

Teaching guide – Fieldwork

This is a guide to the Fieldwork part of A-level Geography. Use this in the classroom to develop students' understanding of the enquiry process and the written report for the Non-Exam Assessment (NEA). Use it alongside the [Geography fieldwork investigation](#) and [Non-exam assessment administration](#) sections of the specification.

The mark scheme

Here's how the areas of the mark scheme map to the six stages of the enquiry process.

Area 1: introduction and preliminary research

1. Develop an enquiry focus
2. Critically research the literature to provide a context

Area 2: methods of field investigation

3. Plan methodology and carry out the fieldwork

Area 3: methods of critical analysis

4. Make sense of the results through data presentation and analysis

Area 4: conclusions, evaluation and presentation

5. Draw conclusions and establish their significance
6. Evaluate and reflect on the enquiry's wider reading

Area 1

Deciding the focus of the investigation

- The focus can come from any aspect of the specification.
- You can give students some parameters, for example: themes from the specification, locations, availability of equipment and time constraints.
- Students must decide on the focus and title independently. See the specification for guidelines on this.
- Use our [Guide to developing titles and completing the proposal form](#) when students are deciding on their titles.

What focus the investigation can take

Aim

- What you are generally trying to achieve in your fieldwork location.
- Depends on time, location, environmental conditions, equipment available and risk assessments.
- For example:
 - to study the changes in infiltration rates over time in drainage basin X
 - to study differences in quality of life between two different wards in a town.

Research question

- The research question(s) or hypothesis(es) should follow on from the general aim, not be an alternative.
- For example:
 - what factors influence infiltration rates in drainage basin X?
 - how has gentrification changed the character of the place X?
- The overall question could be broken down into smaller sub-questions, for example two or three such sub-questions:
 - what social and demographic changes have taken place in place X in recent years?
 - what have been the impacts of these changes on housing and services within place X?
 - what are the attitudes of people to the changes that have taken place in place X?
- If students decide to have a series of sub-questions, then they must be closely tied together into a single theme or focus, otherwise the investigation will become too large and lose coherence.

Hypothesis

- A statement based on a question which can be either proved or disproved, such as:
 - air temperature decreases with distance from the city centre
 - infiltration rates are closely related to soil texture.
- Students could test one or more hypotheses.

Issue

Evaluate an issue in a local area, for example, the plan to build a Tesco Local store in place X has created a range of attitudes amongst the local people.

What students should consider when deciding on their investigation

Location

- Accessibility
- Safety
- Availability of appropriate equipment and resources
- Data availability
- Data manageability

Health and safety

Students must consider health and safety before fieldwork takes place. Get them to consider:

- identifying actual or potential hazards
- how these can be overcome or reduced to an acceptable level.
- obvious and less obvious risks, eg:
 - coastal location – the risk of drowning is very small, slipping on rocks and twisting an ankle is more likely
 - urban environment – the dangers of traffic are obvious, but thinking about how to carry out interviews and avoid the risk of being isolated, or receiving verbal or other abuse, should be thought about when planning
- keeping in touch and letting you or other students know where they will be.

Ethical dimensions

Students must consider ethical issues that can arise when working in communities and in natural landscapes. For example:

- physical surroundings – follow the countryside code
- the people who live in the area:
 - tell them what you are doing and why you are doing it
 - gain consent from them before proceeding with questionnaires
 - confirm their views will be expressed anonymously
 - be polite and respect their views
 - be aware of any social and/or cultural dimensions
 - be careful of possible bias or in questions – ask questions where the answer would be an option rather than asking them to express a view, for example 'in favour of' or 'against'.

If using secondary data from an available source, try to get permission to use the material.

Pilot study

This can be conducted by students to check:

- they do not unnecessarily search for information that is not available
- the accessibility of locations

- the suitability of sampling sites
- whether data collecting techniques should be modified.

For example, if conducting a questionnaire, get students to try out the questions on a small trial group to see if this produces the data they need. Questions can then be tweaked if necessary.

Research

Get students to start collecting research early on about both the specific area and the general theme chosen. For both of these they should be aware of the concepts or processes (theoretical context) that led to their idea originally.

Students can make use of the following to collect research:

- textbooks
- magazines
- journals
- online materials
- local library
- archive material.

If their investigation involves some form of comparison with another location, or another area of study, then the comparative context (the similarities and differences between the areas of study) must be made clear.

Remind students to reference any literature used or read in their written report. Guidance is provided in the 'writing up the investigation' section of this guide.

Area 2

Completing the proposal

The first step before carrying out fieldwork is to get students to complete the independent investigation proposal section of the [candidate record form](#)

You will then need to review the students' proposals and provide general feedback. Proposals must be approved before they can start any part of the investigation.

Types of data

Here, students must decide on the most suitable data collection techniques to meet the focus of their enquiry.

Make sure that students are aware of and understand the different types of data that can be collected:

- quantitative data – data in numerical form which can often be placed into categories and analysed statistically
- qualitative data – non-numerical data such as photographs, sketches, opinions, perspectives and feelings
- primary data – information that is collected by you, either on your own or part of a group, during fieldwork
- secondary data – information that is derived from published documentary sources and has been processed, such as processed census data, research papers, text books or the internet etc. For the investigations, raw, unprocessed data collected by another eg collected by another group of students or crowd-sourced data from an outlet such as Twitter is also classed as secondary data.

Data collection

Guidance for students

- Only collect primary data once the proposal form is complete; data collected previously can't be used as primary data.
- Independence is key here:
 - secondary data must be selected and sourced independently
 - you can use data collected by themselves or as a group, as long as they decide to do so independently
 - indicate in the written report which techniques were carried out independently and which were as part of a group.
- Reference the use of data in your written report.
- When collecting primary data, you can point out, or correct, errors, anomalies or methodological mistakes.
- When collecting secondary data, it's different because:
 - it was collected for a different purpose, ie not for the investigation
 - the methodology used may not always be clear
 - sample size and reliability might not be clear
 - it may contain errors, and these may not be obvious

- it may be old and outdated.
- Secondary data sources can be grouped into three main types – statistical, graphical and written:
 - statistical
 - weather data
 - river discharge data
 - census data
 - crime statistics
 - deprivation data
 - graphical
 - maps and plans
 - graphs and charts
 - satellite images
 - photographs
 - artistic works
 - written
 - newspapers
 - diaries
 - radio, TV
 - online sources
 - blogs and social media.
- Record information about secondary sources:
 - you may need to access it again to check details or get more information
 - you will need to be stated (cited) in the fieldwork report or the bibliography.
- consider the strengths and weaknesses of qualitative and quantitative data:
 - quantitative
 - strengths
 - precise, numerical
 - reliable as a result of sampling design
 - can be analysed statistically
 - collection can be replicated
 - weaknesses
 - poor collection methods can lead to weak conclusions
 - reduces complex situations and views to numbers
 - complex analysis can produce simplistic mathematical outcomes
 - qualitative

- strengths
 - people's views and opinions provide a human 'face' to numerical data
 - can suggest new research possibilities based on comments made
- weaknesses
 - can take a long time to collect
 - analysis can be difficult and outcomes may be tenuous
 - data is subjective and may not be reliable.
- You might need to use equipment such as flow meters for river studies or callipers for measuring pebbles, but can also use floating objects, rulers, ranging poles and measuring tapes instead.
- Understand the difference between the precision of a measurement and the accuracy of a measurement:
 - precision – the degree to which repeated measurements under unchanged conditions show the same results
 - accuracy – how close each measurement comes to the real value. The further a measurement is from its expected value, the less accurate it is.
- Recognition charts can be used for stone roundness and plant identification.
- You could design your own questionnaires, interview questions and data recording sheets.
- Hand-drawn sketches and maps can be included in this part of the report, as well as labelled photographs to show how any complex equipment was used and how reliability and accuracy was maintained.
- With questionnaires, it's a good idea to include an annotated blank form to show the reasons why those questions were chosen and why they are listed in that order.
- Summarising the methods used can be helpful when writing up the report or revising for the exam. The table below is an example of how this could be done.

Technique	Why used/ purpose	Method: when/where	Justification of sampling type (if any)	Problems/ limitations	Improvements
Field measurements					
Land-use survey					
Field sketch					
Photographs					
Questionnaire/ Interview					

Sampling

Guidance for students

- You must be able to justify the decisions they make about sampling.
- It could be random, systematic, stratified, clustered or a combination of these.
- An example of a systematic sample: studying the downstream changes in a river's discharge (equal spacing along the river) to demonstrate that downstream changes take place successively.
- An example of a stratified sample: applying a questionnaire linked to people's opinions about an issue – give out questionnaires in proportion to the numbers of people in each interest group, so results don't get skewed.
- The method of sampling chosen depends upon the nature of your investigation.
- More than one sampling technique can be used at a time, for example, if you want some structure in your sample but are concerned about potential bias, you could choose random sampling grafted on to a systematic or stratified approach.
- Sample size refers to the number of observations or data points that make up a survey or data set.
- Very small sample sizes will not reflect the statistical population closely, so are unreliable and can lead to incorrect interpretations and explanations.
- Large samples can become unwieldy and difficult to process.
- Many investigations rely on a representative sample from the parent population, for example pebbles on a beach, trees in a forest or residents in an area. All samples should be proportional to the size of the total population.

Area 3

Students will need to present the data in a way that is easy for the reader to understand. Most textbooks explain and illustrate some of the many ways in which data can be accurately, meaningfully and attractively presented.

Guidance for students

- include a wide range of appropriately chosen representation techniques, eg different types of graphs
- methods of presenting material spatially (ie with maps) is important. These may be based on existing maps or be specially drawn by you
- simple techniques often work very well, such as using overlays or using a map as a base upon which to plot other information
- well-labelled or annotated photographs are useful
- computer graphics/geospatial mapping can help, but don't overuse them
- use a range of quantitative and/or qualitative representations
- there are no set requirements for the type, number and complexity of the presentation and analytical techniques
- make sure that the tests conducted are relevant
- don't isolate the presentation of data in its own section, integrate it into an analysis or results section, which should then run into the conclusions and evaluation section
- line and scatter graphs are good ways at presenting data; when a line of best fit is added, they become analytical too
- if the investigation is based on strict hypothesis testing principles, balance the quantitative and qualitative approaches
- use statistics that serve a purpose, eg if it's difficult to draw a line of best fit on a scatter graph, then a Spearman's rank correlation test could be applied to see if there's a valid correlation between the data sets
- don't quote the result of a test without understanding what it means in the context of the investigation and justify identification of trends, correlations anomalies and relationships
- Mann-Whitney U and t-tests won't be examined, but if they are applicable they could be used in the investigation.

Area 4

As part of this section, get students to:

- look again at their initial focus, and comment on the suitability of their chosen location
- review and evaluate their methods for collecting both primary and secondary data, pointing to strengths and weaknesses or limitations
- review and evaluate their choice of research question(s) or hypothesis(es), discussing their appropriateness
- develop their analysis into broader conclusions linked to textbook theory and/or what they found in their location
- look at whether their conclusions were as expected, or was there something about their locality which gave unexpected or unusual results?
- draw together sub-conclusions from the data analysis into one overall conclusion
- address if they'd do things differently if they started again
- suggest other avenues of enquiry.

Writing up the investigation

The final write up should be well structured, logically organised, and clearly and concisely written. Split the folder into sections to help with organisation. To help students, focus on three aspects: structure, language and presentation.

Structure

The following list is one approach to ordering a folder:

- candidate record form and proposal form
- executive summary – this should be a brief statement (no more than 250 words) covering all the main aspects of the investigation. Introduce the subject of the full report, refer to its aims, and provide a brief synopsis of the findings. Make it interesting and stimulating. It's not a requirement, but it is advisory
- title page and contents page
- the introduction – aims, research questions/hypotheses/issues being examined and scene setting. This is intended to familiarise the reader with the purpose of the enquiry and the background to it
- sources of information used – what information was collected and the methods used
- methods of data collection and commentary on their limitations
- justification for the methods of data collection chosen – discuss any limitations
- data presentation, analysis and interpretation
- conclusion and overall evaluation
- appendices and bibliography.

The appendices should comprise additional pieces of evidence that may be of interest to the reader, but are not essential to the main findings.

The bibliography provides detail of the secondary sources that have been used in the research, either as guides or as sources of information. Remember that any diagrams or text copied from secondary sources must be acknowledged.

For all sources, the following information should be recorded:

- who – the author(s) or the name of the organisation responsible for a website
- when – date of publication, or if a website, the date the source material was uploaded, or if this is not clear, the date the website was accessed
- what – the title of a book or article in journals and newspapers; if a website the webpage title
- where – the publisher of a book, the journal or newspaper title or the main website name.

The Harvard system of referencing can be used.

Language

Students should be advised of the following:

- sentences should be grammatically correct and well punctuated
- writing should be well-structured with good use of paragraphs
- spelling must be accurate (use a dictionary or PC spellcheck)
- be clear when using specialist terminology, and when expressing ideas
- by writing within the word count, reports are better planned, structured and executed.

Prior to submission, make sure students read through the draft from start to finish and edit where there are errors or inconsistencies.

Presentation

Students should be advised of the following:

- the report should be neatly presented, handwritten or typed/word processed
- give suitable headings
- number the pages
- don't crowd the pages with dense text
- use either double or 1.5 line spacing to keep it easy to read
- other formatting recommendations are provided in the [Independent investigation and written report](#)

Checklist for students

Area 1

- Identified a research question or hypothesis as the basis of your investigation, which might be broken down into sub-questions or sub-hypotheses.
- Researched the theory behind your investigation (have you read any literature that lends itself towards the need for your investigation?)

Area 2

- Selected appropriate quantitative and qualitative methods to collect a range of data and information relevant to the geographical topic.
- Justified the choice of methods adopted.
- Created an appropriate method of sampling.
- Given consideration to the frequency and timing of observations.
- Shown knowledge of the methods selected and understanding of how they link to physical and/or human processes.
- Explained the methods clearly and in sequence, with no obvious gaps, ie could someone replicate your methods?
- Carried out the proposed methods and collected the relevant data.
- Collected data of suitable quality appropriate to the chosen theme.

Area 3

- Chosen a range of presentation techniques that are appropriate and well selected.
- Chosen suitable techniques to support the analysis of findings.
- Used statistical analysis to explain data and information when appropriate.
- Shown ability to select quantitative and/or qualitative approaches and applied them to the investigation.
- Shown knowledge and understanding of the techniques selected for presentation and analysis.
- Analysed and interpreted the field data/information collected.
- Commented on the accuracy and reliability of the data collected.
- Commented on how the sample you have taken represents the scale of your investigation.
- Shown how your investigation has improved geographical understanding.
- Applied knowledge and understanding to find links between the investigation and the wider geographical issue.
- Shown evidence of insight into the connections between the information collected and other aspects of geography.

Area 4

- Produced a structured and logically sequenced report, following the stages of geographical enquiry.
- Used a range of presentation techniques that are embedded within the report.
- Commented on the reliability of the evidence and validity of analysis and conclusions reached.
- Given an overall evaluation and reflection on the success of the investigation.
- Commented on the extent to which the results you have collected represent the context of your investigation.
- Considered the ethical dimensions of field research.
- Reached a valid conclusion based on the evidence collected.
- Made clear links back to the original question or hypothesis when stating the conclusion to the investigation.
- Drawn on geographical theory or concepts in explaining the findings of the enquiry.
- Developed clear lines of reasoning, demonstrating a comprehensive enquiry process.