edexcel

Fieldwork Guide

GCSE (9-1) Geography B

Pearson Edexcel Level 1/Level 2 GCSE (9-1) in Geography B (1GB0)

ALWAYS LEARNING

PEARSON

Fieldwork – Support for GCSE Specification B

Contents

A context and rationale for fieldwork in Edexcel/Pearson's GCSE

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 C1 and C2 of Paper 2: UK Geographical Issues**.

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:

- coastal change and conflict
- river processes and pressures

7B: Investigating human landscapes:

- dynamic urban areas
- changing rural settlements

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 12), to prepare students for questions with unfamiliar fieldwork data. Specification B 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.

Investigate the impact of coastal management on coastal processes and communities.

Fieldwork and research	General focus of fieldwork
1. Formulating enquiry questions	Students must have an opportunity to develop understanding of the kinds of questions capable of being investigated through fieldwork in coastal environments. Students must have an opportunity to develop a question(s) based on their location and the task.
2. Selecting fieldwork methods	Fieldwork data collection must include at least: • one quantitative fieldwork method to measure how coastal management has affected beach morphology and sediment characteristics • one qualitative fieldwork method to collect data on coastal management measures and their success.
3. Secondary data sources	• A geology map e.g. Geology of Britain viewer • One other source.

Table 1: Sourced from Edexcel GCSE Geography B specification, page 27

Investigating how and why drainage basin and channel characteristics influence flood risk for people and property along a river in the UK.

Fieldwork and research	General focus of fieldwork
1. Formulating enquiry questions	Students must have an opportunity to develop understanding of the kinds of questions capable of being investigated through fieldwork in river environments. Students must have an opportunity to develop a question(s) based on their location and the task.
2. Selecting fieldwork methods	Fieldwork data collection must include at least: • one quantitative fieldwork method to measure changes in river channel characteristics • one qualitative fieldwork method to collect data on factors that might influence flood risk.
3. Secondary data sources	• A flood risk map e.g. Environmental Agency Flood Risk map • One other source chosen by the centre.

Table 2: Sourced from Edexcel GCSE Geography B specification, page 27

Investigate how and why quality of life varies within urban areas.

Fieldwork and research	General focus of fieldwork
1. Formulating enquiry questions	Students must have an opportunity to develop understanding of the kinds of questions capable of being investigated through fieldwork in urban environments. Students must have an opportunity to develop a question(s) based on their location and the task.
2. Selecting fieldwork methods	Fieldwork data collection must include at least: • one qualitative fieldwork method to collect data on the views and perceptions of quality of life • one quantitative fieldwork method to collect data on environmental quality.
3. Secondary data sources	• Census data e.g. Office for National Statistics (ONS) Neighbourhood Statistics • One other source chosen by the centre.

Table 3: Sourced from Edexcel GCSE Geography B specification, page 28

Investigating how and why deprivation varies within rural areas in the UK.

Fieldwork and research	General focus of fieldwork
1. Formulating enquiry questions	Students must have an opportunity to develop understanding of the kinds of questions capable of being investigated through fieldwork in rural environments. Students must have an opportunity to develop a question(s) based on their location and the task.
2. Selecting fieldwork methods	Fieldwork data collection must include at least: • a qualitative fieldwork method to collect data on the views and perceptions on quality of rural life • a quantitative fieldwork method to collect data on environmental quality.
3. Secondary data sources	• Census data e.g. Office for National Statistics (ONS) Neighbourhood Statistics • One other source chosen by the centre.

Table 4: Sourced from Edexcel GCSE Geography B specification, page 28

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 B specification, page 29

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 will target AO3 (application) where students will be expected to apply their knowledge and understanding to both familiar and unfamiliar physical and human fieldwork contexts.
- The remaining 5% will target 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 B specification, page 39

Fieldwork examination questions

Paper	Assessment Objectives				Total for all Assessment Objectives
	AO1 %	AO2 %	AO3 %	AO4 %	
Paper 1: Global Geographical Issues	7.5	13.7	8.7	7.5	37.5%
Paper 2: UK Geographical Issues	5	7.5	14.2	10.8	37.5%
Paper 3: People and Environmental Issues – Making Geographical Decisions	2.5	3.8	12.1	6.7	25%
Total for GCSE	**15%**	**25%**	**35%**	**25%**	**100%**

Table 7: Sourced from Edexcel GCSE Geography B specification, page 39

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

The structure of Paper 2 (UK Geographical Issues) is as follows:

Component 2: UK Geographical Issues Total marks: **94** **(inc. 4 marks for SPaG)** Weighting: **37.5%** Exam time: **1 hour and 30 minutes**	**Section A: The UK's Evolving Physical Landscape** This section is marked out of 31. Section A includes an 8-mark extended response question and this question has an additional 4 marks available for SPaG. Students answer all questions from Section A.
	Section B: The UK's Evolving Human Landscape This section is marked out of 27. Section B includes an 8-mark extended response question. Students answer all questions from Section B.
	Section C1: Geographical investigations: **Fieldwork in a physical environment** (Students answer either question 8 or 9.) **Section C2: Geographical investigations:** **Fieldwork in a human environment** (Students answer either question 10 or 11.) Sections C1 and C2 are both marked out of 18. The maximum mark tariff is 8 marks.

Familiar and unfamiliar questions

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

Section C1 (either Question 8 or 9) – Physical Fieldwork

1 Questions 8a–c and 9a-c = structured questions, assessing application of understanding and skills from **familiar** fieldwork experience (2,2,2, 4 marks, AO3 and AO4)

2 Questions 8d and 9d = extended response question, assessing application of fieldwork understanding, use of fieldwork skills and ability to communicate findings to an **unfamiliar** fieldwork data (8 marks, AO3 and AO4)

Section C2 (either Question 10 or 11) – Human Fieldwork

a Questions 10a and 11a = structured questions, assessing application of fieldwork understanding, use of fieldwork skills and ability to communicate findings to **unfamiliar** fieldwork data (2,2,2,4 marks, AO3 and AO4)

b Questions 10b and 11b = extended response question, assessing application of understanding and skills from **familiar** fieldwork experience (8 marks, AO3 and AO4)

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

Question: Evaluate the relative importance of primary and secondary data in your investigation. (8 marks)

To answer this style of question, students will **need to** weigh up, with advantages and disadvantages, the extent to which the use of primary and secondary data supported their investigation.

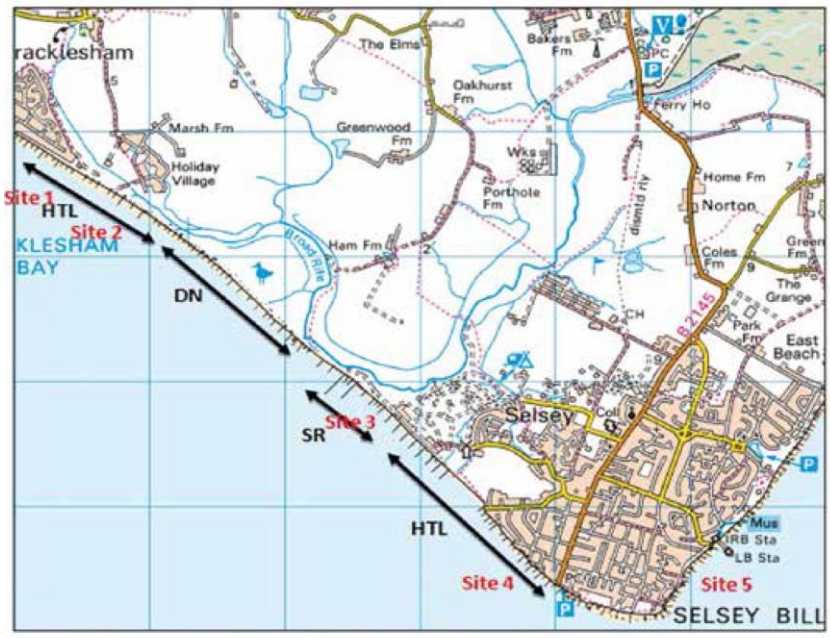
Examiners will allocate equally weighted marks: 4 for A03 and 4 for A04. Possible d**iscussions** for students to focus on are shown bel**ow.**

Question number	Indicative content
10(b)	**AO3 (4 marks)/AO4 (4 marks)** **AO3** • Reference should be made to the results of data collection in terms of specific locations and their judged quality of life. • Conclusions reached should be clear with references, not only to the secondary data but also primary data could be considered and how it supports the interpretation of secondary data. Does it reinforce or conflict? • Assessment should include how easy it was to access and use the secondary data, e.g. the correspondence between primary data collection at specific sites whereas much of the secondary data is areal. • Reliability might be considered in terms of the age of the data, e.g. IMD data is currently 2010 but is itself based on older data. • Assessment address the correspondence between secondary data sources and the results of primary data collection. **AO4** • Quality of life is a concept that can be assessed in a number of different ways using several secondary sources. • Census data might reveal significant information about economic and social variations within the inner city, specifics include age, employment and education attainment. • Crime databases will reveal variations in incidences of different types of crime. • Index of Multiple Deprivation can be used at Lower Super Output Area level – this combines seven different 'types' (domains) of deprivation which relate to quality of life. • There are significant variations in deprivation when the different domains are compared. • The domain covering 'living environment' includes both indoor and outdoor components, which can be compared to primary data information, e.g. Environmental Quality Indices. **Allow any acceptable data that investigates quality of life in inner urban areas.**

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

(d) A group of 20 students chose to investigate the relationship between coastal management and coastal processes along the stretch of coastline shown on **Figure 8**.

Study **Figure 8** which shows part of the Sussex coast.



(Source: Extract produced by Ordinance Survey 2015,
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Key: DN = Do Nothing SR = Strategic Realignment HTL = Hold the line

Figure 8

Map 1: Sourced from Edexcel GCSE Geography B sample assessment material

> Assess the suitability of the student's choice of sites to investigate the relationship between coastal management and coastal processes.
>
> (8)

Students should do **the follow**ing to prepare for this style of examination question:

- Study and 'read' the map – look at the proposed sites.
- Consider the coastal management methods be**ing used**.
  - Consider the coastal processes that are evident here.
  - Apply fieldwork knowledge and understanding to assess the suitability of the choice of sites.
  - Interpret, analyse and evaluate the choice of sites.
  - Use skills to select and describe information from the OS map provided.
  - Communicate their assessment of the suitability of the students' choice of sites.

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

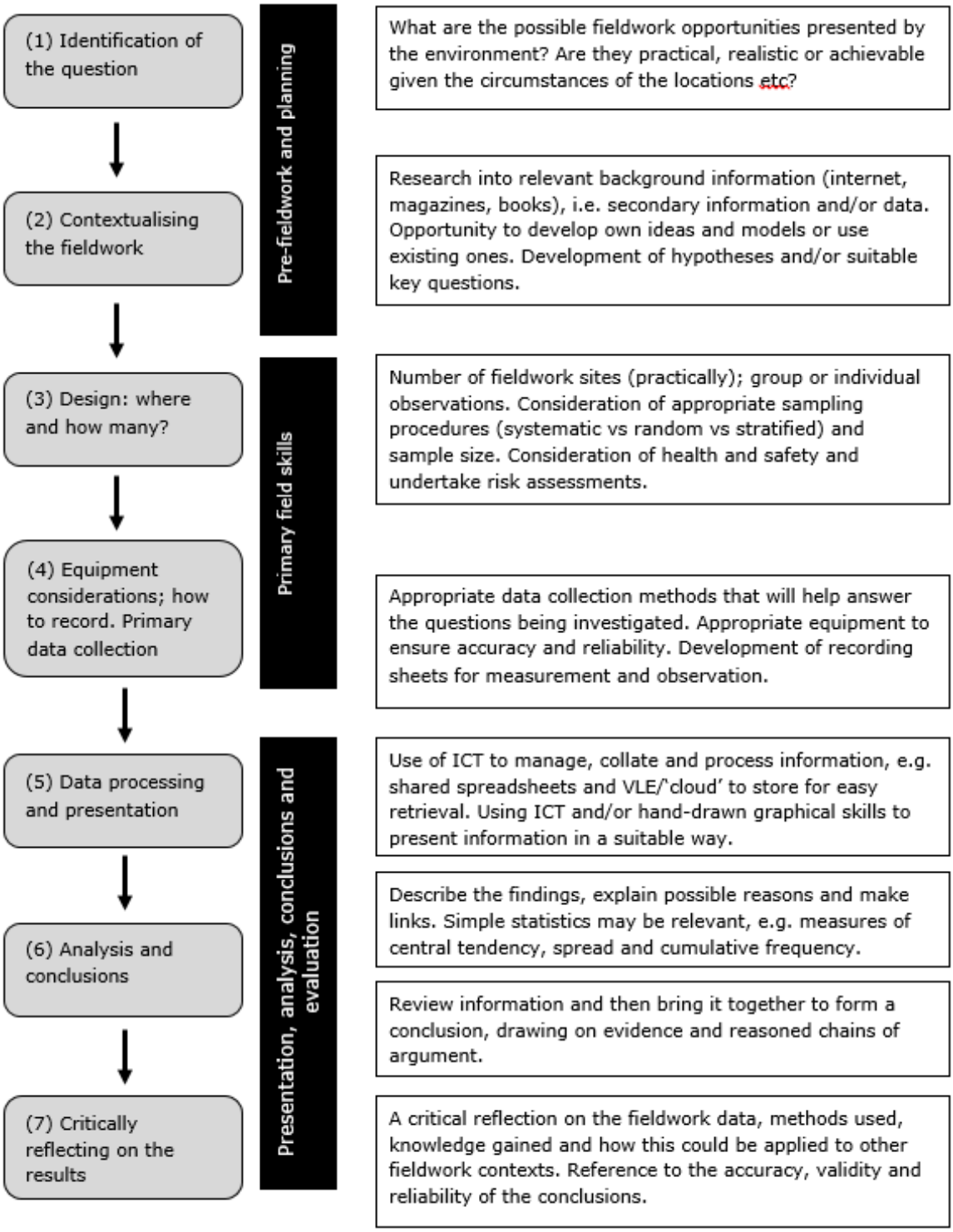
Question number	Indicative content
8(d)	**AO3 (4 marks)/AO4 (4 marks)** **AO3** • Sites 1, 4 and 3 are appropriate because they cover stretches of coastline where the coastal management policy is different so students will be able to compare the relational between coastal management and coastal processes. • The findings and conclusions of the investigation may be incomplete or inaccurate because all sites are located along stretches of coastline that are being managed by hold the line/strategic realignment/construction of groynes. • Students will not be able to compare stretches of coastline that are being managed with stretches that are not being managed, e.g. the nature reserve where the policy is to do nothing. • There is no evidence of a sampling strategy so findings and conclusions may be inaccurate or invalid. • Site 5 is not appropriate because it is on the other side of the headland/located where the coastline changes direction, which means the conditions may be different, e.g. prevailing wind and wave direction and this may result in inaccurate findings. **AO4** • Sites 1–4 cover stretches of coastline where the policy is to hold the line and strategic realignment. • Sites are predominantly located in built-up areas such as Selsey that are used for tourism, e.g. caravan site, camping, and holiday village. • Sites 1–4 cover stretches of coastline where groynes have been constructed. • Sites 1 and 2 are located close together. • The sites do not cover a large area south of the holiday village, it has a different land use and is used as a nature reserve. • Sites do not cover the full range of coastal management policies, e.g. do nothing. • Site 5 is located on the other side of the headland.

A top Level 3 answer should:

- have a balanced argument
- include specific evidence
- be one where the student supports their statements
- 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 Edexcel

(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 urban areas or rural areas).

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 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:

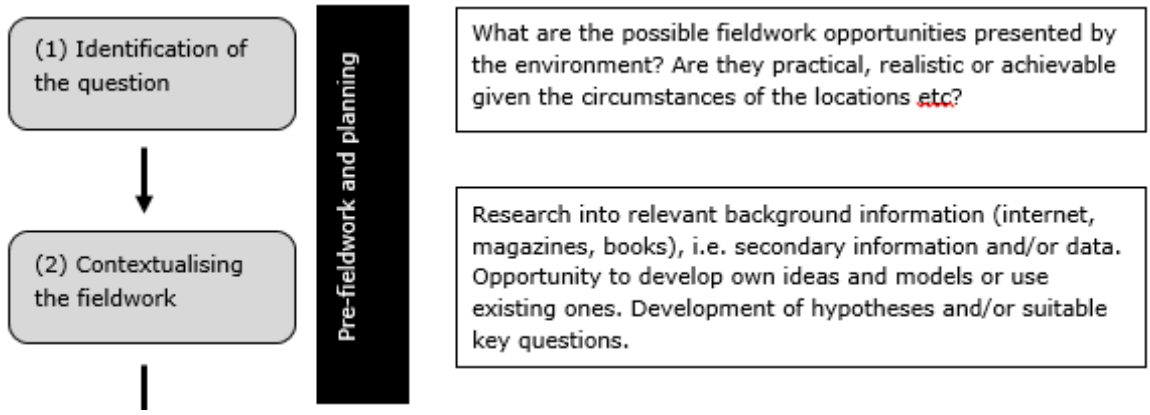
- Locations of FSC centres: http://www.field-studies-council.org/centres.aspx
- Locations of the PGL centres: http://www.pgl.co.uk/en-gb/school-trips/secondary-schools/centres#.WNZMRORFfzR

(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:

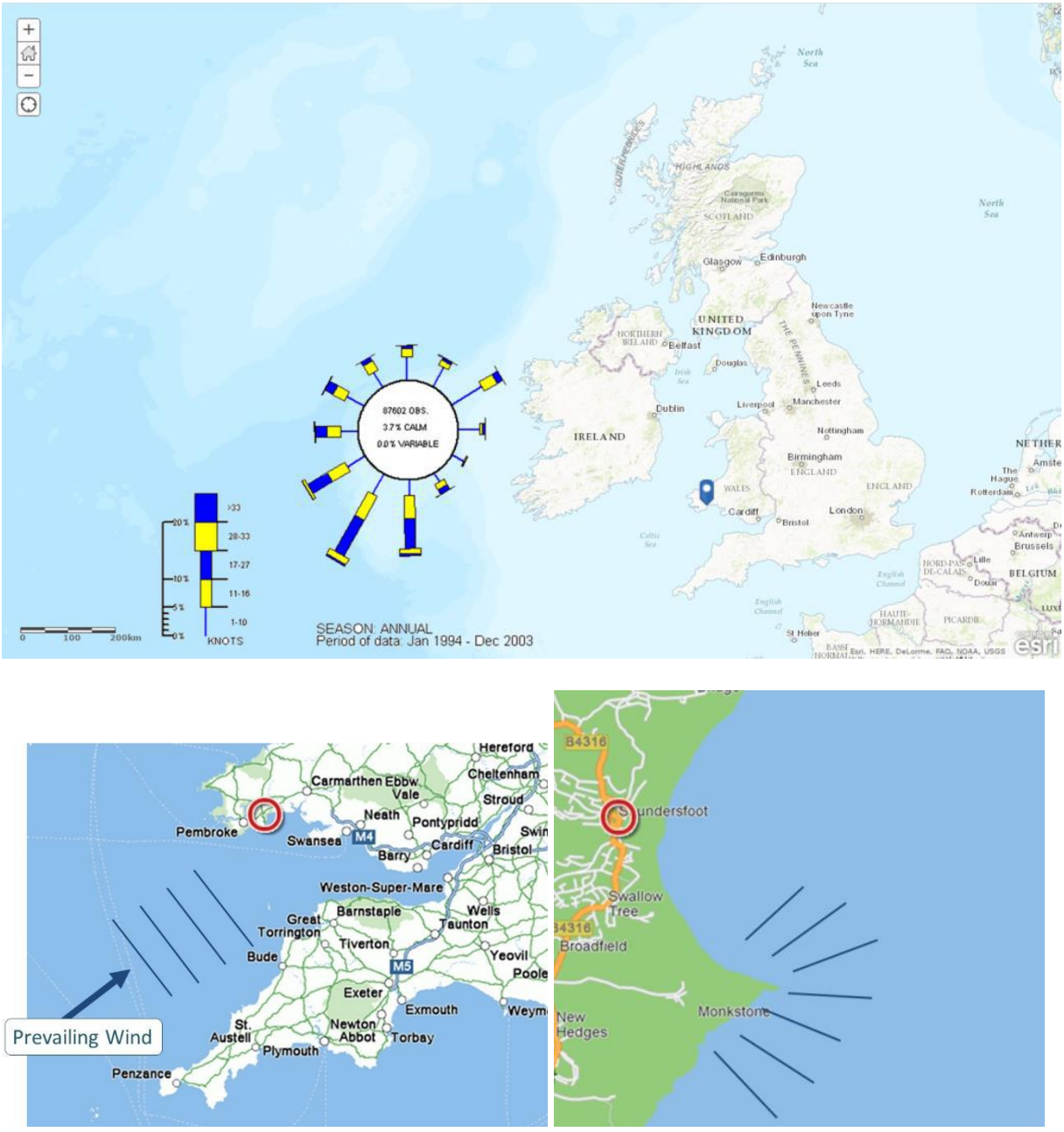
- How does the beach change if you move from the edge of the sea towards the land?
- What physical processes were involved in the formation of this beach?
- How might this place change in the future (and why)?

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 2, 3 and 4: 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).

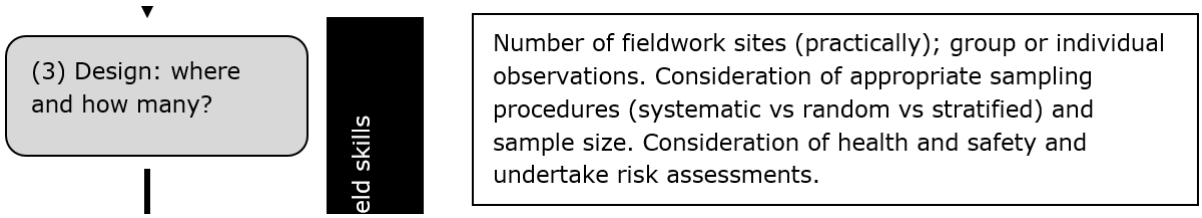
For the Edexcel GCSE Geography B specification, the aims of the four types of investigation have been created for you and will remain the same for the lifetime of the qualification:

- River landscapes – investigation of how and why drainage basin and channel characteristics influence flood risk for people and property along a river in the UK
- Coastal landscapes – investigating the impact of coastal management on coastal processes and communities
- Dynamic urban areas – investigating how and why quality of life varies within urban areas
- Changing rural areas – investigating how and why deprivation varies within rural areas in the UK.

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.
- The presence of groynes have altered expected sediment size from north to south along Dawlish Warren.
- The perception of 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 the 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

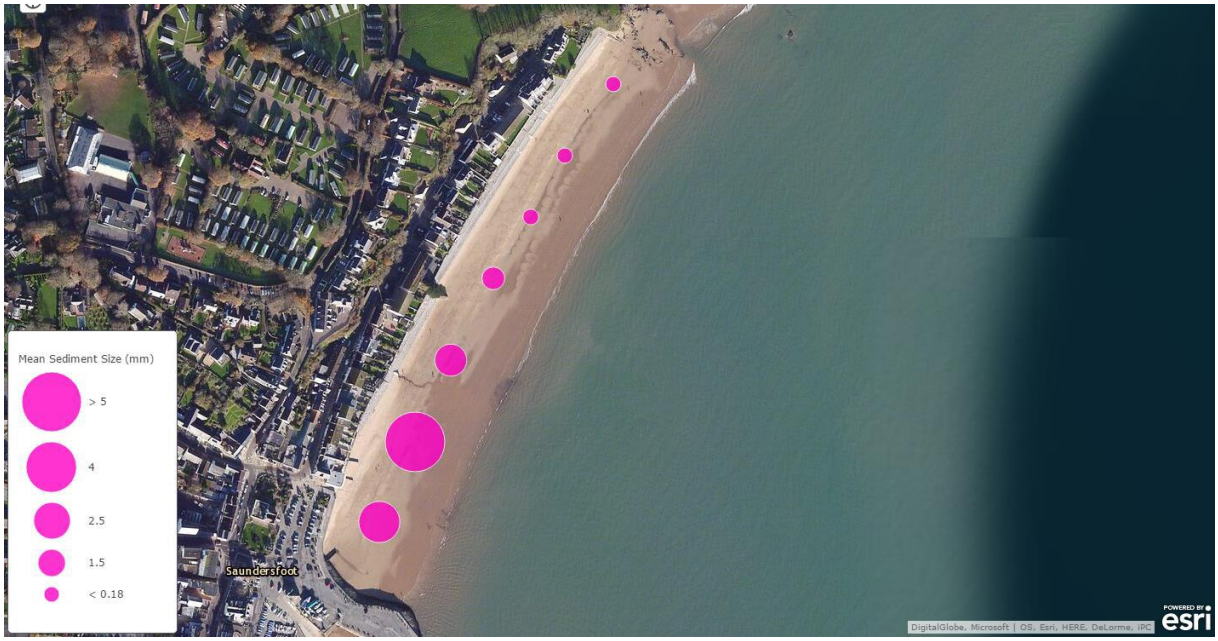
sions and

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.™

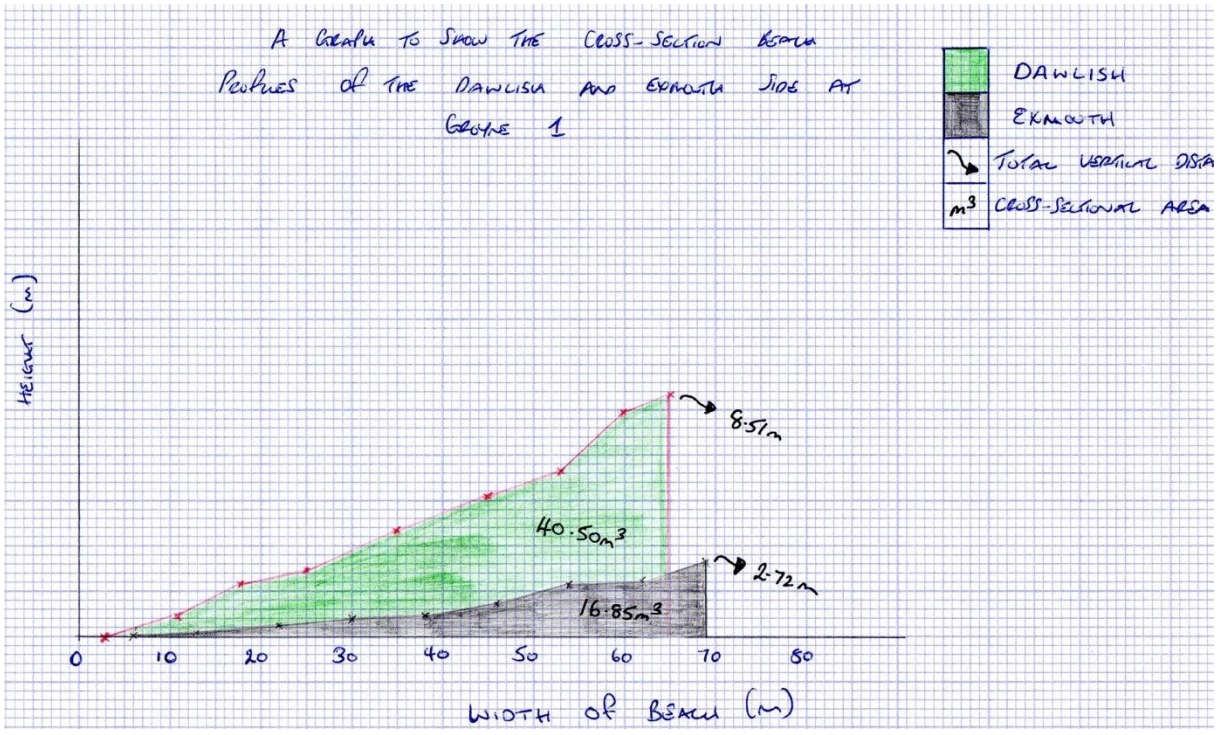
Photo 2: Wordle™ for a rural study. Sourced from the Field Studies Council

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.

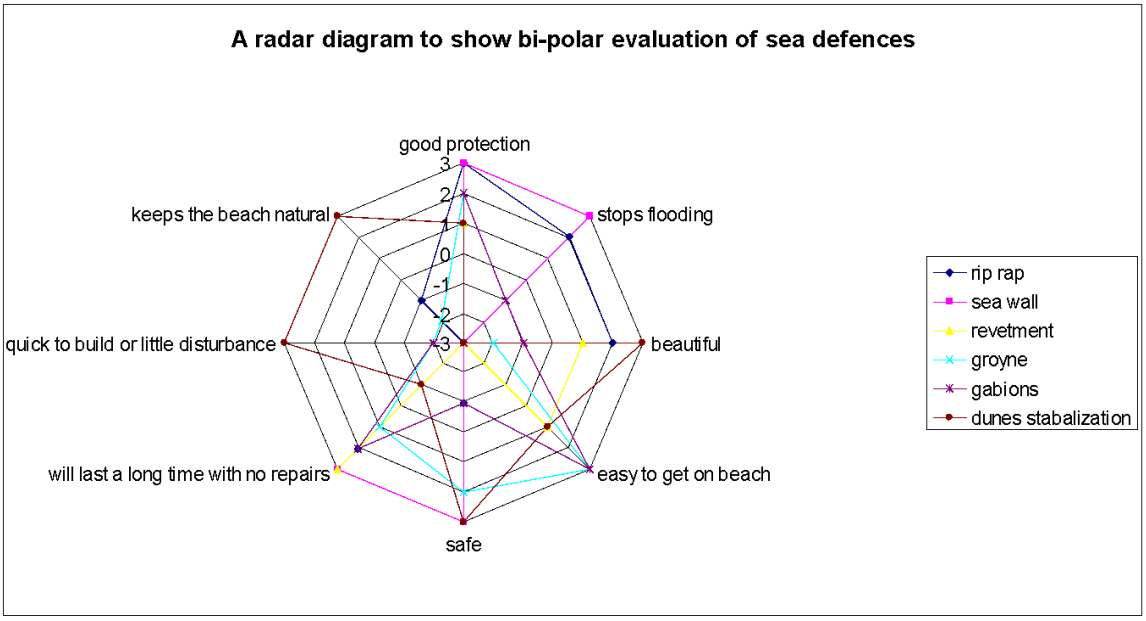


Map 5: Located proportional circles to show the mean sediment size. Sourced from the Field Studies Council

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

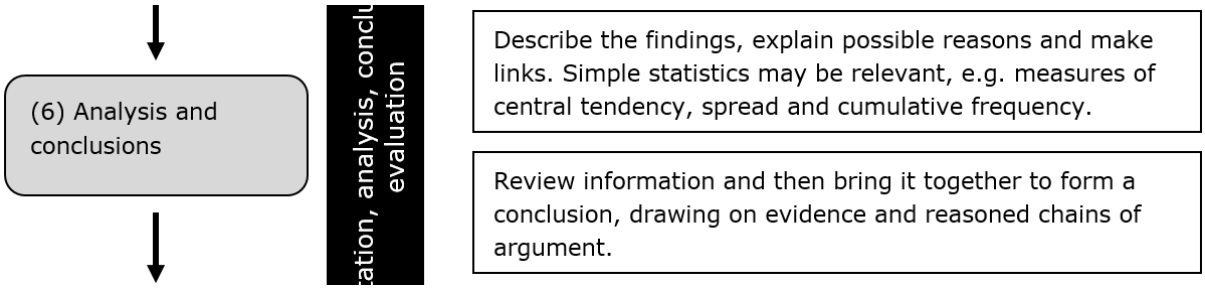


Graph 1: Beach profiles for Dawlish Warren. Sourced from Michael Chiles



Graph 2: 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 5 showing mean sediment size, they could structure their interpretation as follows:

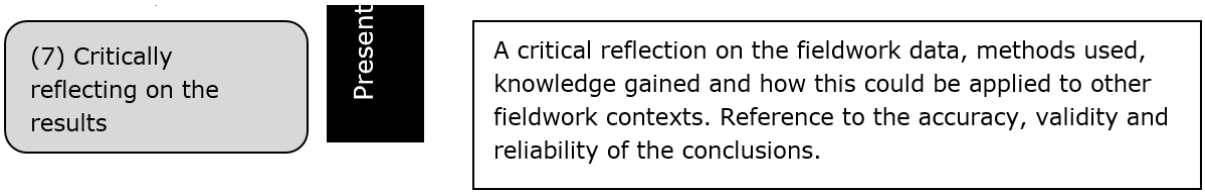
The mean sediment size along the stretch of beach decreased as I moved north. As you can see in Figure 1, the mean sediment size was 2.5 mm at the first site and decreased to less than 0.18 mm at the furthest site north. The reason the mean sediment size decreases is because of the process of attrition.

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

Investigating river processes and pressures

Fieldwork focus: Investigating how and why the characteristics of the Upper Catchment of the River Ogmore, South Wales, influence flood risk

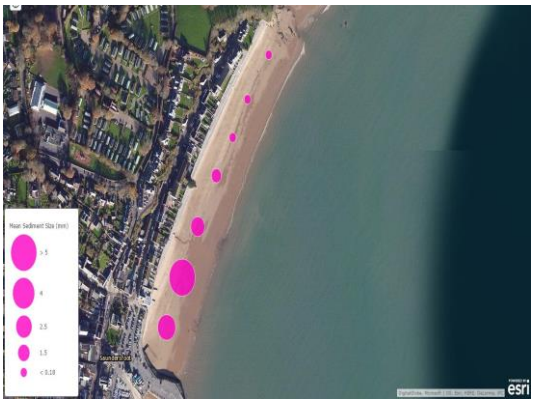
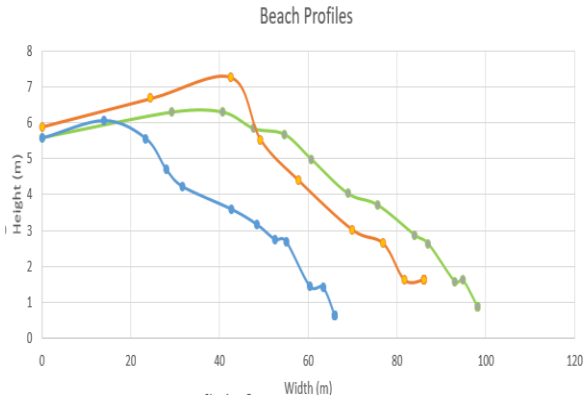
<table>
<tr><th>Activity</th><th>Fieldwork opportunities</th><th>Pre- and post-fieldwork</th></tr>
<tr><td>Planning</td><td>Locating the study area (maps/GIS, etc.)
Formulating enquiry questions:
1. How and why does discharge of the River Ogmore change downstream?
2. How do the characteristics of the drainage basin influence these changes?
3. How do the characteristics of the drainage basin increase flood risk?
4. How are the effects of flooding mitigated?</td><td>• Research into relevant background information, e.g. course of River Ogmore, 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.</td></tr>
<tr><td rowspan="2">Possible fieldwork techniques and equipment</td><td>Quantitative: Measurement of channel characteristics – width, depth, velocity, calculating river discharge, gradient, and sediment analysis.

Qualitative: Annotated photographs to illustrate any potential factors that might lead to increased flood risk.</td><td rowspan="2">Discussion of methods to measure and record data, with reference to secondary data and field sketches of the data collection sites using secondary resources.</td></tr>
<tr><td>Equipment: Tapes, rulers, clinometers, flow meters and camera/phone.</td></tr>
<tr><td>Secondary data sources</td><td colspan="2">• Secondary research using Google Earth to investigate the topography of the catchment.
• The use of the Environment Agency flood risk maps.</td></tr>
<tr><td>Data presentation</td><td colspan="2">Data presentation using a range of graphs, diagrams and annotations. The use of proportional symbols to represent changes in river discharge downstream:
 
Image sourced from the Field Studies Council</td></tr>
</table>

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.

Investigating coastal change and conflict

Fieldwork focus: To investigate the impact of coastal management and coastal processes and communities at Saundersfoot Bay, Pembrokeshire

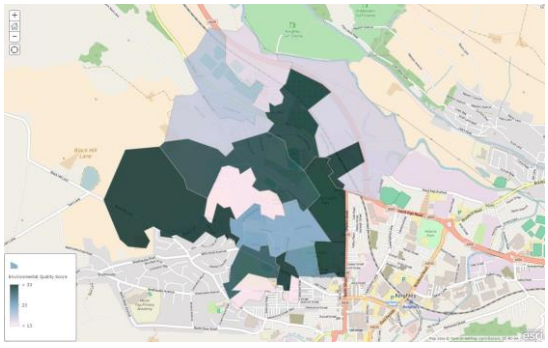
Activity	Fieldwork opportunities	Pre- and post-fieldwork
Planning	Locating the study area (maps/GIS, etc.) Designing an investigation: • Identification of a question and aims linked to geographical theory. • Fieldwork equipment considerations to ensure accuracy and reliability. • Discussion of health 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.
Possible fieldwork techniques and equipment	Quantitative: Measurements to gather data relating to coastal processes – transects up the beach (slope gradient), changes in sediment size and shape, e.g. Power's scale, cliff surveys and coastal protection. Qualitative: Bi-polar survey to record judgements on the success of coastal management techniques. Interviews with local stakeholders to discuss the success of the management strategies. Equipment: Stone survey equipment, tapes, clinometers, quality survey for coastal protection and camera/phone.	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:   Images sourced from the Field Studies Council	
Analysis of information	Undertaking simple tests of the secondary data, e.g. calculating the mean pebble 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.

Investigating dynamic urban areas

Fieldwork focus: To investigate how and why quality of life varies within Keighley, West Yorkshire.

<table>
<tr><th>Activity</th><th>Fieldwork opportunities</th><th>Pre- and post-fieldwork</th></tr>
<tr><td>Planning</td><td>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.</td><td>Contextualising the study/wider significance of the topic area, etc.
Research into relevant background information, e.g. obtaining background information on the quality of life using the IMD.
Fieldwork design – where and how many sites (justified). Possible development/ customisation of recording sheets.</td></tr>
<tr><td rowspan="2">Possible fieldwork techniques and equipment</td><td>Quantitative: Environmental quality survey to record views on the quality of the environment.

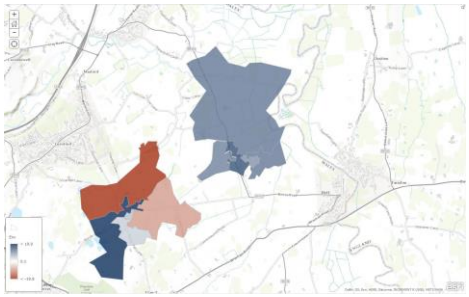
Qualitative: Questionnaires to various groups plus internet/newspaper/Twitter/blog search.</td><td rowspan="2">Discussion of methods to measure and record data, with reference to secondary data, field sketches and photos of architecture of the data collection sites using secondary resources. Collecting data from a number of radial transects from a central point outwards.</td></tr>
<tr><td>Equipment: Pre-designed questionnaire and EQI surveys.</td></tr>
<tr><td>Secondary data sources</td><td colspan="2">Investigating crime statistics using: www.police.uk.
The use of the Consumer Data Research Centre (CDRC) to investigate house prices, travel to work and dwelling age.</td></tr>
<tr><td>Data presentation</td><td colspan="2">Data presentation using a range of graphs, diagrams and annotations. A choropleth map showing environmental quality scores in Bradford:
 
Image sourced from the Field Studies Council</td></tr>
<tr><td>Analysis of information</td><td colspan="2">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.</td></tr>
</table>

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.

Investigating changing rural areas

Fieldwork focus: To investigate how and why deprivation varies within and between two villages in South Shropshire (Pontesbury and Minsterley)

<table>
<tr><th>Activity</th><th>Fieldwork opportunities</th><th>Pre- and post-fieldwork</th></tr>
<tr><td>Planning</td><td>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.</td><td>Contextualising the study/wider significance of the topic area, etc.
• Research into relevant background information, e.g. obtaining background information on deprivation using the IMD.
• Fieldwork design – where and how many sites (justified). Possible development/ customisation of recording sheets.</td></tr>
<tr><td rowspan="2">Possible fieldwork techniques and equipment</td><td>Quantitative: Environmental quality survey to record views on the quality of the environment.

Qualitative: Questionnaires to various groups plus internet, newspaper, Twitter/bog searches.</td><td rowspan="2">Discussion of methods to measure and record data, with reference to secondary data and field sketches of the data collection sites using secondary resources.</td></tr>
<tr><td>Equipment: Pre-designed questionnaire and EQI surveys.</td></tr>
<tr><td>Secondary data sources</td><td colspan="2">• Investigating crime statistics using: www.police.uk.
• The use of DataShine to access and visualise census data.</td></tr>
<tr><td>Data presentation</td><td colspan="2">Data presentation using a range of graphs, diagrams and annotations, e.g. land use map, gain-loss graphs for environmental quality. A choropleth map showing environmental quality scores in Minsterley and Pontesbury:
 
Image sourced from the Field Studies Council</td></tr>
<tr><td>Analysis of information</td><td colspan="2">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 to the aims of the investigation, evaluating the techniques used and the conclusions drawn.</td></tr>
<tr><td>Conclusions and evaluation</td><td colspan="2">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.</td></tr>
</table>

(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.
- **Digimaps 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 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 guidance and support

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 Though 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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