



AS GEOGRAPHY 7036/2

Paper 2 Human geography and geography fieldwork investigation

Mark scheme

June 2025

Version: 1.0 Final



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.

No student should be disadvantaged on the basis of their gender identity and/or how they refer to the gender identity of others in their exam responses.

A consistent use of 'they/them' as a singular and pronouns beyond 'she/her' or 'he/him' will be credited in exam responses in line with existing mark scheme criteria.

Further copies of this mark scheme are available from aqa.org.uk

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Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the typical performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

The notes for answers provide indicative content. Students' responses may take a different approach in relation to that which is typical or expected. It is important to stress that examiners must consider all a student's work and the extent to which this answered the question, irrespective of whether a response follows an expected structure. If in doubt the examiner should contact their team leader for advice and guidance.

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 descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets 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 descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

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, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which 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 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.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Section A

Qu	Part	Marking guidance	Total marks
01	1	Which of the following defines endogenous factors? C Factors within a place that help shape its unique character	1 AO1 = 1
01	2	Which of the following are <u>both</u> examples where external agencies attempt to create place-meaning? A An advertising campaign by an international business group to promote investment opportunities in the city. A tourist brochure produced by VisitBritain about the historical and cultural sites in the city.	1 AO1 = 1
01	3	Outline the advantages of using quantitative data when studying how a place has changed over time. <u>Point marked</u> Award one mark for each relevant point with extra mark(s) for developed points (1d). For example: <u>Notes for answers</u> - Quantitative data is objective and represents changes to places factually (1). - UK Census data is the most complete record of change (1). - Census data can be analysed at different scales (electoral ward or SOA) for a more detailed analysis of changes to a place (1). - Modern maps or satellite images can be compared with old maps to see how places have changed (1). For example, maps can show changes in a settlement such as new infrastructure or housing development which can allow an assessment of the scale and speed of change (1d). The notes for answers are not exhaustive. Credit any valid points.	3 AO1 = 3

01	4	Analyse the data shown in Figure 1a and Figure 1b. AO3 – Analysis of data. <u>Mark scheme</u> Level 2 (4–6 marks) AO3 – Clear analysis of the data provided, which makes appropriate use of data in support. Clear connection(s) between different aspects of the data. Level 1 (1–3 marks) AO3 – Basic analysis of the data provided, which makes appropriate use of data in support. Basic connection(s) between different aspects of the data. <u>Notes for answers</u> • At regional level the population has grown across all regions between 2011 and 2021, however there is variation with slower rates of growth in the north of England and Wales. The average change shown in figure 1a is 5.74%. There is a difference of 6.9% increase in population between Wales and the East of England. • There is more variation at local authority level and the regional pattern masks differences across areas and within cities. • In a number of local authority areas in the south and east of England the population has increased by over 13%. However, there is an anomaly in the North West of England where the population of Salford has risen by 15.4% • Not all local authorities in England have seen growth. There are at least 10 local authorities in England which have seen decline of more than 1% in population. The majority of these are in the north of England but there are three in London. (Some may comment on the scale and suggest that it is difficult to see all areas with decline as the parameter is from –1 to +3) • London is very mixed with stark contrasts between areas of population growth and decline. Tower Hamlets has a rate of increase of +22.1% whereas Kensington and Chelsea has a rate of decrease of 9.6%, a difference in percentage change of 31.7%. A similar percentage difference (11.3%) can be seen within Manchester, however here all areas are experiencing growth. The question requires analysis of the data shown in the figures. Credit any other valid approach.	6 AO3 = 6
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01	5	With reference to a local place you have studied, assess the importance of factors affecting how people form attachments to this place. AO1 – Knowledge and understanding of how humans form attachments to places. Knowledge and understanding of a local place. AO2 – Applies knowledge to assess the assess factors which affect how people have formed attachments to this place. <u>Mark scheme</u> Level 3 (7–9 marks) AO1 – Demonstrates detailed knowledge and understanding of how place attachment is formed. Detailed knowledge and understanding of a local place. AO2 – Demonstrates detailed application of knowledge and understanding to assess factors which influence place attachment. Analysis and evaluation are detailed and well supported with appropriate evidence. Synthesises information to fully support a conclusion about the importance of factors which influence how people form attachments to this place. Level 2 (4–6 marks) AO1 – Demonstrates clear knowledge and understanding of how place attachment is formed. Clear knowledge and understanding of a local place. AO2 – Demonstrates clear application of knowledge and understanding to assess factors which influence place attachment. Analysis and evaluation are clear and supported with appropriate evidence. Synthesises information to support a partial conclusion about the importance of factors which influence how people form attachments to this place. Level 1 (1–3 marks) AO1 – Demonstrates basic knowledge and understanding of how place attachment is formed. Basic knowledge and understanding of a local place. AO2 – Demonstrates basic application of knowledge and understanding to assess factors which influence place attachment. Analysis and evaluation are basic and supported with limited evidence. <u>Notes for answers</u> The question requires an assessment of the importance of factors affecting attachment to place. Students are required to choose their local place to provide support to their answer. AO1 How humans perceive, engage with and form attachments to places and how they present and represent the world to others, including the way in which everyday place meanings are bound up with different identities, perspectives and experiences.	9 AO1 = 4 AO2 = 5
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		• The ways in which the following factors: relationships and connections, meaning and representation, affect continuity and change in the nature of places and our understanding of place. • The ways in which students' own lives and those of others are affected by continuity and change in the nature of places and our understanding of place. • Categories of place – experienced places and media places. • The use of qualitative and quantitative sources to represent place. • The concept of place and importance of place in human experience. • Local place studied. AO2 • Place attachment (how people feel about a place) is likely to be dependent on the lived experience in the local place and this may be evidenced in a variety of qualitative sources. • Individuals or groups may feel like 'insiders' or 'outsiders' depending on whether their lived experience has been positive or negative. • Different people or groups of people can attach different meanings to the same local place and perceptions may be influenced by age, gender, socio-economic status, ethnicity and other factors. • Place attachment can be affected by how a place is represented. For example, community groups in a local place may actively encourage a feeling of 'belonging' or local councils may present a place positively. • Place attachment may be influenced by media such as advertising campaigns or social media, such as local online community forums. • Place attachment may be influenced by continuity and change in a local place and how this is perceived by the people who live there. • A conclusion should make a judgement about the importance of factors which have influenced place attachment in this place. Credit any other valid assessment.	
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01	6	Assess the extent to which economic <u>or</u> demographic change has contributed to the present-day characteristics of a distant place you have studied. AO1 – Knowledge and understanding of economic or demographic change in a distant place studied. Knowledge and understanding of characteristics of place. AO2 – Assessment of the extent to which economic or demographic change has contributed to present-day characteristics of a distant place. <u>Notes for answers</u> This question makes connections between different parts of the specification content on Changing Places, specifically the linking of economic or demographic change to the character of a distant place studied. Responses should focus on assessing how far economic or demographic change has led to the present-day character of this place. The response should focus on either economic or demographic change in the distant place. AO1 Knowledge and understanding of: • Endogenous and exogenous factors contributing to the character of a place • How the demographic, socio-economic and cultural characteristics of places are shaped by shifting flows of people etc from local to global • How both past and present processes of development can be seen to influence the social and economic characteristics of places and so be implicit in present meanings • The concept of place • Continuity and change in the nature of places and our understanding of place • Factors contributing to the character of place in a distant place studied. AO2 • There are several ways in which economic or demographic change contributes to the contemporary characteristics of places. The nature of the answer will obviously depend on the example place. The following bullet points offer some examples in relation to specific places and types of places. • The present character of a distant place may have been influenced by deindustrialisation and any subsequent regeneration. For example, the present-day place characteristics of Canary Wharf are the result of economic change. However, regeneration has placed some onus on maintaining the economic heritage of this area despite dramatic changes in the local economy. • The character of some places, such as Spitalfields, East London, may have been heavily influenced by successive waves of migration contributing to the nature of the built environment. In Spitalfields the present-day character also reflects the recent gentrification by the	20 AO1 = 10 AO2 = 10
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		inward movement of predominantly affluent young professionals into the area. • The movement of retired people to rural locations or seaside towns may have altered the character of some places as there is now a higher proportion of older people. However, this may change with the seasons and the built environment or physical location may remain a more important factor for local place character. • Present-day place characteristics may be little influenced by economic or demographic changes. For example, the enduring nature of aspects of physical geography or topography may be overwhelmingly important for place character. • A conclusion should make a judgement about the extent to which economic or demographic change has contributed to present-day place character in a distant place studied. Credit any other valid assessment.	
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Marking grid for Question 01.6

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question (AO2). • Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). • Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). • Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). • Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). • Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). • Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). • Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). • Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). • Some knowledge and understanding of key concepts, processes and interactions and change (AO1). • Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). • Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). • Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Very limited relevant knowledge and understanding of place(s) and environments (AO1). • Isolated knowledge and understanding of key concepts and processes (AO1). • Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies (AO1).

Level 0 (0 marks)	Nothing worthy of credit.
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Section B

Qu	Part	Marking guidance	Total marks
02	1	Outline how coding techniques can be used when analysing text. <u>Point marked</u> Award one mark for a valid suggestion and one mark for development (1d). <u>Notes for answers</u> - Coding involves searching text for similar themes/ideas/concepts (1). This list of codes can then be used to categorise/colour-code passages of text with a similar theme (1d). - Text can be coded by highlighting similar words / phrases (1). This makes it easier to extract relevant information from the text source (1d). - Codes can be quantified or graphed to demonstrate ideas/concepts/themes (1). - Each line can be summarised with a single word/phrase/label (1). These can be grouped together into a few concepts/themes to aid analysis (1d). - Frequency analysis can be used to summarise the proportion of responses under each code (1). The notes for answers are not exhaustive. Credit any valid points.	2 AO1 = 2
02	2	Justify <u>two</u> sources of background reading and/or research that would be useful before undertaking a human fieldwork investigation in Figure 2. <u>Point Marked</u> - Newspaper articles would be useful to identify current/past geographical issues in the local area (1). - Online forums may be useful to identify perceptions of the town (1). - Tourist brochures can be used to identify visitor attractions/facilities (1). - Census data and/or council reports to identify demographic and socio-economic patterns (1). - Other investigations or studies that have been carried out in similar locations could highlight geographical issues to explore (1). Credit any other reasonable suggestions.	2 AO3 = 2

02	3	Students will undertake questionnaires as part of data collection in the seaside town shown in Figure 2. Justify data sampling techniques which could be used for these questionnaires. <u>Point Marked</u> • Systematic interval sampling could be used to ensure that the questionnaires were carried out at different times of the day (1) as this would give a better representation of footfall and enable temporal comparisons to be made (1d). • Systematic interval sampling such as every 10th person may give a better representation (1) as it would help to avoid questionnaires being carried out with people in the same age group (1d). • Stratified sampling using subsets based on age groups that are proportional to this area (1) may give a more representative view of the whole population than random sampling and would allow comparisons to be made (1d). • Random sampling could be used to reduce bias (1) and could be simply selected using a random number generator (1d). This means the selection of people questioned is more representative and not of one group of people, for example people of a similar age (1d) Credit other relevant suggestions.	4 AO3 = 4
02	4	State the aim of your fieldwork investigation. To what extent do your conclusions support the geographical ideas forming the basis of your enquiry. AO1 – Knowledge of the fieldwork enquiry that was carried out. Knowledge and understanding of how conclusions link to the general ideas forming the basis of the enquiry. AO2 – Application of knowledge and understanding to assess how far conclusions support existing geographical ideas. <u>Mark scheme</u> Level 2 (4–6 marks) AO1 – Clear knowledge and understanding of how conclusions link to the general ideas forming the basis of the enquiry. AO2 – Clear assessment of how far conclusions link to geographical ideas. Makes clear links between conclusions and geographical ideas. Clear conclusions reached to assess the extent to which conclusions support existing geographical ideas. Level 1 (1–3 marks) AO1 – Basic knowledge and understanding of how conclusions link to the general ideas forming the basis of the enquiry.	6 AO1 = 2 AO2 = 4

	AO2 – Basic assessment of how far conclusions link to geographical ideas. Makes basic links between conclusions and geographical ideas supported with limited evidence from the enquiry. Basic conclusions reached to assess the extent to which conclusions support existing geographical ideas. <u>Notes for answers</u> The question requires an assessment of the extent to which conclusions link to geographical ideas forming the basis of the enquiry. AO1 • Knowledge and understanding of the fieldwork enquiry carried out. • Knowledge and understanding of conclusions related to original aims and objectives. • Knowledge and understanding of background reading. • Knowledge and understanding of how conclusions link to the general ideas forming the basis of the enquiry. AO2 • Background reading identifies existing theories and ideas relating to the aims and objectives of the enquiry. The fieldwork enquiry may support all or some of these existing ideas and there should be an assessment of how far evidence leads to conclusions which support existing ideas/theory. • Assessment of how and why conclusions support existing geographical ideas/theory. • Assessment of how strong these links and how far data was conclusive in relation to geographical ideas/expected outcomes. • Assessment of conflicting evidence which may not support existing geographical ideas. There may be some discussion of the reasons how and why conclusions do not support existing ideas including evaluation of data collection or challenges to existing theories/ideas. • Overall assessment of how conclusions support or differ from existing ideas/theory. Credit any other valid approach.	
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02	5	To what extent did your planning enable you to carry out a successful fieldwork investigation? AO1 – Knowledge and understanding of the fieldwork investigation. Knowledge of planning research in the field and from secondary sources. AO2 – Application of knowledge and understanding of to assess how far planning enabled a successful fieldwork investigation. Makes a direct link between planning and the success of the fieldwork. <u>Mark scheme</u> Level 3 (7–9 marks) AO1 – Detailed knowledge and understanding of the fieldwork investigation. Detailed knowledge of planning the research in the field and from secondary sources. AO2 – Detailed application of knowledge and understanding of the planning stage and evaluates how far this has led to a successful fieldwork investigation. Makes a direct link between planning the success of the investigation. Level 2 (4–6 marks) AO1 – Clear knowledge and understanding of the fieldwork investigation. Clear knowledge of planning the research in the field and from secondary sources. AO2 – Clear application of knowledge and understanding of the planning stage and evaluates how far this has led to a successful fieldwork investigation. Makes a clear link between planning the success of the investigation. Level 1 (1–3 marks) AO1 – Basic knowledge and understanding of the fieldwork investigation. Basic knowledge of planning the research in the field and from secondary sources. AO2 – Basic application of knowledge and understanding of the planning stage and evaluates how far this has led to a successful fieldwork investigation. Makes a basic link between planning the success of the investigation. <u>Notes for answers</u> AO1 • Knowledge and understanding of the fieldwork enquiry carried out. • Knowledge and understanding of the conclusions drawn linked to the place studied. • Knowledge and understanding of planning research in the field and from secondary sources. AO2 • Evaluation of how far planning the fieldwork led to a successful investigation. • Planning choice of sites, survey tools and/or appropriate equipment for primary data collection may enable valid conclusions to be reached but	9 AO1 = 4 AO2 = 5
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	other stages, such as presentation and analysis may also be important. • Planning appropriate methods of data collection and/or pilot surveys is more likely to lead to the analysis of reliable and accurate data and therefore valid conclusions. However, plans may need to be deviated from and/or modified in the field for a variety of reasons. • Planning an appropriate sampling strategy is likely to lead to the collection of reliable data but an investigation using qualitative data may mean the focus of the investigation is modified after the initial stages of data collection. • Planning the use of secondary data to triangulate with primary data collection may lead to more valid conclusions. • Overall, a judgement should be reached about how far planning led to a successful fieldwork investigation. Credit any other valid approach.	
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03	1	Using Figure 4, outline <u>one</u> potential health and safety procedure to minimise risks during this field data collection technique. <u>Point marked</u> • Wear sturdy footwear at all times (1) to minimise the risk of slips and falls (1d). • Stay on the pavement at all times (1) in order to avoid traffic-related accidents (1d). • Collect data in pairs (1) to ensure safety against unexpected events (1d).	2 AO3 = 2
03	2	Explain how the sampling strategy described in Figure 4 and Figure 5 could be improved. <u>Point Marked</u> • There should be 4 transects radiating NSEW from the central area (1) as this would give a better representation of the number of pedestrians across a wider study area (1d) and enable a more robust analysis of data for comparing the two central areas and increase the validity of findings (1d). • The sampling points on each transect should be in a fixed position from an agreed central point for each town centre (1) as this would enable a more reliable comparison of the data (1d). • There should be more sampling points, for example at 20 metre intervals in each transect (1) to enable more rigorous statistical analysis (1d) and some statistical tests such as Spearman's Rank require more data points (1d). • Multiple counts should be taken as this would be more representative (1) and avoid bias introduced by data recorded at peak or non-peak times (1d). The data could be analysed taking into account factors such as weather (1d). • Students could record the data at each site at the same time (1) to ensure comparability of data (1d). • A longer time period for recording, for example 15 minutes (1), may give a more representative sample of footfall and this could lead to more reliable conclusions (1d).	4 AO3 = 4

03	3	Suggest why taking photographs would also be useful as a primary data collection method in this fieldwork investigation. <u>Point marked</u> • Photographs taken at each sample site would help with the analysis of quantitative data, for example, types of shops, nature of buildings or surrounding environment (1). • Photographs provide visual clues as to characteristics of the study areas (1). For example, the area might cafés or a bus stop making it busier (1d). • Photographs are a memory aid enabling us to remember key features in the study area (1) • Photographs would be useful for helping to explain any patterns in the data, for example, level of traffic or number of pedestrians (1). • Photographs may help to explain anomalies in the data (1). • Annotated photographs can be used to triangulate with quantitative data and would be an additional source of data to help prove the hypothesis (1).	2 AO3 = 2
03	4	Using Figure 6, evaluate the usefulness of <u>two or more</u> of these techniques for interpreting the data collected in this fieldwork investigation. AO3 – Use a range of information and techniques to synthesise and draw aspects of the study together. Evaluation of the usefulness of planned data presentation and processing for interpretation of data. <u>Mark scheme</u> Level 3 (7–9 marks) Detailed use of information about the enquiry which is used to evaluate the usefulness of planned data presentation and processing for interpretation of data. Detailed evidence of drawing together different elements of the study in order to support the response. Level 2 (4–6 marks) Clear use of information about the enquiry which is used to evaluate the usefulness of planned data presentation and processing for interpretation of data. Clear evidence of drawing together different elements of the study in order to support the response. Level 1 (1–3 marks) Basic use of information about the enquiry which is used to evaluate the usefulness of planned data presentation and processing for interpretation of data. Basic evidence of drawing together different elements of the study in order to support the response. <u>Notes for answers</u> • Calculations allow the application of commonly understood procedures for subsequent interpretation of data.	9 AO3 = 9

		• Located proportional circles would enable patterns to be identified and compared. The data could also be overlaid onto different base maps, such as land use, to help explain results. However, the map is likely to be cluttered as the data is taken over a small area making it less useful. Also, it may be difficult to devise a scale for proportional circles that does not distort the sizes of the differences. • The bar graphs would enable a simple comparison of footfall between the towns. However, located proportional bars could be an alternative for analysis, and then help the interpretation of factors that might influence the results found. • A scatter graph is an appropriate tool for helping to interpret the data. A line of best fit can be plotted to show the relationship between distance and footfall. Both sets of data could be plotted on the same graph to enable direct comparison and any anomalies identified. • Spearman's Rank is an appropriate statistical tool for testing the strength of the correlation between distance and footfall. A stronger correlation would indicate a higher footfall closer to the central area of the town. However, there is limited data for such analysis which may make reliable interpretation difficult. Also, confidence levels would need to be used to test significance. • Measures of central tendency (mean) and standard deviation are less relevant to the investigation. These would help to compare overall footfall and variance but not the pattern with distance from the central area. However, comparing the overall footfall between the towns might be useful contextual data. • Annotated photographs would enable qualitative data to be used to identify anomalies or help interpret results. They may be most useful if they are geo-located alongside other data. • Overall, a conclusion should be reached about how useful the planned data presentation and processing will be to enable the students to interpret their data.	
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04	1	Using Figure 8, outline <u>one</u> potential health and safety procedure to minimise risks during this field data collection technique. <u>Point marked</u> • Wear sturdy footwear at all times (1) to minimise the risk of slips and falls (1d). • Avoid collecting data close to unstable cliffs (1) to minimise the risk of harm to personal safety (1d). • Check tide times before embarking on fieldwork as these may be variable (1) and this would help to minimise risk of working close to water danger (1d). • Wash hands or use antibacterial handwash after handling pebbles (1) in order to avoid becoming unwell (1d).	2 AO3 = 2
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04	2	Explain how the sampling strategy described in Figure 8 and Figure 9 could be improved. <u>Point marked</u> • There should be 3 or 4 equally spaced transects on each beach (1) as this would give a better representation of the beaches as a whole and enable a deeper analysis of data for comparing the beaches and increase the validity of findings (1d). • The sampling points on each beach should be in a fixed position from the low-water mark to the high-water mark (1) as this would enable a more reliable comparison of the data (1d). • There should be more sampling points, for example at 2 metre intervals in each transect (1) to enable more rigorous statistical analysis (1d) and some statistical tests such as Spearman's Rank require more data points (1d). • There could be the same number of sample points on each beach (1). This would allow a Spearman's Rank test to be applied to the data collected (1d) • Random sampling could be used at each site to make the selection of pebbles more representative and avoid bias by the 'selection' of pebbles (1), for example, using a quadrat and random number tables to select pebbles (1d) or the selection a more representative sample of ten pebbles touching the foot to enable the calculation of a mean size.	4 AO3=4
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04	3	Suggest why taking photographs would also be useful as a primary data collection method in this fieldwork investigation. <u>Point marked</u> • Photographs of this coastal landscape would help with the analysis of quantitative data (1) • Photographs would be useful for helping to explain any patterns in the data (1) • Photographs provide visual clues as to characteristics of the beach (1) such as slope angle or presence of berms (1d). • Photographs are a memory aid enabling us to remember key features of the beach (1) • Photographs may help to explain anomalies in the data (1) • Annotated photographs can be used to triangulate with quantitative data and would be an additional source of data to help prove the hypothesis (1).	2 AO3 = 2
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04	4	Using Figure 10, evaluate the usefulness of <u>two or more</u> of these techniques for interpreting the data collected in this fieldwork investigation. AO3 – Use a range of information and techniques to synthesise and draw aspects of the study together. Evaluation of the usefulness of data presentation and processing for interpretation of data. <u>Mark scheme</u> Level 3 (7–9 marks) Detailed use of information about the enquiry which is used to evaluate the usefulness of data presentation and processing for interpretation of data. Detailed evidence of drawing together different elements of the study in order to support the response. Level 2 (4–6 marks) Clear use of information about the enquiry which is used to evaluate the usefulness of data presentation and processing for interpretation of data. Clear evidence of drawing together different elements of the study in order to support the response. Level 1 (1–3 marks) Basic use of information about the enquiry which is used to evaluate the usefulness of presentation and processing for interpretation of data. Basic evidence of drawing together different elements of the study in order to support the response. <u>Notes for answers</u> • Located proportional circles would enable pebble sorting on each beach to be easily identified and compared. The data could also be overlaid onto different base maps to help interpret results. However, the map is likely to be cluttered as the data is taken over a small area making it less useful for data interpretation. Also, it may be difficult to devise a scale for proportional circles that does not distort the sizes of the differences. • The bar graphs would present the profiles of the beaches and enable any sorting to be identified as a stepped pattern. It would enable a simple comparison of profiles between the beaches. However, located proportional bars could be an alternative for interpretation of factors that might influence the results found. • A scatter graph is an appropriate tool for helping to interpret the data. A line of best fit can be plotted to show the relationship between distance and footfall. Both sets of data could be plotted on the same graph to enable direct comparison and any anomalies identified. • Spearman's Rank is an appropriate statistical tool for testing the strength of the correlation between distance and size of pebbles. A stronger correlation would indicate a higher level of sorting. However, there is limited data for such analysis which may make reliable interpretation difficult and confidence levels would also need to be used to test significance,	9 AO3 = 9
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		- Measures of central tendency (mean) standard deviation are less relevant to the investigation. These would help to compare pebble size and variance but not level of sorting. However, comparing the pebble size on each beach may indicate one factor that might influence level of sorting and therefore would aid interpretation. - Annotated photographs would enable qualitative data to be used to identify anomalies or help interpret results. They may be most useful if they are geo-located alongside other data. - Overall, a conclusion should be reached about how useful the planned data presentation and processing will be to enable the students to interpret their data. Credit any other valid approach.	
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