

Completing the NEA

Component 4:

The Independent Investigation

General remarks

Refer to the comments given on your practice NEA to help you produce the best piece of work you can.

Do not miss the deadlines – it usually means you have not organised your time effectively and so your work is likely to be flawed.

Allow enough time to proof-read your work. Though you are not allowed to seek individual advice from your teachers there is nothing to stop you asking a parent/sibling/friend to read it and check for errors and to ensure your work is clear. There is no separate SPaG mark, but garbled text will make it difficult for the marker to follow your ideas.

KEEP A BACK-UP COPY! Having only one version means that it doesn't exist. If the file is lost or becomes corrupted you will have to start again. Your back-up should be regularly updated and be kept on a separate device, e.g. USB stick, the cloud, removable hard drive... Files stored on the school's network are backed-up and can be recovered up to two weeks later.

The final report must be arranged into the following sections (there's further guidance on layout, etc. later):

Structure of the report

Section	Contents	AO
Abstract of up to 250 words	Synopsis of the investigation, with research question and link to specification clearly stated. (Might be helpful to include brief description of location here)	
1. Context	Background to the individual research question or issue; conceptual framework, including theoretical background; risk assessment and ethical issues supported by literature and background material.	AO1
2. Methods of field investigation	Methods used to observe, measure and record phenomena in the field applied to the data collection methods linked to a clear and appropriate research question; role undertaken in data collection (individual and / or group) with justification.	AO3.1
3. Data presentation of findings with a range of techniques	Communicating field (primary) and secondary data / information collected through appropriate presentation techniques, allowing suitable analysis to be made, using quantitative and qualitative skills	AO3.3
4. Analysis and interpretation of findings	Analysis, interpretation / justification of findings in the light of data / information collected; data presentation techniques	AO3.2
5. Conclusions	Drawing well-evidenced conclusions, synthesising findings, and informed by theoretical background underpinning the research given in the introduction.	AO3.3
6. Evaluation	A succinct, critical reflection of every stage of the whole investigation in order to appreciate the strengths and limitations of the field (primary) and secondary data, accuracy, degree of reliability and / or errors or misuse of data, bias, appreciate views and interests of stakeholders, methods used, findings and conclusions drawn; suggestions for further improvements and / or further research.	AO2.1c
Presentation requirements; references, appendices, structure	Bibliography of secondary information and relevant appendices included. Guidance on references, the word count and appendices can be found in Section 3.2 on page 42	AO3.3

The Abstract (no marks)

This is something you write once you've completed the report to summarise what the investigation was about and what you've discovered.

Identify the research question and give “a brief overview for the reader”.

Any text here is not included in the word count, so this might be a good place to give a brief description of the location. However, it cannot be more than 250 words.

To get an idea of what's involved, do an internet search for a scholarly article as these will always have an abstract. [If these sites require a subscription or fee to read the full article, it is often the only thing you can see for free!]

Here's an example:

<https://academic.oup.com/bioscience/article/57/10/868/232508> (accessed 28/03/18)

The Context (10/80)

This sets your investigation in an appropriate, Geographical context through the following:

- Identifying the concepts being investigated and how they relate to specification
- How you have used these to develop your sub-questions and/or hypotheses

Evidence is needed here of the literature search (i.e. background reading) that has informed the path your investigation has taken, especially where your ideas came from and how you decided what to investigate. This should have been as wide-ranging as possible and not just one of Student Guides. Textbooks as well as internet searches will be expected here.

References need to be clearly identified using an appropriate in-text method. These are vital in order to give proof that your ideas have a sound theoretical basis.

A more detailed description of the location of your investigation will be needed, to give any human/physical geography details that are directly relevant to your investigation.

The **risk assessment** you carried out beforehand must also be included here. This includes risks to you as well as ethical risks, i.e. issues relating to the way you collected the data (e.g. damage to environments, personal/confidential information gathered through questionnaires and how this data is managed...). This must be a record of what you did, not what could be done. It is usually best to do this as a table to make it as concise as possible.

References

“References to all secondary information used in the written independent investigation must be acknowledged. This can be through an appended bibliography using a conventional in-text referencing system, such as the Harvard system, or through footnotes, although footnotes should be used to refer to the text. The Harvard system of referencing includes the use of title, author and date for publication.

All sources and digital material taken from the internet must also be referenced with titles and URL addresses or screen shots.”

Harvard System:

Last name, First initial. (Year published). *Title*. Edition. (Only include the edition if it is not the first edition) City published: Publisher, Page(s).

E.g. Gillett, M. (2005). *Ecosystems*. London: Hodder Education, pp115-122

Footnotes:

These can be generated within Word (use the References tab on the ribbon)

For further examples look at any scholarly article/book.

Brief footnotes and a full bibliography at the end of the report is my preferred option!



Methodology (15/80)

In this section you need to clearly and precisely describe how data was collected – in such a way that someone else could repeat what you did exactly (this does not mean it should be a set of bullet-pointed instructions). These must include:

- Sampling techniques
- Sample sizes
- Times, dates, conditions
- Equipment used
- Procedure adopted to ensure data collection was reliable, accurate and representative

A range of appropriate techniques (to collect both quantitative & qualitative data) is expected.

Clearly identify what data was collected in a group and what you collected on your own. Any group data collection must be justified.

Justify the methods and data needed. This will partly be achieved by clearly showing how the data will help you find answers to your question/sub-questions.

Include a copy of your data collection sheet – preferably one used in the field rather than a tidied-up version.

Data Presentation (10/80)

You are expected to use a range of appropriate graphical and cartographical techniques to present your data in such a way that it helps you to find answers to your research question(s).

Refer to the skills checklist in the specification for help here, but...

...some (all?) of these should have been planned before you collected your data to ensure you collected data in a way that would permit these techniques to be used!

There should be presentation of qualitative data, too (e.g. annotated sketches, photos, etc.)

Organise your work in an order that matches your sub-questions – use these as sub-headings.

Plan presentation carefully: consider how best to order the data in a graph, for example.

You will be penalised if they are not done well, so ensure they all have (as appropriate):

- Titles
- Keys
- Labelled axes + units
- Scales
- North pointers

...and that they are neat, clear and accurate.

They should also be labelled so that they can be readily identified in the text, i.e. Figure 1...

Analysis & Interpretation of Findings (15/80)

Analysis = identifying patterns, trends, correlations, etc.

This needs to be analytical rather than just some descriptions of the data.

Identify the major patterns/trends/correlations: generalise, detail, exceptions.

Use absolute and relative figures – there's no value in just repeating the raw data.

Statistics should be used where appropriate – this should have been planned before data was collected. Be careful with measures of central tendency: appropriate ranges should also be calculated. Inferential statistics (e.g. Spearman's, Chi-squared...) should have null hypotheses and have significance testing.

Ensure you have sufficient data for these tests to be performed correctly.

Interpretation = offering reasons for your findings.

Explanations should be in relation to the underlying theories described in the Context section, and clearly link to your research question(s).

Better reports will integrate Data Presentation and the Analysis & Interpretation rather than having them in two separate sections.

Conclusions & Presentation (10/80)

This is a slightly odd combination as they are not really linked!

Conclusions

A summary of your findings that neatly links them to your overall investigation title to 'explicitly close the circle' by giving a clear and unambiguous answer to the question.

Do not just simply repeat the findings from the Analysis & Interpretation section, but you must be able to substantiate (i.e. justify) your conclusions with appropriate evidence (e.g. "...3 out of the 4 sub-questions support this conclusion...").

This should be a relatively brief section.

Presentation Requirements

Make sure your report is well-structured, complete in every way and that references are correctly made in the text. These need to be listed in a Bibliography at the end.

The Evaluation

20/80 marks i.e. $\frac{1}{4}$ of the total

The Evaluation

This tends to be done quite badly but is worth a significant amount of the marks – so do not rush it at the last minute!

It is one of the most important sections as the validity of your investigation needs to be determined.

However it is probably the most difficult section as it requires a mature degree of self-reflection.

It cannot just be your opinion – there must be evidence to support your views.

There are a number of different aspects to be considered which are dealt with separately in the following slides.

BUT: when producing your Evaluation, don't simply go through each of the following sections and try to address each point in a mechanical fashion! It has to be YOUR evaluation.

The Evaluation markscheme

3	9-12 marks
	<ul style="list-style-type: none"> • Attempts to evaluate the knowledge and understanding gained from field observation • Intermittent evaluation of each stage of the fieldwork investigation occasionally including the ethical dimensions of the field research • Some reflections for further research and extension of their geographical understanding • Some improvements suggested pertinent to the investigation
2	5-8 marks
	<ul style="list-style-type: none"> • Limited evaluation of the knowledge gained from field observation • Evaluation of some stages of the fieldwork investigation • Some random improvements suggested to the investigation
1	1-4 marks
	<ul style="list-style-type: none"> • Unjustified evaluation of the knowledge gained from field observation • Unsupported evaluation of some stages of the fieldwork investigation • Very limited suggested improvements to the investigation
	0 marks
	Response not creditworthy or not attempted

5	17-20 marks
	<ul style="list-style-type: none"> • Highly effective evaluation of the knowledge and understanding gained from field observation • Perceptive evaluation of each stage of the fieldwork investigation including the ethical dimensions of the field research • Perceptive and well considered reflections for further research and extension of their geographical understanding • Considered improvements suggested pertinent to the investigation
4	13-16 marks
	<ul style="list-style-type: none"> • Effective evaluation of the knowledge and understanding gained from field observation • Competent evaluation of each stage of the fieldwork investigation including the ethical dimensions of the field research • Valid reflections for further research and extension of their geographical understanding • Valid improvements suggested pertinent to the investigation

Key areas to evaluate

Knowledge and understanding gained from the investigation

Each stage of the investigation, including the ethical dimension of field research

- Planning, choice of location and usefulness of research
- Data collection methodology
- Data presentation and analysis
- Conclusions

Improvements arising from issues identified

Areas/ideas for further research or development of the investigation

To access Band 3 (9+ marks) there must be an attempt to address all stages

Knowledge and understanding

- An honest review of what you have learned...
- Questions to consider (as appropriate):
 - Did your findings fully match your theory-based expectations?
 - Were there interactions between data that you had not expected?
 - Were some factors more important than theory would have suggested?
- You must support your ideas with evidence from the investigation...

E.g. "Bradshaw's model states that velocity should increase downstream. However my investigation of Burbage Brook suggested that this might only be the case if taken over much longer stretches of river than the 5km in my study. This has helped me to understand that models might not always fit reality, especially on shorter rivers where geology can appear to have a more significant impact (as here)." [65 words]

Each stage: ethical dimensions

- Was confidentiality an issue in your research? Was this addressed successfully?
- If asking questionnaires, how effective were you at ensuring there was no bias in the phrasing or asking of questions?
- To what extent were you able to achieve an appropriate sample?
- To what extent did you engineer, deliberately or accidentally, the outcome you were expecting?
- How effective were the measures you took to avoid damaging the environment you were investigating?

E.g. "I was careful to test my questionnaire before using it in the field to ensure the wording didn't encourage certain responses. For example, I rephrased Q5 because it was initially quite negatively worded, whereas the final version was more neutral." [40 words]

Each stage: planning

- How effective was your initial research?
 - Were resources you found sufficiently varied to give you a balanced view of the underlying theory?
- Did the advantages of your chosen location outweigh the disadvantages?
 - By how much?
 - How effectively were the disadvantages managed to reduce their impact?
- How well did you manage the risks?

E.g. "I'm reasonably confident that the trends in stone size were the result of wave action because although this can be a popular beach, there were few people there on the day I collected my data. I also started early and the tide was going out, so any disturbances from the previous day would have been removed by the tide. This is supported by Photo C which shows the pristine appearance of the beach when I arrived." [76 words]

Each stage: data collection

- How accurate, reliable and representative were your primary and secondary data?
 - Consider sampling strategy, sample size, equipment, procedures, recording...
 - How do you know?
- How effective were the measures you took to collect accurate, reliable and representative data?
 - How do you know?

E.g. "I had originally intended to collect 100 sets of questionnaires. However, it was raining heavily on the first day and so I only managed to collect 23 sets of data and these were largely from workers. In order to overcome this, I visited on a second day when the weather was better and was able to collect a further 76 sets of data making this a more reliable sample." [69 words]

Each stage: data presentation & analysis

- How effective were the techniques you used at helping to identify patterns, trends...?
- Are there any issues with some techniques you used?
 - Did you have enough data for the technique?
 - Was it in the right format?
 - How good were the summary techniques used? (mean, categories...)
 - Might the technique give you a false impression of patterns, trends?
 - If ranking was used in any technique, what issues can this produce?
- What did you do to overcome these issues?

E.g. "I am confident that my Mann-Whitney u Test result is valid. This technique is best suited to small samples (mine was two sets of 19) and I recorded the data to 1dp which gave sufficiently varied data for unique ranks to be assigned. In addition, the outcome was significant to the 5% level so I could very confidently reject the null hypothesis." [62 words]

Each stage: conclusions

- How valid are your conclusions?
 - How do you know?
- To what extent have your findings enabled you to come to a valid/reliable conclusion?

E.g. "I'm confident of the validity on my overall conclusions as the results of my χ^2 were highly significant, and there was clearly a very strong correlation on scattergraph 3." [29 words]

Improvements

- To be valid these should arise from issues identified earlier in the evaluation and not just be random ideas.
- This will ensure they are 'pertinent to the investigation' – Band 3 and above
- They are likely to involve changes to location, data collection methodology and/or presentation and analysis techniques
- They should be improvements (i.e. make things better) not just something else...

E.g. "...This lack of precision in wind speed measurements could have been overcome with a more precise instrument, such as a hot-wire anemometer. However, the school did not have any available..." [30 words]

Ideas for further investigation

- These should be areas/ideas for further research, or a development of the investigation arising from outcomes of the investigation that would develop your understanding of the ideas covered
- They must be justifiable and not just be random, unconnected ideas.
- Collecting more data is not necessarily an improvement...

E.g. "The scree slope I studied was on a south facing slope, but observations of those facing north seemed to suggest that they had steeper rest angles. My slope was definitely at the lower end of the rest angle range and this apparent difference may be the result of different rates of slope movement arising from different cycles of freeze-thaw. It would therefore be interesting to do comparative studies in this area to see if my observations were correct." [78 words]

Further advice for the Evaluation

Don't try to evaluate everything – choose the best/most effective (most obvious?) elements and do them well.

Don't use this slideshow as a template and attempt to address every question! It's a guide only. There will be connections between the different sections, e.g. a methodology issue will generate an improvement and is likely to have some knock-on effects with conclusions...so think carefully. Total number of words in all the previous examples = 451...

Length [my emphasis]

“The guidance for word length is 3000 to 4000 words. **This includes all the text, text boxes, and supplementary material such as photographs and data presentation techniques. It does not include appendices and abstract.**

It is helpful when attaching appendices that these contain examples of raw data only, such as data sheets and questionnaires, rather than every questionnaire used.

If candidates produce an investigation that is significantly above or below this word count, they reduce their ability to achieve higher level marks.”

The only way to determine if reports are of a suitable length is through a stated word count – so add one at the end of the evaluation.

Length

Further clarification from the Eduqas A Level Geography Subject Officer, December 2018:

Being over the word limit “... is a common problem which can sometimes be addressed by securing more focused titles at the outset.

However, candidates who are now well on the road should be encouraged to self-edit to ensure that they are as close as possible to the limit.

Awarding Organisations are looking at the possibility of implementing a penalty for future years (*have heard nothing about this for 2020, so assume it's not the case*).

Please advise your students to look critically at what they write and cut sections that are purely descriptive.

The mark scheme calls for an analytical and evaluative piece and excessive literature reviews or descriptions of data presentation will not win any marks.

They need to focus on real analysis and evaluation of each aspect of their work where most students are comfortable with the more 'AO1 aspects' of describing theory and graphs.”

Format

“The report must:

- be word processed in Arial, Calibri or Times New Roman
- be font size 11 point
- have text set out in 1.5 spacing
- have all pages numbered
- have candidate number and centre number in either the header or footer on all pages
- have headings and labels for such items as photographs, tables and maps, with scales and keys / legends on maps.”

It's not specified that text should be on one side only – nor what margins should be, so:

- *Use one side of the paper only*
- *All margins should not be less than 2cm*
- *Header/footer margins can then be at 1.5cm*

Data presentation of any type should:

- *be oriented with the 'top' towards the margin, if landscape, for ease of reading*
- *be on one side of the paper only*
- *be no bigger than A4 – if using foldouts these must be less than A3*

A cover page with your details and the investigation title is a good idea, but don't bother with a contents page.

Schedule

Over the next week, you should (if not already done so)

- tabulate the data (preferably in Excel to aid presentation – tables of raw data should NOT be included in the final report)
- complete any calculations (e.g. of moisture content...)
- review the Skills checklist and have considered the most appropriate methods to use to enable you to find answers to the questions you have set yourself

By the October half-term break (7 weeks) you must have

- completed all the data processing
- drafted your analysis and interpretation

You will be required to show this work in the week beginning **14th October**

By the penultimate week of the Autumn term (beginning 2nd **December**, c. 12 weeks) your report must be finished and ready for submission (i.e. in hard-copy) with all pages securely fastened (treasury tags) – no plastic wallets, ring-binders, etc.

Your signed Proposal Form must be attached along with the Student Declaration Form.

All work must be done outside of lessons. There may be occasions where I'm absent and if this is planned then it might be possible to use lesson time for some of this work.

APPENDIX B

Non-exam assessment grids

The following assessment grid is to be applied to marking Component 4 (non-exam assessment), the independent investigation.

Band	Context 10 marks AO1 (10 marks)	Methods of field investigation 15 marks AO3.1 (15 marks)	Data presentation of findings 10 marks AO3.3 (10 marks)
5	9-10 marks <ul style="list-style-type: none"> Wide ranging, and thorough use of literature sources with a confident theoretical and / or contextual background Confident and informed understanding of risk / ethical issues 	13-15 marks <ul style="list-style-type: none"> Strong evidence of wide ranging and good quality data collection approaches (quantitative, qualitative method and fieldwork skills) relevant to the topic linked to a well-defined, individual research question Practical individual and group approaches taken in the field are accurate and well explained and justified Sampling strategy is well designed, explained and justified. The strategy is wholly appropriate to the investigation 	9-10 marks <ul style="list-style-type: none"> Wide ranging and accurate use of appropriate qualitative and / or quantitative data presentation methods / techniques Well selected, applied and wholly appropriate cartographic and graphical techniques to support the analysis of findings
4	7-8 marks <ul style="list-style-type: none"> Appropriate use of a range of literature sources with a secure theoretical and / or contextual background Secure understanding of risk / ethical issues 	10-12 marks <ul style="list-style-type: none"> Secure evidence of appropriate data collection approaches (quantitative, qualitative methods and fieldwork skills) relevant to the topic linked to a clear, individual research question Practical individual and group approaches taken in the field are mostly accurate and explained with reasonable justification Sampling strategy is well designed, with explanation and some justification. The strategy is mostly appropriate to the investigation 	7-8 marks <ul style="list-style-type: none"> Uses a range of suitable qualitative and / or quantitative data presentation methods / techniques Mostly well selected, applied and appropriate cartographic and graphical techniques included to support the analysis of findings
3	5-6 marks <ul style="list-style-type: none"> Some use of literature sources with a reasonable theoretical background Partial understanding of risk / ethical issues 	7-9 marks <ul style="list-style-type: none"> Some appropriate data collection approaches are evident (quantitative, qualitative methods and fieldwork skills) and are of partial relevance to the topic linked to an adequate, individual research question Practical individual and group approaches taken in field show partial accuracy with detailed description and some explanation Sampling strategy has been considered and described. The strategy is partially appropriate to the investigation 	5-6 marks <ul style="list-style-type: none"> Some relevant qualitative and / or quantitative data presentation methods / techniques Mostly well selected and mostly well applied cartographic and graphical techniques to support the analysis of findings
2	3-4 marks <ul style="list-style-type: none"> Limited use of literature sources with a generalised account of the theoretical background Limited understanding of risk / ethical issues 	4-6 marks <ul style="list-style-type: none"> Limited data collection approaches (quantitative, qualitative method and fieldwork skills) linked to an ill-defined, individual research question Limited practical individual and group approaches taken in the field, with limited accuracy and description, but lacking explanation Sampling strategy has been described. The appropriateness of the strategy to the investigation is limited 	3-4 marks <ul style="list-style-type: none"> Limited use of appropriate qualitative and / or quantitative data presentation methods / techniques Limited use of cartographic and graphical techniques to support the analysis of findings
1	1-2 marks <ul style="list-style-type: none"> Minimal use of literature sources and a very poor theoretical background; Very little limited consideration of risk / ethical issues 	1-3 marks <ul style="list-style-type: none"> Minimal data collection approaches (quantitative, qualitative methods and fieldwork skills) with unconvincing research and/or individual question Very little evidence of practical individual and group approaches taken in the field with some description of the approaches taken 	1-2 marks <ul style="list-style-type: none"> Superficial use of appropriate qualitative and / or quantitative data presentation methods / techniques Very little cartographic and graphical techniques to support the analysis of findings
	0 marks Response not creditworthy or not attempted	0 marks Response not creditworthy or not attempted	0 marks Response not creditworthy or not attempted

Band	Analysis and Interpretation of findings	Conclusions and Presentation requirements	Evaluation
	15 marks AO3.2 (15 marks)	10 marks AO3.3 (10 marks)	20 marks AO2.1c (20 marks)
5	13-15 marks <ul style="list-style-type: none"> Sophisticated analysis and interpretation of findings, clearly showing why they were appropriate and relevant to the research question Demonstrates some individuality and / or insights into links between the study and other aspects of geography 	9-10 marks <ul style="list-style-type: none"> Sophisticated and confident summary, drawing convincing and thorough individual conclusions that address the research question and substantiate the analysis and interpretation A well-structured, concise and logical report; accurately references secondary information 	17-20 marks <ul style="list-style-type: none"> Highly effective evaluation of the knowledge and understanding gained from field observation Perceptive evaluation of each stage of the fieldwork investigation including the ethical dimensions of the field research Perceptive and well considered reflections for further research and extension of their geographical understanding Considered improvements suggested pertinent to the investigation
4	10-12 marks <ul style="list-style-type: none"> Well-developed analysis and interpretation of findings, showing why they were appropriate and relevant to the research question Demonstrates partial insights into links between the study and other aspects of geography 	7-8 marks <ul style="list-style-type: none"> Effective summary, drawing competent individual conclusions that address the research question and substantiate the analysis and interpretation A structured, clear and concise report; accurately references secondary information 	13-16 marks <ul style="list-style-type: none"> Effective evaluation of the knowledge and understanding gained from field observation Competent evaluation of each stage of the fieldwork investigation including the ethical dimensions of the field research Valid reflections for further research and extension of their geographical understanding Valid improvements suggested pertinent to the investigation
3	7-9 marks <ul style="list-style-type: none"> Straightforward analysis and interpretation of findings, largely showing why they were appropriate and relevant to the research question Implied insights into links between the study and other aspects of geography 	5-6 marks <ul style="list-style-type: none"> Summarises, drawing individual conclusions that mainly address the research question and largely substantiate the analysis and interpretation A structured and clear report with some lack of focus; some references of secondary information 	9-12 marks <ul style="list-style-type: none"> Attempts to evaluate the knowledge and understanding gained from field observation Intermittent evaluation of each stage of the fieldwork investigation occasionally including the ethical dimensions of the field research Some reflections for further research and extension of their geographical understanding Some improvements suggested pertinent to the investigation
2	4-6 marks <ul style="list-style-type: none"> Limited analysis and interpretation of findings, occasionally showing why they were appropriate to the research question Limited insights into links between the study and other aspects of geography 	3-4 marks <ul style="list-style-type: none"> Provides rudimentary conclusions that are occasionally linked back to the research question A structured and imprecise report; a few superficial references to secondary information 	5-8 marks <ul style="list-style-type: none"> Limited evaluation of the knowledge gained from field observation Evaluation of some stages of the fieldwork investigation Some random improvements suggested to the investigation
1	1-3 marks <ul style="list-style-type: none"> Very superficial and / or biased analysis and interpretation of findings, lacking appropriateness to the research question No insight into links between the study and other aspects of geography 	1-2 marks <ul style="list-style-type: none"> An inadequate summary of findings rarely linked to the research question Produces written report that lacks structure; references are missing or disorganised 	1-4 marks <ul style="list-style-type: none"> Unjustified evaluation of the knowledge gained from field observation Unsupported evaluation of some stages of the fieldwork investigation Very limited suggested improvements to the investigation
	0 marks Response not creditworthy or not attempted	0 marks Response not creditworthy or not attempted	0 marks Response not creditworthy or not attempted