Notes for answers**<br>The boxed area in the two figures shows different elements of the rainfall characteristics. This area is the focus.<br><br>**General points**<br>**Figure 1**. The red boxed area of the synoptic weather chart shows a limited amount of information with regard to rainfall. It shows the cold front, its position relative to the UK and some isobars. Rainfall is likely from a cold front, frequently intense in character, but this is not obvious from the chart. The isobars give some indication of the pressure gradient and direction of the wind, both of which can have an impact on rainfall characteristics.<br><br>**Figure 2.** The radar map shows detail of rainfall intensity on a large scale over a part of Southwest England. The cold front is marked by superimposition over the rainfall intensity. The lowest intensity on the map is shown by dark purple, rising via blue, green, yellow, orange, red and pink to very pale blue, the highest intensity. The actual values are shown on the key. The key of intensity shows the dividing value in 2 categories. The highest intensity is shown near to the actual position of the front, which has been plotted as a separate feature at this larger scale by the observation of other weather characteristics at weather stations. The outline of part of Southwest England is also shown, as are 3 weather stations for reference.<br><br>The essential differences arise because of scale and also what is being shown. Hence the two figures complement each other to provide information about the nature of the rainfall event in this area of Southwest England. Candidates may refer to the geometric nature of the scale of rainfall intensity, thus emphasising the increasing intensity of rainfall. Candidates may refer to the 'overlapping' of the categories in the key of rainfall intensity.<br><br>**Mark scheme**<br><br>**Level 1 (1-4 marks) Mid-point 3 marks**<br>There is a basic description of the two figures. There may be coverage of one figure only. Assessment of the effectiveness of the figures in presenting these data will be lacking. Reference to detail on the figures is also lacking.<br><br>**Level 2 (5-8 marks) Mid-point 7 marks**<br>There will be a clear assessment of the effectiveness of the two figures, with reference to the information in the red box. There may be imbalance between the coverage of the figures at the lower end whereas clear coverage of both figures, including reference to scale and specific reference to the red box area, is expected at the upper end of the band. Reference will be made to detail on the figures. Comment on the complementary nature of the information is likely to be found in a balanced response. | ***(8 marks)***<br><br>**1-4 marks**<br><br>**5-8 marks** |

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| **5 (b)**<br><br>**AO1-1**<br>**AO2-4**<br>**AO3-7** | **Notes for answers**<br><br>There is a variety of techniques and skills that are relevant here.<br><br>The specification lists remotely sensed data – photographs, digital images, including those captured by satellite. GIS is also stated**.**<br><br>**Remote sensing** is the science of obtaining information about objects or areas from a distance, typically from aircraft or satellites. Radar, laser, light detection and ranging (LIDAR), radiometers (radiation, including infrared), stereographic pairs, LANDSAT, geodetic (gravity), sonar, seismographs are some of the main techniques.<br><br>Remote sensing makes it possible to collect data on dangerous or inaccessible areas. Remote sensing applications include monitoring deforestation in areas such as the Amazon Basin, glacial features in Arctic and Antarctic regions, and depth sounding of coastal and ocean depths. Military collection of remotely sensed data during the Cold War made use of stand-off collection of data about dangerous border areas, without the need to have a presence on the ground. Remote sensing also replaces costly and slow data collection on the ground, ensuring in the process that areas or objects are not disturbed.<br><br>Orbital platforms collect and transmit data from different parts of the electromagnetic spectrum, which in conjunction with larger scale aerial or ground-based sensing and analysis, provides researchers with enough information to monitor trends such as El Niño and other natural long and short term phenomena. Other uses include different areas of the earth sciences such as natural resource management, agricultural fields such as land usage and conservation, and national security and overhead, ground-based and stand-off collection on border areas.<br><br>A significant amount of GIS data is provided by remote sensing techniques.<br><br>A **geographical information system** (**GIS**) is a computer system designed to capture, store, manipulate, analyse, manage, and present all types of spatial or geographical data. In a general sense, the term describes any information system that integrates, stores, edits, analyzes, shares, and displays geographic information. GIS applications are tools that allow users to create interactive queries (user-created searches), analyse spatial information, edit data in maps, and present the results of all these operations. GIS can relate unrelated information by using location as the key index variable. The most common method of data creation is digitization, where a hard copy map or survey plan is transferred into a digital medium through the use of a CAD | ***(12 marks)*** |

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| | program, and geo-referencing capabilities.<br><br>In developing a digital topographic database for a GIS, topographical maps are the main source, and aerial photography and satellite imagery are extra sources for collecting data and identifying attributes which can be mapped in layers over a location facsimile of scale.<br><br>Trade off breadth vs depth. There is likely to be a variety of approaches to this question.<br><br>**Mark Scheme**<br><br>**Level 1 (1-5 marks) Mid-point 3 marks**<br>There is a basic description of remote sensing and/or GIS techniques and what they can be used to show. Covers remote sensing or GIS. Refers to rainfall intensity only. Lacks reference to the development of understanding.<br><br>**Level 2 (6-10 marks) Mid-point 8 marks**<br>There will be a clear depiction of remote sensing and GIS techniques, with an attempt at showing how such information can aid the development of geographical understanding. This will be theoretical, rather than referring to examples; the links to geographical understanding are clear rather than detailed. There may be imbalance between coverage of remote sensed and GIS themes.<br><br>**Level 3 (11-12 marks) Mid-point 12 marks**<br>There will be a detailed and balanced depiction of remote sensing and GIS techniques to show how their use aids the development of geographical understanding. There will be detailed reference to examples of their application. The candidate will demonstrate evidence of 'thinking like a geographer'. | **1-5 marks**<br><br>**6-10 marks**<br><br>**11-12 marks** |