edexcel

Fieldwork Guide

GCSE (9-1) Geography A

Pearson Edexcel Level 1/Level 2 GCSE (9-1) in Geography A (1GA0)

ALWAYS LEARNING

PEARSON

Fieldwork – Support for GCSE Specification A

Contents

A context and rationale for fieldwork in Pearson Edexcel GCSE Geography A

The DfE and Ofqual (in consultation with the Geography community) are in no doubt that fieldwork is an essential experience for all students studying Geography.

Fieldwork can be challenging, informative, sometimes messy, but frequently fun. Allowing students to explore issues and questions in a real-world context that frequently produces uncertain or 'grey' outcomes encourages them to question their own findings and nurtures analytical and critical thinking, as well as building resilience.

Fieldwork can strengthen skills and reach learners that other approaches fail to reach. Please make sure your students get the best fieldwork experience your colleagues and resources can provide, whether it be local days out, formal teacher-led field-trips, or working with a fieldwork provider.

Introduction and assessment overview

Throughout their course, learners need to acquire a range of geographical skills through fieldwork and linked practical exercises.

Fieldwork and enquiry skills in readiness for assessment must include the following:

- **Pre-fieldwork planning** – designing a fieldwork investigation, as per the qualification content. This may include a degree of planning research.
- **Primary field skills** – undertaking a field investigation; the need for sampling, data collection and recording techniques.
- **Presentation, analysis, conclusions and evaluation skills** – using the range of data presentation techniques; analysis of data and drawing conclusions; evaluating the techniques used and the conclusions drawn.

In the context of this, fieldwork and enquiry-based learning should also support wider practical skills, in particular the following:

- **Graphical skills** – compiling graphs and flow lines; using proportional symbols; annotating maps; diagrams and photographs.
- **Map skills** (including digital maps) – using grid references; understanding scales; recognising symbols; identifying landforms and human features of the landscape.
- **Photo-interpretation skills** – reading vertical and oblique aerial photographs and satellite images, including geographic information systems (GIS).
- **Sketching skills** – communicating ideas through simple sketch maps and field sketches.
- **Spatial awareness** – identifying the relative locations and relationships between features.

Cognitive enquiry skills

- **Analysis of findings –** reviewing and interpreting quantitative and qualitative information using appropriate media.
- **Use of statistical skills** – simple descriptive statistics, such as lines of best fit, means, medians, modes, etc.

- **Conflict resolution skills** – identifying the views of interested people (stakeholders), recognising that stakeholders may have strongly different attitudes and feelings towards a particular issue.
- **Evaluation of findings** – appraisal and review of data and information, to see if these are accurate, suitable for the purpose, or misleading and unreliable.

Assessment overview

Fieldwork opportunities are assessed in **Sections A and B of Paper 3: Geographical Investigations: Fieldwork and UK Challenges**.

Candidates are required to complete **two** geographical investigations involving fieldwork and research, related to **one** physical topic and **one** human topic.

7A: Investigating physical environments:

- river landscapes
- coastal landscapes

7B: Investigating human landscapes:

- changing city environments
- changing rural environments

How this guide is split into sections

The fieldwork support in this guide is split into seven sections:

(1) Fieldwork standards, requirements and the route to enquiry

Fieldwork must occur outside the classroom and school grounds, on at least two occasions. Evidence must be sent to the awarding organisation in the form of a written statement from centres.

Department for Education requirements:

- ✓ Understanding of the kinds of question capable of being investigated through fieldwork and an understanding of the geographical enquiry processes appropriate to investigate these in various ways including maps, graphs and diagrams.
- ✓ Analysing and explaining data collected in the field using knowledge of relevant geographical case studies and theories.
- ✓ Drawing evidenced conclusions and summaries from fieldwork transcripts and data.
- ✓ Reflecting critically on fieldwork data, methods used, conclusions drawn and knowledge gained.

Source: Geography GCSE Subject content, April 2014 Reference: DFE-00345-2014 copyright DfE

There is a greater focus on the route to enquiry (page 13), to prepare students for questions with unfamiliar fieldwork data. Specification A has clear fieldwork and prescribed environments and tasks, which will stay the same for the lifetime of the specification. This should make it easier for centres to plan and manage their fieldwork, as well as forming a meaningful link to assessment:

- At least two days of fieldwork in two contrasting environments to explore physical and human processes and the interactions between them.
- Some teachers may choose to provide extended fieldwork and enquiry-related opportunities to support and develop other aspects of learning, including consistently integrating quantitative and qualitative skills within Geography lessons, as well as using fieldwork to further explore geographical processes and case studies/located examples.
- Extended fieldwork opportunities, to give students greater depth of understanding of the enquiry process, as well as more choice and flexibility in the exam.
- In the physical environment, the fieldwork focus is on investigating river or coastal landscapes.
- In the human environment, fieldwork is focused on urban or rural environments.

Fieldwork requirements

Tables 1–4 specify the minimum types and range of fieldwork (including qualitative, quantitative and secondary data) required for the options available.

Task: River landscapes – investigation of change in a river channel.

Enquiry process point	General focus and details of fieldwork
1. Formulating Enquiry questions	Students must have an opportunity to develop understanding of the kinds of questions that can be investigated through fieldwork in river environments. Students must have an opportunity to develop a question(s) based on their location and the task.
2. Fieldwork methods	Fieldwork data collection must include at least: • a quantitative fieldwork method to measure river discharge • a qualitative fieldwork method to record landforms that make up the river landscape. Human interaction: students must develop their understanding of the implications of river processes for people living in the catchment area.
3. Secondary data sources	• A flood risk map e.g. Environment Agency flood risk map. • One other secondary source.

Table 1: Sourced from Edexcel GCSE Geography A specification, page 28

Task: Coastal landscapes – investigation of coastal processes through landscape evidence

Enquiry process point	General focus and details of fieldwork
1. Formulating Enquiry questions	Students must have an opportunity to develop understanding of the kinds of question that can be investigated through fieldwork in coastal environments. Students must have an opportunity to develop a question(s) based on their location and the task.
2. Fieldwork methods	Fieldwork data collection must include at least: • a qualitative fieldwork method to measure beach morphology and sediment characteristics. • a qualitative fieldwork methods to record landforms that make up the coastal landscape. Human interaction: students must develop their understanding of the implications of coastal processes for people living in the catchment area.
3. Secondary data sources	• A geology map e.g. BGS Geology of Britain viewer. • One other secondary source.

Table 2: Sourced from Edexcel GCSE Geography A specification, page 28

Task: Changing city environments – investigating change in central/inner urban area(s)

Enquiry process point	General focus and details of fieldwork
1. Formulating Enquiry questions	Students must have an opportunity to develop understanding of the kinds of question that can be investigated through fieldwork in urban environments. Students must have an opportunity to develop a question(s) based on their location and the task.
2. Fieldwork methods and techniques	Fieldwork data collection must include at least: • one qualitative fieldwork method to record the quality of the urban environment • one quantitative fieldwork method to measure land use function. Physical interaction: students must develop their understanding of the interaction between physical landscape features, the central/inner urban area and residents and visitors.
3. Secondary data sources	The use of at least **two** different secondary sources of data, including: • Census data e.g. Office for National Statistics (ONS) Neighbourhood Statistics – neighbourhood summary report • one other chosen by the centre.

Table 3: Sourced from Edexcel GCSE Geography A specification, page 29

Task: Changing rural environments – investigating change in rural settlements

Enquiry process point	General focus and details of fieldwork
1. Formulating Enquiry questions	Students must have an opportunity to develop understanding of the kinds of question that can be investigated through fieldwork in rural environments. Students must have an opportunity to develop a question(s) based on their location and the task.
2. Fieldwork methods and techniques	Fieldwork data collection must include at least: • one qualitative fieldwork method to record the views of people on the quality of the rural environment • one quantitative fieldwork method to measure flows of people within a rural settlement. Physical interaction: students must develop their understanding of the interaction between physical landscape features, rural settlements and residents and visitors.
3. Secondary data sources	The use of at least two different secondary sources of data, including: • Census data e.g. Office for National Statistics (ONS) Neighbourhood Statistics – neighbourhood summary report • one other chosen by the centre.

Table 4: Sourced from Edexcel GCSE Geography A specification, page 29

Assessment of fieldwork in the examination

In the examination in any given year, students will be assessed on at least two of the six enquiry stages below, across both their investigations.

Stage in the enquiry process	Description
1	Understanding of the kinds of question capable of being investigated through fieldwork and an understanding of the geographical enquiry processes appropriate to investigate these.
2	Understanding of the range of techniques and methods used in fieldwork, including observation and different kinds of measurement.
3	Processing and presenting fieldwork data in various ways including maps, GIS, graphs and diagrams (hand drawn and computer-generated).
4	Analysing and explaining data collected in the field using knowledge of relevant geographical case studies and theories.
5	Drawing evidenced conclusions and summaries from fieldwork transcripts and data.
6	Reflecting critically on fieldwork data, methods used, conclusions drawn and knowledge gained.

Table 5: Sourced from Edexcel GCSE Geography A specification, page 31

It is an Ofqual requirement that fieldwork assessment is worth 15% of the overall assessment (see Table 6). The assessment objectives (AOs) require fieldwork to be assessed by AO3 (application) and AO4 (skills).

- 10% of the fieldwork assessment targets AO3 (application), where students are expected to apply their knowledge and understanding to both familiar and unfamiliar physical and human fieldwork contexts.
- The remaining 5% targets AO4 (skills).

There is no assessment of AO1 (knowledge) and AO2 (understanding) in the fieldwork assessment.

Students must:		% in GCSE
AO1	Demonstrate knowledge of locations, places, processes, environments and different scales.	15
AO2	Demonstrate geographical understanding of: • concepts and how they are used in relation to places, environments and processes; • the inter-relationships between places, environments and processes.	25
AO3	Apply knowledge and understanding to interpret, analyse and evaluate geographical information and issues and to make judgements.	35 (10% applied to fieldwork context(s))
AO4	Select, adapt and use a variety of skills and techniques to investigate questions and issues and communicate findings.	25 (5% used to respond to fieldwork data and contexts)
	Total	**100%**

Table 6: Sourced from Edexcel GCSE Geography A specification, page 34

Fieldwork examination questions

Paper	Assessment Objectives				Total for all Assessment Objectives
	AO1 %	AO2 %	AO3 %	AO4 %	
Paper 1: The Physical Environment	6.7	11.3	11.3	8.3	37.5%
Paper 2: The Human Environment	6.7	11.3	11.3	8.3	37.5%
Paper 3: Geographical Investigations: Fieldwork and UK Challenges	1.6	2.4	12.4	8.4	25%
Total for GCSE	**15%**	**25%**	**35%**	**25%**	**100%**

Table 7: Sourced from Edexcel GCSE Geography A specification, page 34

It is important that students still write up their findings in preparation for the approaches of the different styles of examination question.

The structure of Paper 3 (Geographical Investigations) is as follows:

Paper 3 - Geographical investigations (Fieldwork and UK Challenges)
• 25% of the GCSE (64 marks) • Of the 64 raw marks available, up to 4 marks are awarded for SPaG • 1 hour and 30 minutes written external examination
• **Section A: Geographical Investigations – Physical Environments** • Students choose 1 from 2 optional questions: • Rivers **or** Coasts
• **Section B: Geographical Investigations – Human Environments** • Students choose 1 from 2 optional questions: • Inner Urban Area **or** Rural Settlements
• **Section C: UK Challenges** • The UK challenge will be drawn from one or more of the 4 themes in Topic 8. Students answer all questions from Section C.

Familiar and unfamiliar questions

In the GCSE Geography A sample assessment materials (SAMs), the use of familiar and unfamiliar fieldwork questions is as follows:

Section A (either Question 1 or 2): Physical Fieldwork

Questions 1a–1d and 2a–2d consist of structured questions that assess the application of fieldwork knowledge and understanding, use of skills and ability to communicate findings to **unfamiliar** fieldwork data, e.g. maps, graphs, tables, etc. Although the fieldwork data will be unfamiliar, the fieldwork environment will be the same as the environment studied during your fieldwork.

Questions 1(e) and 2(e) are extended response questions assessing application of fieldwork understanding and skills from your fieldwork experience.

Section B (either Question 3 or 4): Human Fieldwork

Questions 3a–3c and 4a–4c consist of structured questions assessing application of fieldwork knowledge and understanding and skills from your own fieldwork experience.

Questions 3(d) and 4(d) consist of extended response questions assessing application of fieldwork understanding, use of fieldwork skills and ability to communicate findings to unfamiliar fieldwork data, e.g. maps, graphs, tables, etc. Although the fieldwork data will be unfamiliar, the fieldwork environment will be the same as the environment studied during your fieldwork.

Here is an example of a **familiar-style fieldwork question** based on what the students have done themselves.

GCSE Geography A SAMs, Paper 3, Question 1e

You have studied a river as part of your own fieldwork.

(e) Evaluate the reliability of your conclusions.

(8)

To answer this style of question, students will need to weigh up, with advantages and disadvantages, the extent to which each 'sub-conclusion' would likely be the same if the methods were repeated:

- Were there likely equipment and/or human errors?
- Were measurements repeated to produce similar results? If not, would you expect to get the same result if you repeated the study at another time?
- Were there any issues with sampling strategies?

Examiners will allocate equally weighted marks: 4 marks for A03 and 4 marks for A04. Possible discussions for students to focus on are shown below in the indicative content.

Question number	Indicative content
1(e)	**AO3 (4 marks)/AO4 (4 marks)** **AO3** • Reliability is about making judgements on how close conclusions are to the actual changes occurring in the river channel/catchment. • Reliability will be most likely linked to results via methods – evaluation including equipment errors and operator errors. • How far data-collection methods used produced reliable results. • Judgement about limitations of equipment used/ operator error. • Recognition of issue in design methodology/sampling methodology may be flawed in terms of number of sites (spatial) and time of year (temporal). • A supported judgement is reached about the reliability of the results and conclusions. • An evaluation of how far the outcomes can be trusted (or repeated to obtain the same results). **AO4** • There is evidence of using different skills and techniques to identify river changes. • There is evidence of using different skills and techniques to reach conclusions about river changes downstream. • There is evidence of own fieldwork conclusions linked to data and information.

Here is an example of an **unfamiliar-style fieldwork question** based on resources provided in the exam.

GCSE Geography A SAMs, Paper 3, Question 3d

(d) Figure 3 shows the results from a student's survey investigating shop types with distance from the CBD in Shrewsbury, a market town in Shropshire.

The aim of the student's investigation was to consider changes in land use in a central urban area/CBD.

The student surveyed land use along six roads out from the CBD and had seven categories of land use, to find out their variation within the town.

My Findings

- Retail was the dominant land-use category along the transect.
- Industry was found out of town at sites5 and 6 only.
- There was more open space as we moved away from the CBD.
- As you move away from Shrewsbury's CBD, the types of land use change but, overall, land use remains varied along the transect.

Study Figure 3 in the Resource Booklet.

Evaluate the student's method and findings.

(8)

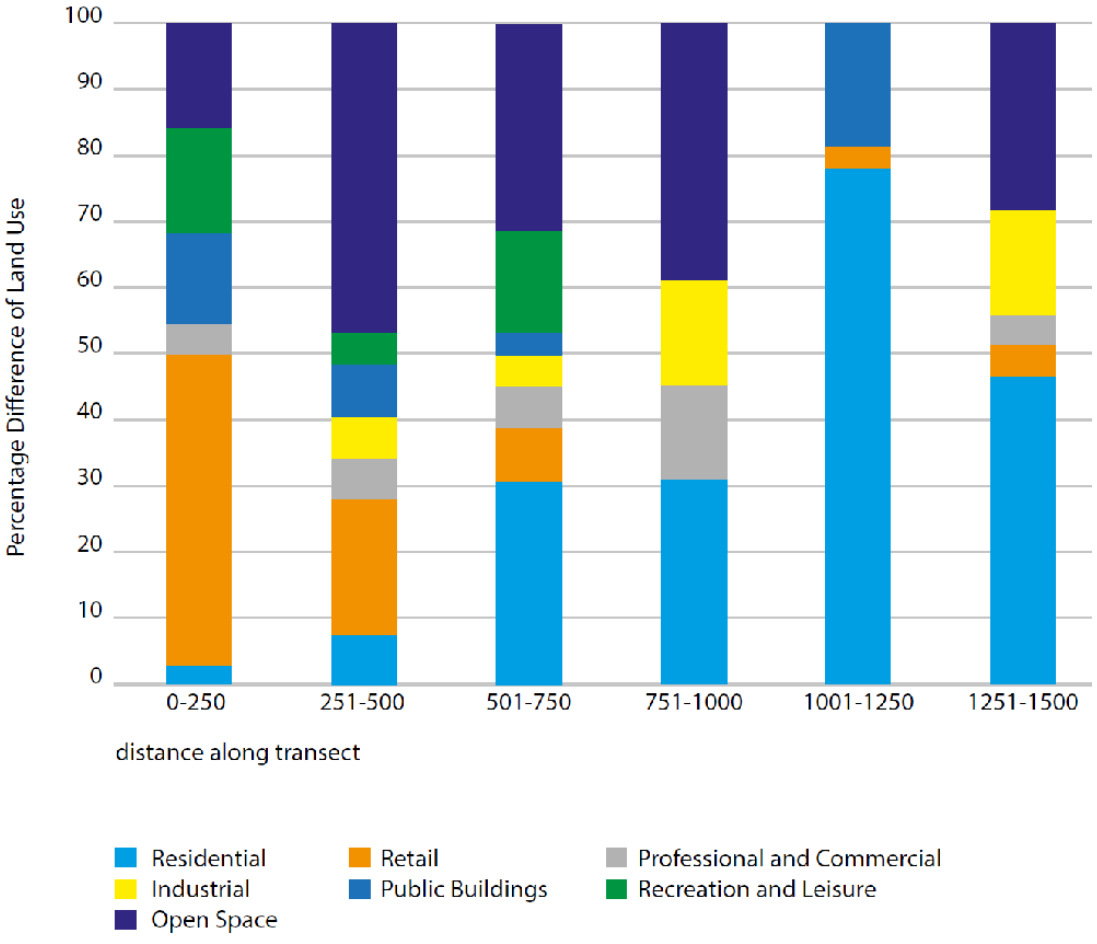


Figure 3

Graph 1: Divided bar chart to show land use along a transect. Sourced from Edexcel GCSE Geography A, sample assessment material.

Study Figure 3 in the Resource Booklet.

Evaluate the student's method and findings.

(8)

Students should do the following to prepare for this style of examination question:

- Study and 'read' the graph – look at the pattern of land use.
- Consider how inner urban areas are changing, specifically in relation to their land use.
- Consider the land use evident in the data presentation technique.
- Apply fieldwork knowledge and understanding to assess the strengths and weaknesses of the student's methodology.
- Interpret, analyse and evaluate what the graph shows.
- Use skills to select and describe information from the graph provided.
- Communicate their assessment of the strengths and weaknesses of the student's method and findings.

Examiners will allocate equally weighted marks: 4 marks for A03 and 4 marks for A04. Possible discussions for students to focus on are shown in the indicative content on the next page.

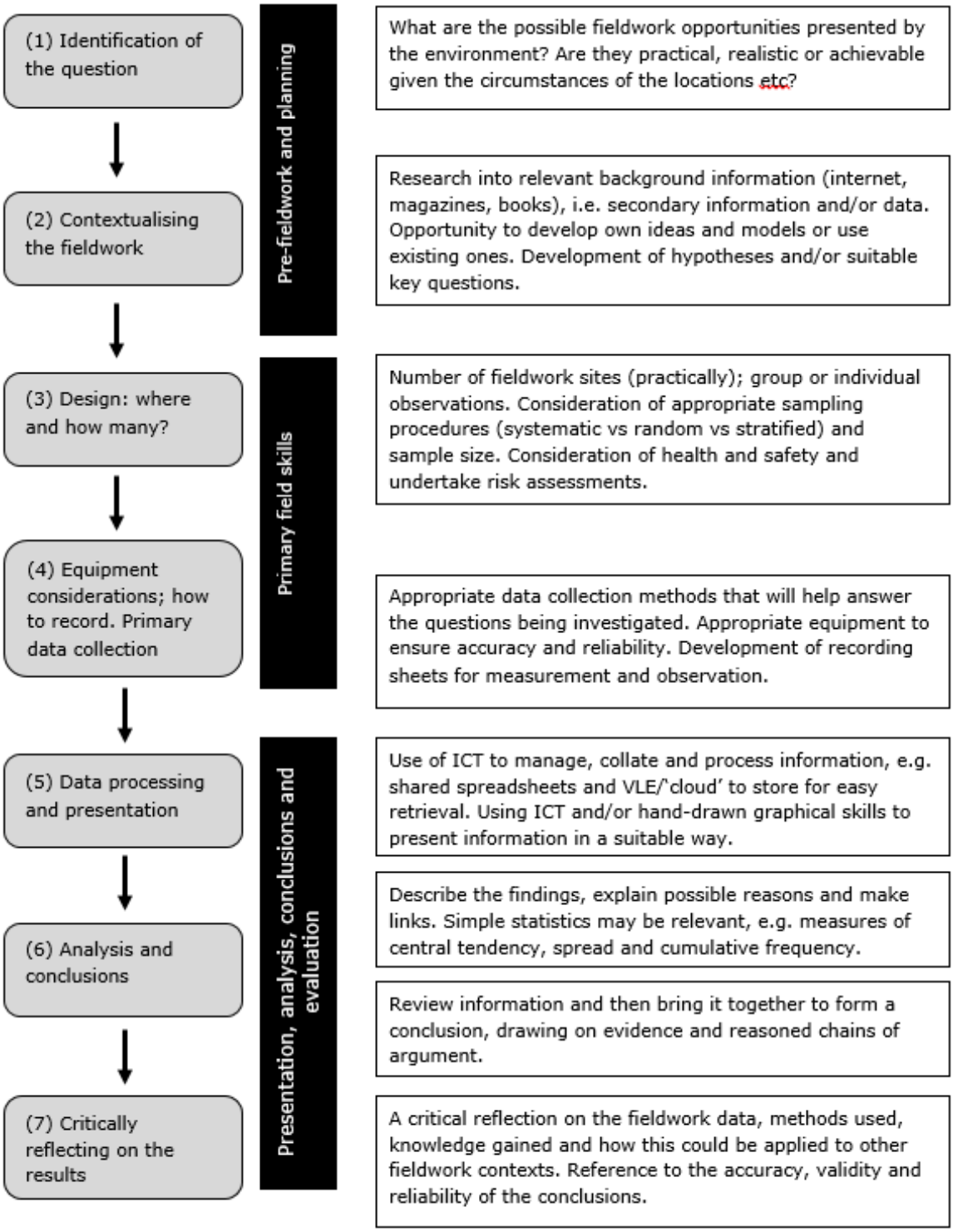
Question number	Indicative content
3(d)	**AO3 (4 marks)/AO4 (4 marks)** **AO3** • The student presented data within only six broad distance categories along the transect, therefore patterns of variation may be hidden within the 250 m interval. • The distribution of the road is unknown and could be clustered in one specific area, producing a degree of bias/not representative of the land use of the whole of the town. • The student has not surveyed between the roads and land use along the roads may be different to the land use between the roads. • The student used only seven categories of land use, which meant some land uses may not fit within the categories selected. • The student's results give a generalised pattern of land use but lack fine grain that would be useful if comparing to an urban geography model. **AO4** • Residential was the dominant land use along the transect. • Industry is found at four of the six transect distances (251-500, 501-750, 751-1000, 1251-1500). • The amount of open space varies moving away from the CBD at the modal class 251-500. • With increasing distance away from the CBD, there is a change in land use, although it becomes less varied past the 751-1000m location.

A top Level 3 answer should:

- have a balanced argument
- include specific evidence
- be one where the student supports their statements
- refer to all human processes/relevant areas of the enquiry process
- have clear communication, using relevant geographical terminology consistently.

The route to enquiry

Students should follow the route to enquiry to provide them with the opportunities to fully reflect on their geographical investigation and enable them to approach the six stages of enquiry, as shown in Table 5, page 6.



Source: Route to enquiry flow chart from Pearson

(2) Planning and delivering an integrated fieldwork strategy

It is strongly recommended that centres plan their fieldwork opportunities as part of an integrated two-year strategy, making clear the links between the fieldwork and the knowledge/understanding of the content relevant in the specification. In that respect, the order of teaching units should largely dictate the programme of fieldwork (or vice-versa).

Schools must provide opportunities for:

- one from Topic 7A: Investigating physical environments (either river landscapes or coastal landscapes)
- one from Topic 7B: Investigating human environments (either central/inner urban areas or rural settlements).

More fieldwork opportunities are always encouraged, developing a range of geographical and interpersonal skills that will be nurtured throughout the GCSE course.

Fieldwork progression

Fieldwork progression should mean that students are moving more towards independent enquiry in readiness for the assessment. As discussed above, they will have to deal with both 'familiar' and 'unfamiliar' fieldwork questions in the assessment.

	Closed task	Framed enquiry	Independent enquiry
Question	A task is presented. Questions are not explicit.	Enquiry questions are selected by teacher but are explicit.	Students decide enquiry questions, framed by teacher input.
Data	Decisions about fieldwork procedure are made by teachers. Data is presented as authoritative evidence.	Decisions about fieldwork procedure are made largely by teachers. Data is presented as information to be interpreted.	Students are involved in key decisions about fieldwork procedure and data sources.
Making sense	Activities devised by teacher to achieve pre-determined objectives. Students follow instructions.	Methods of representation are open to discussion and choice. Analysis is independent.	Students independently analyse evidence and make decisions / reach conclusions.
Reflection	Predictable outcomes.	Students discuss what they have learnt; different outcomes.	Students consider the validity of evidence / reliability of data and methods.

Table 8: Fieldwork progression from a closed task to an independent enquiry

Organising a field trip

There are several questions to consider when organising a field trip. These include not only a consideration of provider or teacher-led, residential or day fieldwork, but also possible fieldwork locations, equipment (including use of GIS), recording sheets and risk assessment considerations.

	Year 10						Year 11					
	Autumn		Spring		Summer		Autumn		Spring		Summer	
Scenario 1	Trip 1								Trip 2			
Scenario 2						Trip 1						

Table 9: Sourced from Edexcel GCSE and A level Geography fieldwork guide

Scenario 1 – Split: In this scenario, the trips can coincide with the teaching of the associated topic. The first day is planned at the beginning of Year 10 to provide a bonding experience for new GCSE classes (and daylight hours are still generous). The second day, near the end of Year 11, is a good opportunity to revise fieldwork and enquiry skills for the exam.

Scenario 2 – Combined: This scenario provides an opportunity for an extended fieldwork experience (even a 3–5 day residential field trip). Long days and good weather increase the likelihood of a very productive field trip, with time available for a brief write-up (useful for revision in Year 11).

Since 2009, the Learning Away project has been encouraging schools to provide opportunities for students to take part in residential trips. The project (called Campaigning for Brilliant Residentials) highlights the benefits that residentials can have for students. They can:

- improve students' engagement with learning
- improve students' knowledge, skills and understanding
- support students' achievement
- foster deeper relationships
- improve students' resilience, self-confidence and well-being
- boost cohesion and a sense of belonging
- provide opportunities for student leadership, co-design and facilitation
- smooth students' transition experiences
- widen and develop teachers' pedagogical skills.

For more information and a summary report by Learning Away, visit: http://learningaway.org.uk/residentials/evidence/independent-evaluation-of-learning-away/.

Funding for self-led fieldwork

Financial options are available to centres to support the planning and delivery of teacher-led fieldwork opportunities:

- **The Frederick Soddy Trust Schools Award Scheme** provides small monetary funds: http://www.geography.org.uk/resources/fieldwork/fieldworkfunding/#top
- **The FSC Bursary Fund** provides bursaries to a maximum per school of £1500 for residential courses and £450 for day visits per academic year: http://www.field-studies-council.org/about/the-fsc-bursary-fund.aspx

Opportunities for provider-led fieldwork

For provider-led fieldwork opportunities, the Field Studies Council (FSC) and PGL provide tailor-made residential and non-residential visits to support the delivery of the investigations, with the support of experienced tutors. They have centres around the UK to complete both the physical and human investigations:

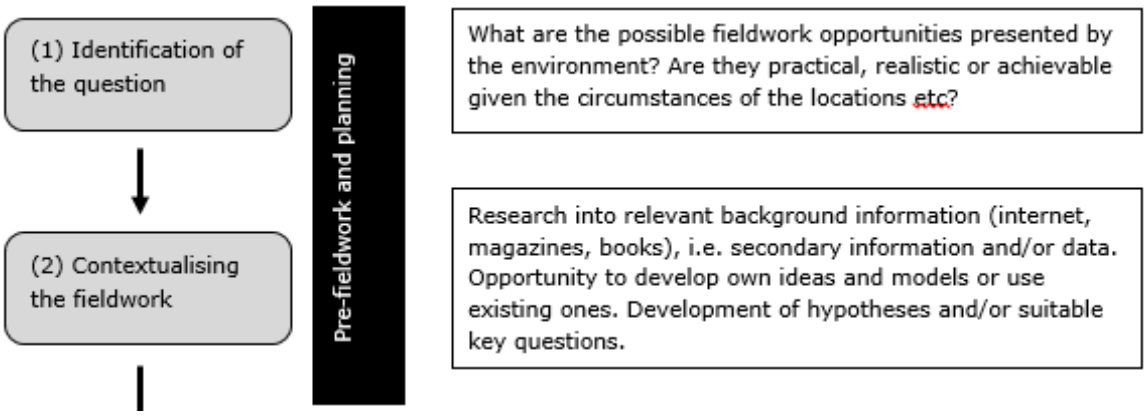
- Locations of FSC centres: http://www.field-studies-council.org/centres.aspx
- Locations of the PGL centres: http://www.pgl.co.uk/en-gb/school-trips/secondary-schools/centres#.WNZMRORFfzR

(3) Undertaking geographical fieldwork

Whilst it is not practical for departments to set up fully student-led field trips at GCSE, it is beneficial for students to be involved in the decision-making process. Research suggests that the more ownership they have, the better the experience will be…

More ownership, more engagement, more enquiry = better outcomes!

1–2 Pre-fieldwork and planning



Pre-fieldwork should include a clear reference to the different stages of geographical enquiry. As mentioned above, it is advantageous to plan the fieldwork collaboratively with students. A range of immersive resources can be used to enable learners to ask geographical questions about the places they will be visiting.

For example, students might ask the following questions about this photo:

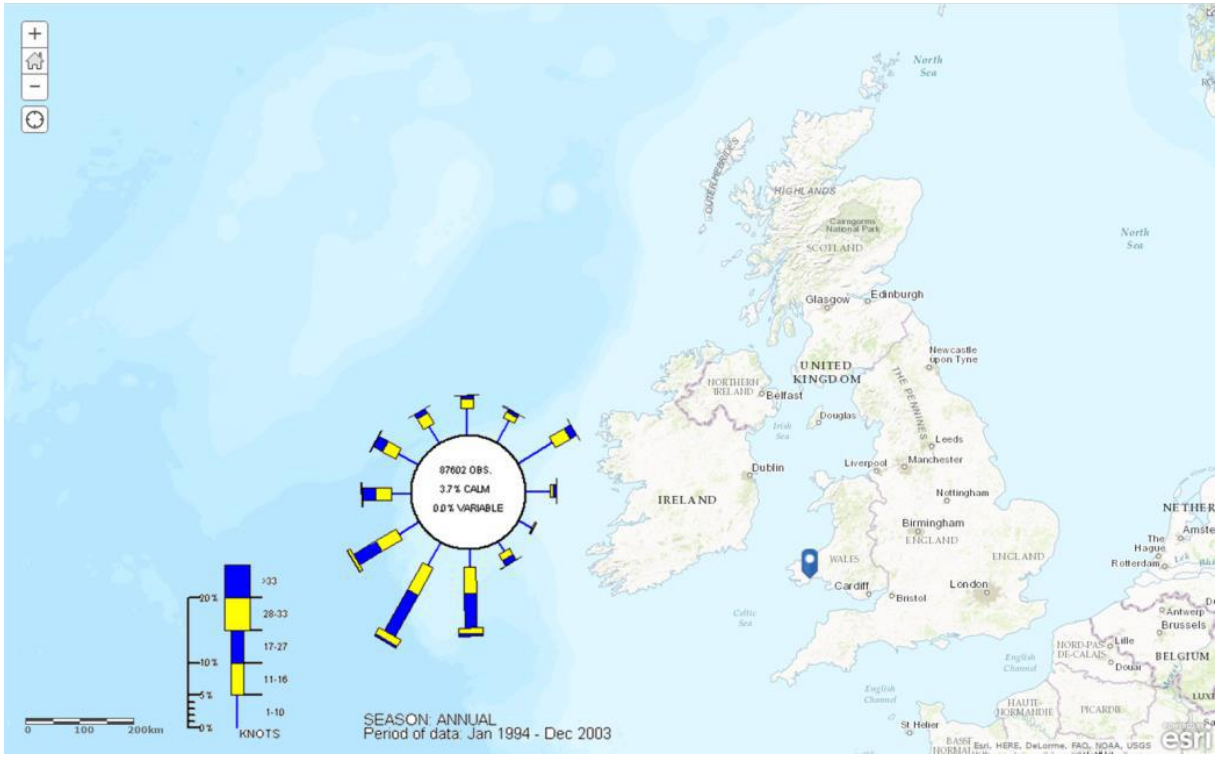
- How does the beach change if you move from the edge of the sea towards the land?
- What physical processes were involved in the formation of this beach?
- How might this place change in the future (and why)?

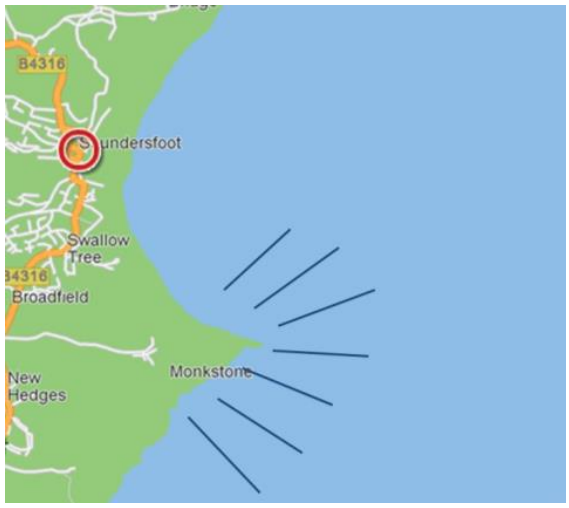
Photo 1: Cuckmere Haven, Sussex. Sourced from James Maxwell

So images can be used as a starting point to ask geographical questions. Why not combine them with other resources such as maps, news articles, video clips, social media and even live video streams to help develop a sense of place before visiting the area?

Plan time for students to independently research the location in which they will be conducting their investigation, in order to develop and extend their knowledge and understanding of locations.

For example, if students are considering how to formulate enquiry questions about the changing beach profile and sediment characteristics along a beach, they should have an understanding of the possible physical causes of these changes. This could involve exploring the main wind direction and refraction of waves, as shown below.





Maps 1, 2 and 3: Maps showing prevailing wind direction and refraction of waves around the headland at Monkstone. Sourced from the Field Studies Council

These maps could be discovered by students using software such as Google Maps, Scribble Maps, ArcGIS Online or Where's the Path?

Once you have collaboratively decided on the general basis of the topic and completed some background research, students then need to decide on the aims (general statements of what you are trying to find out) and hypotheses (statements that can be tested).

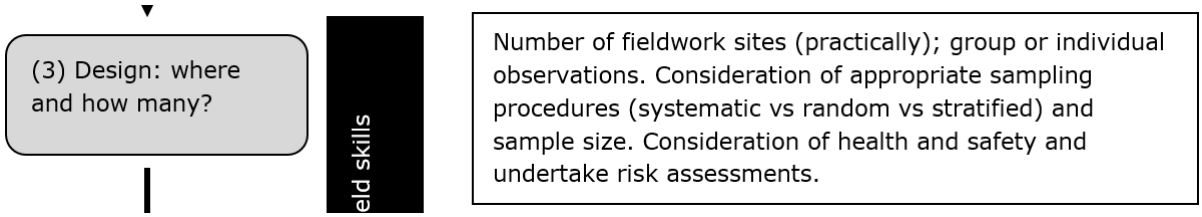
For the Edexcel GCSE Geography A specification, the aims of the four types of investigation have been created for you and will remain the same for the lifetime of the qualification:

- River landscapes – investigation of change in a river channel
- Coastal landscapes – investigation of coastal processes through landscape evidence
- Changing city environments – investigating change in central/inner urban area(s)
- Changing rural environments – investigating change in rural settlements.

Once you have decided on the type of investigation, students then need to create a hypothesis. It is important that this is clear and measurable. For example:

- River velocity increases with distance downstream along River Dee
- Sediment size decreases from north to south along Dawlish Warren
- Environmental quality of Chester increases as you move away from the CBD

3 Design: where and how many?



Sampling

Prior to collecting the data, students need to consider the type of sampling strategies they will use: stratified, systematic or random sampling. Sampling is the process of measuring a small number of sites or people to obtain a perspective on all sites and people.

Why do geographers use sampling?

- Sampling is quick.
- Sampling is cheap.
- Often it is impossible to access a whole population due to time constraints, money, equipment and accessibility of the survey sites.

This all means that geographers have to use appropriate sampling strategies to generate data from a representative sample.

In a **systematic sample**, measurements are taken at regular intervals, e.g.

- every 5th person who walks past
- every 20 metres along a street
- every 50 metres along a beach.

In a **random sample**, each member of the population is equally likely to be included in the sample.

For taking random samples of an area, use a random number table to select numbers. Use pairs of numbers as x and y co-ordinates. You could use metre rule interval markings (e.g. to take pebble samples on a beach) or grid references (e.g. to find random samples in a city).

Stratified sampling is when the population is split into sub-groups. In a stratified sample, a proportionate number of measurements are taken from each group.

For example, an urban ward may contain 8 deprived wards and 2 undeprived wards. A random sample may by chance miss all the undeprived areas. By contrast, with a stratified sample, you can make sure that 80% of your samples are taken in the deprived areas and 20% in the undeprived areas.

Risk assessment

In terms of health and safety, centres should ensure that an appropriate risk assessment is in place to identify the potential hazards that might be encountered, assess who may be harmed and how, and suggest how these hazards can be managed to reduce the potential associated risks.

The Field Studies Council (FSC) have produced a number of guidelines that reflect the Health and Safety Executive (HSE) guidelines for approaching a risk assessment:

1 Identify the hazards
2 Decide who might be harmed and how
3 Evaluate the risks and decide on precautions
4 Record your findings and implement them
5 Review your assessment and update if necessary.

Involving students during the planning stage is a good way of promoting expectations in terms of behaviour standards and increasing their own awareness of the potential risks. This might involve the use of virtual fieldwork and photographs of the location of study, so that students can identify any potential risks, as well as producing their own risk assessment, as shown in Table 10 below.

What is the risk?	Who does it affect?	What can be done to reduce the risk?
• The risk of tripping or slipping over in the grounds, causing personal injury	• Everybody: staff, students, visitors	• People should be advised to stick to the paths, not walk on the slippery grass. • The paths should be maintained so that there are no bumps or cracks to trip on.

Table 10: Example from a student's own risk assessment

4 Equipment considerations; how to record. Primary data collection

(4) Equipment considerations; how to record. Primary data collection

Primar

Appropriate data collection methods that will help answer the questions being investigated. Appropriate equipment to ensure accuracy and reliability. Development of recording sheets for measurement and observation.

For both the physical and human investigations, students are required to complete **at least one qualitative** and **one quantitative method**.

For a rural study this might involve the quantitative method of recording the quality of the environment through an environmental quality survey (EQS). The observer makes judgements on the environmental quality against a range of indicators, often on a sliding scale (e.g. –3–+3 to represent a negative to positive evaluation), as shown below.

Negative evaluation	-3	-2	-1	+1	+2	+3	Weighting X 0.5 or 1 or 2	Positive evaluation
Natural features absent								Natural features improve the appearance
Road and pavements dangerous								Roads and pavements safe
Roads and pavements in poor state of repair								Roads and pavements in good state of repair
Noisy and polluted atmosphere								Quiet and unpolluted atmosphere
Heavily littered								No obvious litter
Heavily fouled with canine faeces								No obvious canine faeces
Abundant graffiti								Free from graffiti
Public property vandalised or damaged								No evidence of vandalism or damage to public property
Cramped								Spacious
Threatening								Welcoming
Unsafe								Safe
Undesirable								Desirable

Table 11: EQS survey data collection sheet. Sourced from the Field Studies Council

For all four types of study, a qualitative method that could be used is the recording of landforms/environments using annotated field sketches or annotated photographs. These can be used to look at a view of the whole landscape from a given point, or in detail at given features.

Using scaffolds can help students add meaningful annotation to their sketches and photos.

Marks	Criteria
1	**Observations**; Labelling of features correctly
2	**Describe;** Clear labelling and feature descriptions
3	**Explain;** Label features, describe features and begin to explain features formation **(Annotate)**
4	**Sketch;** All of the above is met with visual sketch of features, and use of title, orientation and scale
5	**Link;** Labels, descriptions, explanations, and now linking to wider landscape with processes and further examples

Table 12: Annotated field sketch/photo scaffold prompts. Sourced from the Field Studies Council

Range of equipment

Map Marketing and The Consortium Education provide a range of fieldwork equipment for centres to buy:

- http://www.mapmarketing.com/geography-resources/fieldwork-equipment/prodlist_ct302.htm?size=12
- https://www.educationsupplies.co.uk/curriculum-resources/geography

Centres could create their own fieldwork equipment. Royal Geographical Society (RGS) provide a number of ideas about how this could be achieved:

- http://www.rgs.org/OurWork/Schools/Fieldwork+and+local+learning/Local+learning/Fieldwork+in+the+local+area/Make+your+own+fieldwork+equipment.htm

5 Data processing and presentation

(5) Data processing and presentation

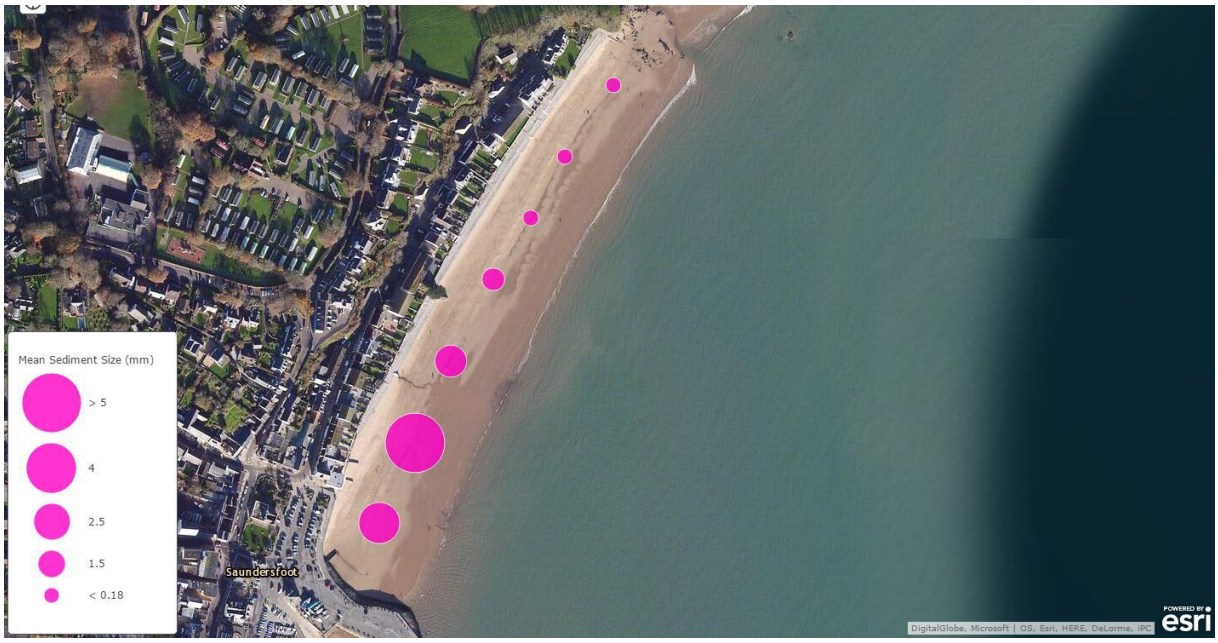
sions and

Use of ICT to manage, collate and process information, e.g. shared spreadsheets and VLE/'cloud' to store for easy retrieval. Using ICT and/or hand-drawn graphical skills to present information in a suitable way.

Students should have the opportunity to display their data using a number of different graphical techniques. When investigating the perception of a place, students could use epitome words and present them as a word cloud using Wordle.™

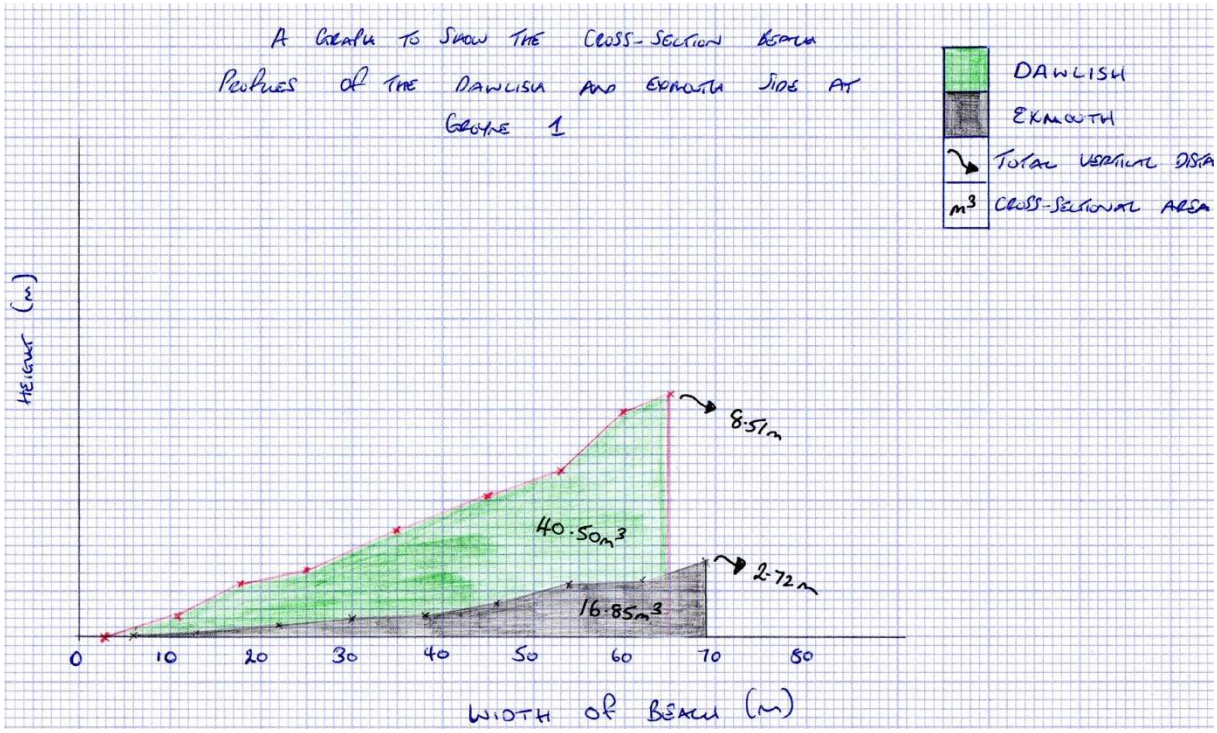
Photo 2: Wordle™ for a rural study. Sourced from the Field Studies Council

GIS could be used to create layered maps with proportional circles, like the example shown below on the mean sediment size along a stretch of beach.

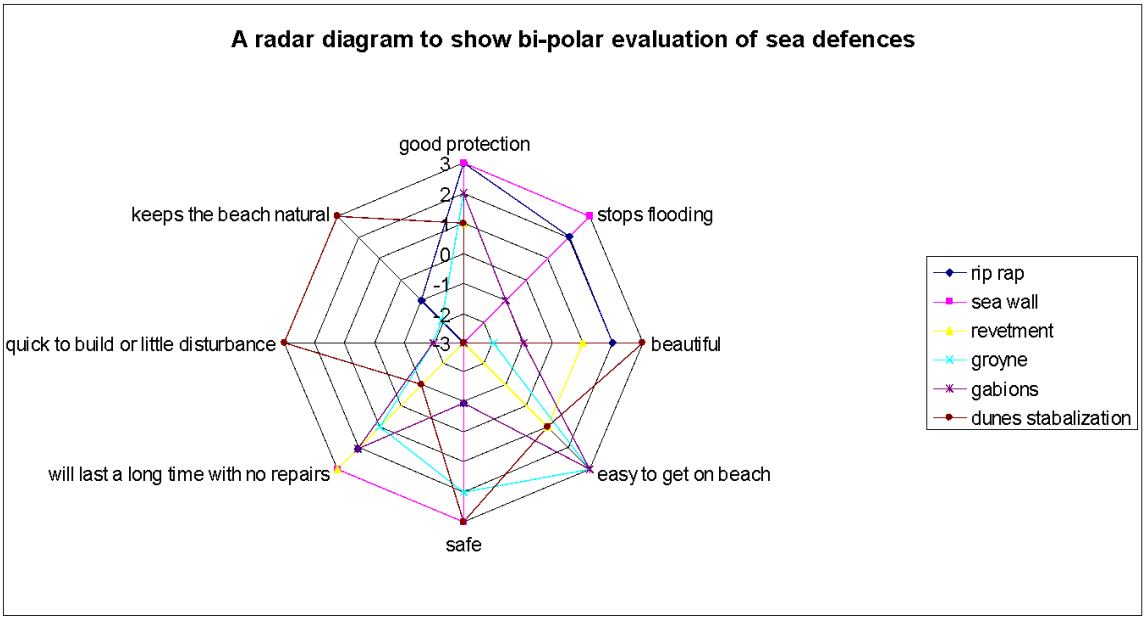


Map 4: Located proportional circles to show the mean sediment size. Sourced from the Field Studies Council

Students should also be provided with the opportunity to create a series of hand-drawn graphs to represent their data.

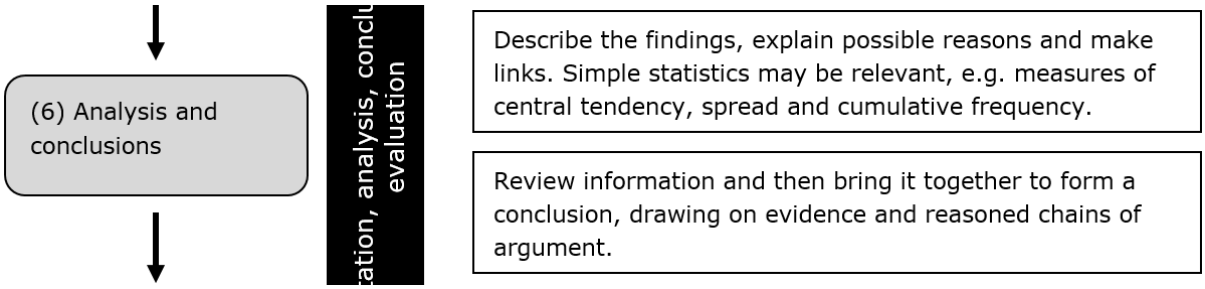


Graph 2: Beach profiles for Dawlish Warren. Sourced from Michael Chiles



Graph 3: Radar diagram for bi-polar evaluation of sea defences. Sourced from Michael Chiles

6 Analysis and conclusions



For the interpretation and statistical analysis, students should consider the following questions:

- What are the general trends from the data?
- What comparisons can be made?
- How do the patterns link to geographical theory?

For example, if students were analysing Map 4 showing mean sediment size, they could structure their interpretation as follows:

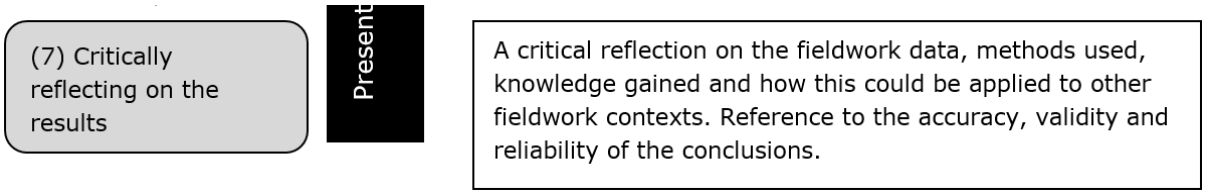
The mean sediment size along the stretch of beach decreased as I moved north. As you can see in Figure 1, the mean sediment size was 2.5 mm at the first site and decreased to less than 0.18 mm at the furthest site north. The reason the mean sediment size decreases is because of the process of attrition.

For their conclusion, students should consider whether they have proved the hypothesis set and how the data reflects the overall enquiry question.

Students should consider the following key points when writing their conclusions:

- What did the investigation prove/disprove?
- How accurately does the data support the geographical theories?
- They should summarise the possible reasons for the anomalies.

7 Critically reflecting on the results



For the evaluation, students should make reference to the accuracy, validity and reliability of the conclusions from the investigation. They should consider the following questions:

- How successful were the sampling and collection methods used to gather the data?
- How accurate were the results and conclusions drawn?

Accuracy means how close a measurement was to the true value. The true value is the measurement that would be obtained in an ideal measurement. Student measurements (perhaps of channel width or river velocity) are generally less accurate, and so further away from the true value, than measurements taken by professional surveyors and engineers.

Students should consider what might have been the sources of error.

- **Measurement error**: mistakes made when collecting the data (such as someone misreading a clinometer).
- **Operator error**: differences in the results collected by different people (such as different people giving different environmental quality scores).
- **Sampling error**: where a sample is biased. Some elements of the population are less likely to be included than others.

Students should discuss the reliability of their results by considering the extent to which the measurements were taken in a consistent way. For example, methods that are taken by different students at different sites should be checked for their reliability.

Validity means the suitability of the method used to answer the question that it was intended to answer. For each method, ask these questions.

- Was your sampling strategy (random/systematic/stratified) appropriate?
- Did the method you use actually measure the geographical process or feature that it was supposed to measure?

A valid conclusion is supported by accurate and reliable data obtained using a valid method. Are your conclusions valid?

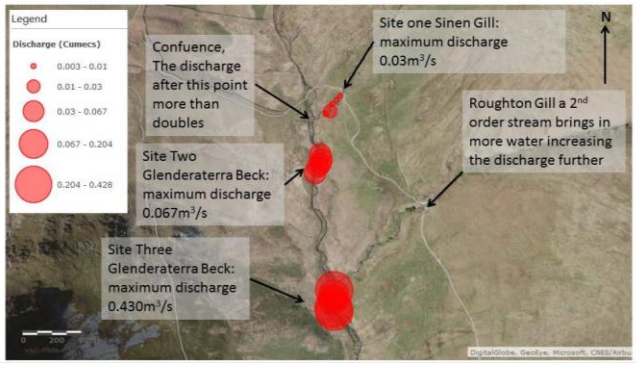
(4) Suggested fieldwork opportunities

7A: Investigating physical environments (river landscapes)

Fieldwork focus: Investigation of change in a river channel

Aim: To investigate downstream in discharge along Glenderaterra Beck, The Lake District

Activity	Fieldwork opportunities	Pre- and post-fieldwork
Planning	Locating the study area (maps/GIS, etc.) Formulating enquiry questions: 1. How and why does velocity change across the cross profile of Glenderaterra Beck River? 2. How and why does discharge change along the long profile of Glenderaterra Beck River?	• Research into relevant background information, e.g. course of Glenderaterra Beck, catchment area, geology, climate and land use. • Considerations around the use of systematic or stratified sampling strategies. • Developing an understanding of the linkages between river channel characteristics.
Fieldwork techniques and equipment	Quantitative: Measurement of channel characteristics including channel width, channel depth, river velocity, calculating river discharge. Qualitative: Annotated field sketches to illustrate changes to river channel along the survey sites. Human interaction: A questionnaire to find out local people's views on how the river processes impact on their day to day lives.	Discussion of methods to measure and record data, with reference to secondary data and field sketches of the data collection sites using secondary resources.
	Equipment: Tape measure, metre rulers or ranging poles, flow meters or a float e.g. orange and stop watch, camera or camera phone, pre-designed questionnaire.	
Secondary data sources	• The use of the Environment Agency flood risk maps. • The use of Environment Agency gauging stations from GaugeMap: www.gaugemap.co.uk.	
Data presentation	Data presentation using a range of graphs, diagrams and annotations. The use of proportional symbols to represent changes in river discharge downstream:	

	Proportional symbols of Discharge on Glenderaterra Beck  Image sourced from Field Studies Council
Analysis of information	Undertaking simple tests of the secondary data, e.g. calculating the mean velocity at each site (basic statistical tests). Analysing data, drawing conclusions with reference to the aims of the investigation, evaluating the techniques used and the conclusions drawn.
Conclusions and evaluation	Describe the findings, explain possible reasons and make links between patterns, etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.

7A: Investigating physical environments (coastal landscapes)

Fieldwork focus: Investigation of coastal processes through landscape evidence

Aim: To investigate the impact of coastal processes at Saundersfoot Bay, Pembrokeshire

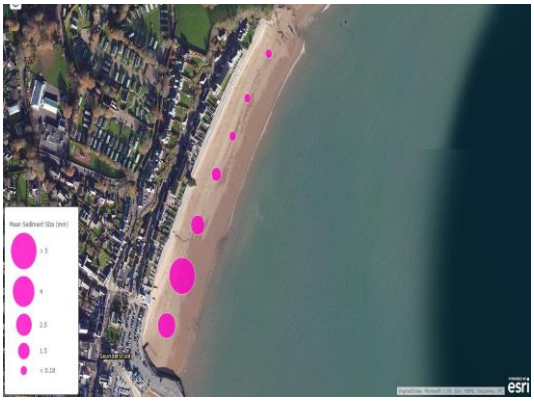
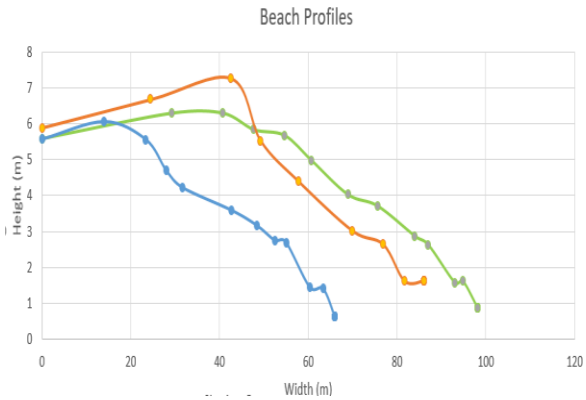
Activity	Fieldwork opportunities	Pre- and post-fieldwork
Planning	Locating the study area (maps/GIS, etc.) Designing an investigation: • Identification of a question and aims linked to geographical theory. • Fieldwork equipment considerations to ensure accuracy and reliability. • Discussion of health and safety.	Contextualising the study/wider significance of the topic area, etc. • Research into relevant background information, e.g. maps showing prevailing wind and refraction of waves around the headland at Monkstone. • Developing an understanding of both the spatial and temporal changes to coastlines.
Fieldwork techniques and equipment	Quantitative: Completing a beach profile including transects up the beach measuring slope gradient. Carry out a sediment analysis including measuring the sediment size and shape, e.g. Power's scale. Qualitative: Annotated field sketches to illustrate changes to the profile of the beach along the survey sites. Human interaction: A questionnaire to find out local people's views on how coastal processes impact on their day to day lives. Equipment: Rulers or calipers, sediment roundness chart, tape measure, ranging poles, clinometers, camera or phone, pre-designed questionnaire.	Discussion of methods to measure and record data, with reference to secondary data and field sketches of the data collection sites using secondary resources.
Secondary data sources	• Geological maps to develop understanding of the formation of large-scale coastal landforms using the BGS map viewer: http://mapapps.bgs.ac.uk/geologyofbritain/home.html. • The use of the Met Office Regional Climate Data to investigate the long-term wind data: http://www.metoffice.gov.uk/climate/uk/regional-climates/.	
Data presentation	Data presentation using a range of graphs, diagrams and annotations. The use of proportional symbols to show changes in sediment size along the shore and beach profiles:  	

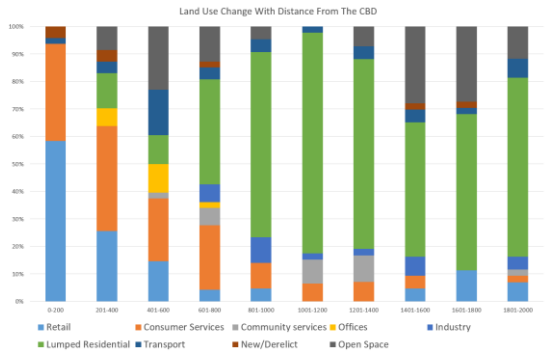
	Image sourced from Field Studies Council
Analysis of information	Undertaking simple tests of the secondary data, e.g. calculating the mean sediment size at each site (basic statistical tests). Analysing data, drawing conclusions with reference to the aims of the investigation, evaluating the techniques used and the conclusions drawn.
Conclusions and evaluation	Describe the findings, explain possible reasons and make links between patterns, etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.

(4b) Human geography

7B: Investigating human landscapes (central/inner urban area(s))

Fieldwork focus: Investigating change in central/inner urban areas(s)

Aim: To investigate changes in Shrewsbury's CBD

Activity	Fieldwork opportunities	Pre- and post-fieldwork
Planning	Locating the study area (maps/GIS, etc.) Designing an investigation: • Identification of a question and aims linked to geographical theory. • Fieldwork equipment considerations to ensure accuracy and reliability. • Discussion of health and safety.	Contextualising the study/wider significance of the topic area, etc. • Research into relevant background information, e.g. historic land use from a Goad plan of Shrewsbury in 1987. • Developing an understanding of spatial changes in land use from the CBD.
Fieldwork techniques and equipment	Quantitative: A land-use survey to record land use function along a transect. Qualitative: Street observations to illustrate the quality of Shrewsbury's environment along the land-use transect. Physical interaction: Annotated photographs and interviews about the influence of people on changes to the physical environment of the chosen study area. Equipment: Base maps of area of study, land use classification key e.g. RICEPOTs (see box on next page), camera, and pre-designed questionnaire.	Discussion of methods to measure and record data, with reference to secondary data, field sketches and photos of architecture of the data collection sites using secondary resources. Collecting data from several radial transects from a central point outwards.
Secondary data sources	• Census data e.g. Office for National Statistics (ONS) Neighbourhood Statistics – neighbourhood summary report. • Use of Goad maps to explore changes in land use over time.	
Data presentation	Data presentation using a range of graphs, diagrams and annotations. The creation of a composite bar graph to show changes in land use with progression from the centre of the CBD:  Image sourced from Field Studies Council	

Analysis of information	Undertaking simple tests of the secondary data, e.g. calculating the mean percentage frequency of housing at each site/location (basic statistical tests). Analysing data, drawing conclusions with reference to the aims of the investigation, evaluating the techniques used and the conclusions drawn.
Conclusions and evaluation	Describe the findings, explain possible reasons and make links between patterns, etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.

RICEPOTS is a way to categorise the urban land use, as shown in Table 13.

Code	Type of Land Use	Further information – extra letters
R	Residential	f = flat, t = terraced house, s= semi-detached house, b = bungalow, d= detached house
I	Industrial	l = light manufacturing, h= heavy industry, c = chemical, e = extraction/mining
C	Commercial	f = food, t = take-away, p = personal services, d = department stores, h=homeware & furniture, g = garage, m = market, s = specialist shop, o = office, v = vacant
E	Entertainment	h = hotel, s = sports centre, g = gym, t = theatre or cinema, b = bar, r = restaurant or café
P	Public building	e = education, l = library, h = hospital, c = place of worship, p = police station, a = ambulance station, f = fire station, w = welfare
O	Open space	f = farmland, p = park, c = cemetery, u = unused land, d = derelict building, s = sports field
T	Transport	B = bus station, t = taxi rank, c = car park, r = railway station
S	Services	f = financial, b = business, m = medical, e = estate agents, d = dental

Table 13: Sourced from the Field Studies Council

7B: Investigating human landscapes (rural settlements)

Fieldwork focus: Investigating change in rural settlements

Aim: To investigate the changes in rural settlements both inside and outside of the Yorkshire Dales National Park

Activity	Fieldwork opportunities	Pre- and post-fieldwork
Planning	Locating the study area (maps/GIS, etc.) Designing an investigation: • Identification of a question and aims linked to geographical theory. • Fieldwork equipment considerations to ensure accuracy and reliability. • Discussion of health and safety.	Contextualising the study/wider significance of the topic area, etc. • Research into relevant background information, e.g. services, housing, crime and accessibility of Hellifield. • Fieldwork design – where and how many sites (justified). Possible development/ customisation of recording sheets.
Fieldwork techniques and equipment	Quantitative: A pedestrian count and traffic count to measure the flows of people at different survey sites. Qualitative: Questionnaire to record the views of people on changes to the Yorkshire Dales National Park. Physical interaction: Interviews with different stakeholders to develop an understanding of the interrelationship between people and the surrounding environment. This would involve a series of questions to investigate the views of residents and visitors on the changes to the landscape both inside and outside of the National Park. A number of different stakeholders could be interviewed to gain a wider range of views. Equipment: Pre-designed questionnaire, pedestrian and traffic count.	Discussion of methods to measure and record data, with reference to secondary data and field sketches of the data collection sites using secondary resources.
Secondary data sources	• Census data e.g. Office for National Statistics (ONS) Neighbourhood Statistics – neighbourhood summary report. • Investigating crime statistics both inside and outside of the National Park.	
Data presentation	Data presentation using a range of graphs, diagrams and annotations, e.g land-use map, gain-loss graphs for environmental quality. Located proportional symbols to present traffic flows:  Image sourced from Field Studies Council	
Analysis of	Undertaking simple tests of the secondary data, e.g. calculating the mean environmental quality at each site (basic statistical tests). Analysing data, drawing conclusions with reference	

information	to the aims of the investigation, evaluating the techniques used and the conclusions drawn.
Conclusions and evaluation	Describe the findings, explain possible reasons and make links between patterns, etc. Students should return to the original predictions/hypotheses. A review of the fieldwork process (including any additional research information). Comments on the accuracy, validity and reliability of the conclusions.

(5) Resources to support fieldwork and research

Several organisations provide support for teachers to contextualise the fieldwork and add relevance to the issue/topic being studied:

- **Geofile** and **Geo Factsheet** – these include publications on a range of topics. Although aimed at an AS/A2 audience, they can provide some useful background reading to contextualise a topic area.
- **Newspapers** – especially *Independent*, *Guardian*, *Telegraph*, *The Times*. Other international papers may also be suitable for contextualising a particular local issue. Search their blogging areas for background opinion. Look at local newspapers for a more in-depth focus on local issues (especially editorial sections).
- **BBC website** – look at the local section for reactions to particular issues.
- **YouTube** may provide clips of documentaries, as well as uploaded local videos.
- For stretch, search the online databases of *The Economist*, *Ecologist* and *New Scientist* for some up-to-date and accessible resources.
- The **Field Studies Council** have an excellent website: http://www.geography-fieldwork.org. They also have a range of specialist identification guides (fold-out charts) for many of the fieldwork topics in the specification, e.g. http://www.field-studies-council.org/publications/pubs/geographical-investigations.aspx.
- **Topic Eye Geography** is a magazine series for students written by leading authors and examiners. There may be some resources in here that help contextualise the course and fieldwork/research: http://crossacademe.co.uk/series/23/a-level-geography
- **Geography Review** and **Wideworld** are now available online and they are searchable through an online magazine subscription service. This is the link to their magazines page: https://www.hoddereducation.co.uk/Geography#&pid=2&limit=true&type=0.
- Subscriptions to social media feeds including **Facebook** and **Twitter**, to keep up to date and create links with other Geography departments to share best practices on designing and delivering successful fieldwork opportunities.
- **Digimap for Schools** is a useful mapping tool that students can use to create GIS maps for their data presentation of fieldwork data, as well as background research for their location of study: http://digimapforschools.edina.ac.uk.

(6) Virtual fieldwork

It should be stressed that virtual fieldwork is not intended to be used as a way of short-cutting or bypassing the original fieldwork opportunities which are central to the delivery of this specification.

Virtual fieldwork, in the context of this specification, is a term that refers to either of the following:

1. Pre- and post-fieldwork that supports the main focus of the fieldwork and other research. This might include Google Maps and Google Street View for instance, as a tool to select appropriate sites. Or photographs/video from past field visits (when conditions were different) to demonstrate particular features/landscapes/processes, etc. YouTube may be useful in this respect. Virtual fieldwork may also be used as a tool to help teach field skills before the visit, or prepare a risk assessment, so 'blending' a range of opportunities.
2. A simulation exercise, where, because of constrained circumstances, candidates cannot collect the data personally in the field. In this instance, alternative data will need to be sourced from other individuals and providers. See Specification: ***Fieldwork and exceptional circumstances.***

Whilst option 2 may offer a workable, practical and satisfactory alternative to real fieldwork, this approach is not without its limitations:

- Virtual trips cannot replicate real objects and experiences (e.g. rocks, plants, smells and noises) – only visual aspects (e.g. views of landscapes) can easily be simulated.
- Students may treat a virtual field trip as similar to a computer game and thus not learn the analytical approaches or problem-solving in the same way as when they are confronted by the 'real thing'.
- A virtual environment cannot recreate the challenges of doing an enquiry in an unfamiliar setting, which develops self-reliance.
- A simulation exercise can't recreate the social benefits of fieldwork, especially the value of residential experiences.
- It is difficult to develop and embed the skills and experiences associated with real fieldwork (which forms part of the assessment).

There are many examples of virtual fieldwork tours on the internet.

- One example is from the Geographical Association (UK): http://www.geography.org.uk/projects/makingmyplaceintheworld/virtualfieldwork
    - This describes a range of activities and also has a downloadable PowerPoint linked to the topic: http://www.geography.org.uk/download/GA_PRMMPVirtualFieldwork.ppt
- The Digital Explorer website has a manual on virtual fieldwork in the context of Google Earth: http://digitalexplorer.com/ge/adf/advanced-google-earth-manual.pdf.

(7) Further support and guidance

A number of online resources support the designing of the fieldwork opportunities:

- **Planning and Developing Fieldwork**
  Geographical Association: http://www.geography.org.uk/

  A series of thoughtful fieldwork-related journal articles:
- **The Case for Qualitative Fieldwork**
  Royal Geographical Society: http://www.rgs.org/

- **Data Skills in Geography Project**
  Royal Geographical Society: http://www.rgs.org/

- **Innovation in Fieldwork**
  Royal Geographical Society: http://www.rgs.org/

There are also a number of books and published resources that could be used:

- **A–Z Advancing Geography: Fieldwork**
  Geographical Association. Holmes & Farbrother (2000)

- **Fieldwork Through Enquiry**
  Geographical Association. Widdowson & Parkinson (2013)

- **Methods of Presenting Fieldwork Data**
  Geographical Association. St John & Richardson (1997)

- **Geography Review Practical Fieldwork Articles** can be accessed through an archive back to 1993: https://www.hoddereducation.co.uk/

Additional resources that might be useful:

- **Edexcel GCSE Geography A and B Maths for Geographers guide**:
  https://qualifications.pearson.com/content/dam/pdf/GCSE/Geography-A/2016/teaching-and-learning-materials/Edexcel-2016-GCSE-Geography-A-B-Maths-for-Geographers.pdf
- **Edexcel GCSE/AS-A level Geography command words**:
  https://qualifications.pearson.com/content/dam/pdf/GCSE/Geography-A/2016/teaching-and-learning-materials/Command-words-2016.pdf

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