



General Certificate of Education

Geography 6031

Specification A

GGA7 Fieldwork Investigation

Mark Scheme

2008 examination - January series

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 meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting 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 the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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GGA7

General Guidance for A Level Geography Assistant Examiners

Quality of Written Communication

As required by QCA, the marking scheme for this unit includes an overall assessment of quality of written communication. There are no discrete marks for the assessment of written communications 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.

Levels Marking - General Criteria

The following general criteria relate to knowledge, understanding and their critical application and the quality of written communication as outlined in the AQA Geography A subject specification. They are designed to assist examiners in determining into which band the quality of response should be placed, and should be used when assessing the level of response an answer has achieved. It is anticipated that candidates' performances under the various dimensions will be broadly inter-related and the general guidelines for each level are as follows:

- Level 1:** An answer at this level is likely to:
- display a basic understanding of the topic;
 - make one of two points without support of appropriate exemplification or application of principle;
 - demonstrate a simplistic style of writing perhaps lacking close relation to the term 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:** 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;
 - 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: 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;
- 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.

N.B. A perfect answer is not usually required for full marks. Clearly it will be possible for an individual candidate to demonstrate variable performance between the levels. In such cases the principle of best-fit should be applied. Experience suggests that the use of exemplars within this mark scheme and the discussion which takes place during the Co-ordination Meeting normally provides sufficient guidance on the use of levels in marking.

Annotation of Scripts

Where an answer is marked using a levels of response scheme the examiner should annotate the script with 'L1', 'L2' or 'L3' at the point where that level is thought to have been reached. The consequent mark should appear in the right hand column. Where an answer fails to achieve Level 1, zero marks should be given.

Where answers do not require levels of response marking, each script should be annotated to show that one tick equals one mark. It is helpful if the tick can be positioned in the part of the answer which is thought to be credit-worthy.

General Advice

It is important to recognise that many of the answers shown within this marking scheme are only exemplars. Where possible, the range of accepted responses is indicated, but because many questions are open-ended in their nature, alternative answers may be equally credit-worthy. The degree of acceptability is clarified through the Standardisation Meeting and subsequently by telephone with the Team Leader as necessary.

- 1 (a) Figure P1 is a diagrammatic representation of the coastal area. It shows the key processes at work and seeks to suggest the importance of longshore drift, constructive waves and beach material in producing a spit. The theoretical expectation is clear – that the material should become smaller and more rounded towards the north end of the spit due to longshore drift. The dominance of constructive waves should ensure that the largest material is the dune side due to the dominance of the swash and the shingle material at Ynyslas is likely to create a relatively steep profile. Thus, hypotheses for objectives 1, 2 and 3 are clearly suggested by this figure. The point overall is to try to assess the extent to which the landform observed matches up with the expectations suggested by Figure P1.

Level 1

Describes Figure P1.
Describes objectives in isolation.
No reference to own fieldwork.

(1 mark)

Level 2

Clear description of Figures P1 and relates to objectives.
This will be clear at top end.
Aware of the 'model' providing the suggestions for study.
Implicit reference to own fieldwork or explicit but not well applied.

(2–3 marks)

Level 3

Purposeful use of figure.
Aware of the ideas suggested by the 'model' and the need to establish degree of fit.
Explicit and meaningful reference to own fieldwork.

(4 marks)

- (b) Shingle ridge allows beach material to be measured in a quantifiable manner (1) +(1) if explains why.
Material therefore will show change in a particular direction whereas sand will be the same size throughout (1)
Clear to identify to pre-plan (1)
Access is also clear from a number of points via paths/tracks off minor road (1)
2 x 1 (1 + 1)

(2 marks)

- 2 (a) Instructions must relate to subsequent steps after selection of beach material and they should be sequential.
 For the size (✓s), following points are likely:
 Identify the longest part of the pebble (1)
 Measure the long axis (a) (1)
 This may be done via a ruler/pebbleometer of various types (up to 3 if detailed) – e.g. via describing equipment and exactly what to do.
 For the roundness (✓r), the following points are likely:
 A chart of concentric semicircles will be needed (1)
 This will need to show the radius (r) of the semicircles (1)
 The pebble should be laid flat on the chart (1)
 The sharpest corner should be identified (1)
 The radius should then be measured (1)
 Then, the formula of $2r/a \times 1000$ should be used to determine the Roundness Index (1)
 Allow up to 3 marks for reference to own fieldwork.
 6 x 1;
 Maximum 4; minimum 2 on either component. (6 marks)
- (b) Sample size (✓s)
 There should be recognition of the substantial sample size of 200 per transect (1)
 Advantages (✓a) should reflect this and the reliability of the results produced (1) as these should reflect what is happening and reduce impact of anomalous results (1)
 Disadvantages (✓d) may refer to how time consuming such data collection is (1) and perhaps the compromising of accuracy given time constraints (1)
- Sampling method (✓m)
 Advantages (✓a) likely to refer to lack of bias (1) with further mark if this is clearly explained with reference to the method. May relate to reliability but do not double credit – only a second mark if point developed separately for method versus size.
 May suggest advantages of identifying similar points along ridge to allow comparisons/contrasts (1)
 Disadvantages (✓d) may relate conversely to inadequate coverage of the whole of the ridge (1) and suggest an alternative systematic sampling method (1) or another alternative. It is likely that largest material will be selected by this method? (1)
 Allow any valid point.
 Allow up to 3 marks for reference to own fieldwork.
 Allow up to 4 marks for each component; minimum of 2 for each aspect. (6 marks)

- (c) Weather forecast (1) and tide times are obvious choices (1)
There is a need then to link these and the information they give to producing a risk assessment.

e.g. weather will indicate temperature/precipitation/wind (1) and inform of necessary clothing (1); sun index (1) would inform of need for sunscreen (1). Risk may be stated clearly (1).
Tides indicate when beach access is safe (1) and up to what points if HWM identified (1).

If points well and specifically developed allow up to 3 on one item. (4 marks)
Allow up to 2 marks for reference to own fieldwork.

4 x 1

- 3 (a) (i) 6 x 1 – any valid label.
Labels likely to refer to beach in the foreground, shingle ridge and dunes. May refer to material, gradient, vegetation type and cover, zones and contrasts. (6 marks)

- (ii) **Value (v)** likely to relate to photographs giving a visual impression of the area;
showing a more extensive area beyond the shingle ridge;
putting the position of the shingle ridge into context;
all of these aiding understanding with regard to the setting.
The position on different parts of the spit indicate possible changes in the context of the aim and specifically with regard to the material size and nature of the beach profile.

Limitations (l) likely to relate to the fact that the individual transects are not photographed; the difficulty of showing the small scale change in a limited space and clearly on a photo – i.e. difficult to capture the actual scene; those taken show change as more distant material on ridge appears smaller but is this true and helpful for the objective or just the contrast between near and far away objects?
Evidence ought to relate to specific photographs.

Level 1

Describes photos – in general terms or in detail.
Occasional reference to value/limitation within this. (1-3 marks)

Level 2

Begins to use photos to consider their value and/or limitations.
Refers (at least implicitly) to the aim/objectives.
Offers some evidence in support, maybe generalised at lower end.
Begins to assess. (4-5 marks)

Level 3

Purposeful use of photos – will consider value and limitations, although one aspect may be dominant.
Refers clearly to the aim/objectives.
Evidence used in support.
Clearly assesses usefulness/limitations. (6 marks)

- (b) (i) 4 x 1 for correctly marking coordinates onto Figure 2.
1 for overall mean for transect 10; 1 for overall mean for sampling site D and 1 + 1 for standard deviation for sites C and D. (4 marks)

- (ii) Overall mean and standard deviation change northwards.
There is no clear cut pattern as the north end of the spit is neared.
The overall mean shows some fluctuation – indeed, the highest figures are in the more central study, sites, e.g. at 4 and 7.
Although the lowest figure is found at study site 10, a similar figure is found at study site 5. No clear conclusions can be drawn from this and expectation of reducing size as the northern end is approached has not been realised.

Overall mean and standard deviation change across beach.
 This is much clearer and the overall mean indicates that the material further inland is larger than that nearer the beach. Thus, site A beach material is approximately 3 cm larger than that within site D. There is a progressive change from D to A, with the material becoming larger at each section site. Thus, clear conclusions can be drawn here and the expectation suggested by Figure P1 is realised.

Standard deviation along and across the spit.
 The height of the bars overall does reduce with distance northward and this is certainly the case when 1 and 10 are compared. However, this is not always the case e.g. study site 4 and 9 are larger than might be expected if there was a clear trend. However, overall it does appear that the beach material varies less in size to the north which would fit with the expectation.

Looking at standard deviation across sites A to D, the evidence is less clear cut. (This is in contrast to the overall mean where the evidence across the beach was stronger.) At times, there is very little change e.g. transect 1 and on other occasions, there are clear differences e.g. 4, 8 and 10. Looking individually at the different sampling sites, it appears that all show a degree of fluctuation – especially site D. The largest standard deviation appears to be at site A which would fit with greater variation in material on the duneward side. However, results do not provide ‘textbook’ conclusions.

Comment (c) as indicated above is likely to relate to validity of conclusions, extent to which theoretical expectations have been met.

Level 1

Describes graphs – in general terms or in detail.
 Likely to be piecemeal – no clear overview/element of spatial change.
 Likely to focus on overall mean.

(1-4 marks)

Level 2

Begins to use map – seeks to identify spatial change.
 Begins to see overview.
 May be entirely imbalanced with only mean or standard deviation referred (likely the former).
 Offers some evidence in support, maybe generalised at lower end.
 Begins to address the ‘to what extent’ component.
 Tentative comment.

(5-8 marks)

Level 3

Purposeful use of map – clear focus on spatial change.
 Considers both overall mean and standard deviation – although need not be balanced, maybe aware of exceptions.
 Clear overview offered, with evidence used in support.
 To what extent is purposefully addressed.
 Explicit comment.

(9-10 marks)

- (iii) 1 for open, basic or partially clear hypothesis, e.g. there will be a difference in the size of material at different study sites.
2 for directional, clear hypothesis, e.g. the material will be larger at the southern end of the spit. (2 marks)
- (iv) 3 x 1
1 mark for identifying equation for expected frequency – $5 \times 40 / 120$;
1 mark for stating result of 1.67;
1 mark for writing out equation – $(0-1.67)^2 / 1.67$;
1 mark for final number in figures to be added – 1.67. (3 marks)
- (v) The calculated value of 13.23 exceeds the critical value of 12.59 at the 0.05 level of significance (1). However, the critical value of 16.81 at the 0.01 level of significance is too high (1). Therefore, the expected hypothesis can be accepted at the 95% level of confidence (1), but must be rejected at the 99% level of certainty. Here the null hypothesis must be adopted (1). Clearly differences are apparent between the selected sites (1) but only at lower level of confidence (1). The data selected sites 4 and 7 that had higher figures overall, did this have an impact on the outcome? (1)
Questioning/evaluating result is a valid part of outcome. (4 marks)
- (c) (i) 1 mark for each sampling site.
Maximum 2 if points not joined. (3 marks)
- (ii) Change northwards.
There is no clear pattern of change as progress is made from transects 1 to 10. The Cailleux roundness index fluctuates for all sampling sites. The greatest fluctuation is for site C where the roundness index is highest at transects 1 and 10 which is not what would be expected. At some transects, roundness appears less than what might be expected, e.g. transect 4 where the lines dip on all 3 occasions for which there is data. The roundness index appears to reduce overall northwards, e.g. sampling site A and D.
Change across the beach.
Sampling site D generally has the highest roundness index, with the exceptions of transects 1 and 10 where C has rounder material. This is what would be expected as this area is affected by the waves to the greatest extent. Conversely, A has the lowest roundness index on a number of occasions. However, at other times C is lowest, e.g. transects 4 and 7. Thus, there is limited evidence for a clear change across the beach.
- Level 1**
Describes graph in general terms or in detail.
Will focus on one element. (1-3 marks)
Likely to be piecemeal.
- Level 2**
Begins to use graph – seeks to identify spatial change either northwards and/or across the beach.
Offers some evidence in support, maybe generalised at lower end. (4-5 marks)
Tentative/implicit comment.
- Level 3**
Purposeful use of graph.
Clear overview offered, with evidence used in support.
Clear, explicit comment, maybe aware of exceptions. (6 marks)

(d) (i) 3 x 1 for adding each of the three remaining coordinates for study transect 7. (3 marks)

(ii) Comparisons are less apparent than contrasts.

The profiles are of a similar length – from approximately 1100 to 1400 cm.

Only two have clear crests – transects 4 and 7.

All except transect 4 have a relatively extensive section with a steep gradient.

Contrasts are more visible.

Transect 1 appears as a fairly continuous steep slope. This is different to transect 10 at the northern end where there is a significant flat area at the start and then a decline. Similarly, transects 4 and 7 have a clear crest, but this is different in appearance with transect 4 being a different shape and marked by a steep seaward side slope that is quite abrupt. The depth of transect 4 is much less than the other transects, being only about a third that of the others.

Reasons are likely to include reference to size of material, e.g. overall average at transects 4 and 7 was higher – this is likely to have an impact on angle of slope; wave type might be referred to; the impact of offshore features on a small scale; the impact of coastal management might be considered and the groynes interfering with the natural movement of sediment in the cell.

Level 1

Describes beach profiles either in general terms or in detail. Likely to be piecemeal and individual.

(1-4 marks)

Level 2

Begins to use profiles and question is addressed.

May be one sided – with a consideration of contrasts only.

Offers some evidence in support, maybe generalised at lower level.

Will begin to consider reasons at the top end.

(5-7 marks)

Level 3

Purposeful use of both profiles.

May still be imbalanced, but there is some reference to both components.

Uses evidence to support points made.

Reasons are clearly suggested.

(8 marks)

4

Level 1

Simple statements made with reference to objectives or overall aim. May focus more on some aspects than others, e.g. characteristics of component rather than reasoning and be imbalanced. May jump about and be poorly structured. No reference to own fieldwork experiences. Lacks awareness of limitations or may refer to limitations only and neglect to summarise findings.

(1-4 marks)

Level 2

Some developments of statements. Refers to all objectives (perhaps in varying detail) and in appropriate order or clear reference to aim/title. May make intermittent reference to evidence or refer in generalised way. Will show some awareness of reliability of findings and limitations and will show their own experience of conducting an enquiry by drawing on own experience. If good on either summary or limitations but no reference to other element, max. 5. No explicit reference to own fieldwork – max. 7.

(5-8 marks)

Level 3

As Level 2, but will refer precisely and specifically to data collected as evidence. Will be clearly aware of limitations. Will realise extent to which aim/objectives have been realised. Will be critically evaluative of enquiry. May suggest meaningful extensions of study. Will clearly be applying own experiences of fieldwork and enquiry.

(9-10 marks)

5

Aim/objective/hypothesis/issue (a)

Allow 1 mark for an unclearly expressed idea and 2 for a clear, specific statement which must develop from the chosen aspect. For example, 'What management strategies are used in the dune area?' would be worth 1 mark, whereas 'How effective are different management strategies in the dune areas in reducing recreational damage?' would be worth 2 marks. If there is some justification within this, allow up to 2 further marks. This could be derived from candidate's own fieldwork.

(Max 4 marks)

What data will depend on which aspect is selected (w)

For management of dune area, expect items such as visitor counts, height and variety of vegetation, width/depth of footpaths. There are a number of clear clues from the photographs.

Similarly, for the beach management – relative height of beach on each side of the groyne; wave interval and height, monitoring of longshore drift. Allow up to 3 marks for clear and specific identification of the data items to be collected.

Location, how, why, what (l,h,wh,w)

There should be clear reference to the study transects that will be selected; reference may be made to how these will be identified and credit given for justification.

How should address the detail of the data collection – identifying what equipment will be used and giving the sequence of data collection – a step by step list of instructions. Why may be present within this section justifying the actual method.

If why is not integrated within where and how, it should appear as a separate section justifying the data collection with regard to the issue/hypothesis/question or why a particular method was selected. This section is very open-ended depending on the aspect selected and the data items. Reference to own fieldwork is valid in the context of the question, but a mere repeat of what was done is inadequate.

Reserve at least 1 mark for each part, i.e. – statement, what, where, how and why.

(13 marks)