

Teaching guide: Non-examined assessment (NEA)

This resource offers guidance to teachers when it comes to completing the Candidate record form (CRF), mark sheet and annotating student work. You will find examples of annotated work, and example CRFs with commentary to demonstrate good practice.

When assessing student work it is a requirement of the [A-level Geography specification](#) that teachers provide evidence of how and why marks have been awarded against the NEA assessment criteria (page 49, section 5.5 Annotation). This helps to facilitate the standardisation of marking within the centre and enables the moderator to check the application of the assessment criteria to the marking.

Students' investigations must be internally assessed by centres and, where appropriate, the marks awarded should be internally standardised. Teachers are required to record separate levels and marks for each area of the mark scheme in the spaces provided on the marking grid, to total the overall mark in the box provided and to make an overall summative comment about the work. Teacher comments will help the moderator see, as precisely as possible, where the students have met the assessment criteria.

Work can be annotated using either or both of the following approaches:

- key pieces of evidence flagged throughout the work by annotation in the margin or embedded in the text
- summative comments on a cover sheet, referencing precise sections or pages in the work.

Annotation must be used, in addition to information on the CRF, to explain how marks were applied in the context of any additional assistance given to the student.

Comments on how marks have been awarded should:

- be clear and unambiguous
- be appropriate to the nature and form of the work
- use phrasing from the mark scheme to indicate clearly to the moderator how the student has met the assessment criteria. This applies to the annotations that are written on the work and to the comments on the marking grid included with the CRF.

Version 1.0
October 2024

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Letter from the Geographical Association and Royal Geographical Society (with IBG)

The Independent investigation: its value and place in geography

The Geographical Association and the Royal Geographical Society (with IBG) jointly support a strengthening of the contribution of geography fieldwork and the NEA, the vehicle through which it is assessed within A-level Geography.

The NEA, which has been developed by the Department for Education, is worth 20% of students' final grade and is underpinned by the idea of independence. However, what does it mean for A-level geographers to investigate independently, and why is this so important to their studies?

What does independence mean?

Independence is having the motivation, knowledge, skills and capacity to carry out geographical enquiry without a reliance on teachers, parents or other students, while also recognising that there may be a need, at times, to draw on appropriate advice and guidance. For A-level Geography students to investigate independently, they need to be able to pose geographical questions that are worth investigating. They then need to pursue their questions as part of their own appropriate sequence of enquiry. This should draw on their own and others' data, and wider reading, so that a student can research, analyse, summarise and contextualise their findings, while taking into account the specific circumstances of their investigation.

An independent investigation provides scope for students to follow their geographical interests. It also allows them to demonstrate how they have engaged in fieldwork and brought their own thinking, analysis and conclusions to the data that has been collected. However, independence doesn't necessarily mean isolation; depending on the context or location, and taking into account practical considerations such as access and field safety, the data might equally be collected individually or as part of a group.

Why the Independent investigation is so important to the study of geography

The Independent investigation is a unique opportunity for Geography students, requiring their application of geographical knowledge and understanding to the context of a real-world location. Through this they will develop their skills in careful observation of both primary and secondary data collection. Their experience of the 'messy' world beyond the textbook challenges them to appreciate and make sense of geographical complexity and to 'think like a geographer'.

Of course, students do not become independent the moment they begin A-level studies. The Independent investigation is therefore an important opportunity for students to demonstrate the critical, creative and synoptic thinking they have acquired throughout their geographical education. This assumes they have engaged regularly in meaningful geographical enquiry and fieldwork, and been given the opportunity to pose their own questions, collect both primary and secondary data, and reflect on their learning. In this way, the Independent investigation also provides an opportunity for teachers to support and further develop these skills. Careful thinking and planning should therefore be given to the teacher's role, recognising that coaching and facilitation can be as effective as direct teaching, modelling or instruction.

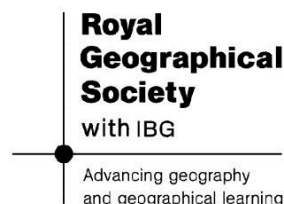
Fieldwork offers the chance to examine how physical and human processes and human-environment interactions are changing our world. Through their A-level course students will have the opportunity to work as part of fieldwork teams and to conduct their own Independent investigation. They will learn to frame geographical questions, collect, analyse and review data, and apply their theoretical understanding to the complexity of the real world.

The Independent investigation provides a valuable experience for students of the nature of geographical enquiry and knowledge, how data can be collected and used, and the application of geographical skills, all of which help to create a more geographically literate society. For those applying to study Geography at university, it also provides a tangible experience of their own geographical endeavour which could be discussed within their UCAS personal statement.

This is a new opportunity for all A-level geographers to demonstrate their geographical interests and abilities in a way which will help better prepare them for transition into undergraduate study, and positively develop their academic and social skills.

Geographical Association.

Royal Geographical Society (with IBG).



Student guide to developing independent investigation titles

The A-level Independent investigation is an opportunity for you to study an aspect of geography in more depth and conduct your own research and data collection. One of the most challenging activities when starting your investigation is to come up with a title. A good title makes it clear to the reader what the research topic is and the type of investigation you will be doing.

Once you have chosen a particular topic that you are keen to investigate further, you will need to narrow this down through your investigation title. A good title has both a geographic and location context:

- Geographic context: What topic, theme or issue in the specification are you keen to investigate further? Whatever you choose to investigate, your title must have a link to a topic(s) within the specification.
- Location context: Where is the investigation, fieldwork and data collection going to take place?

The title of your Independent investigation needs to be concise and descriptive and can be in the form of a statement, question or hypothesis. For example:

- To what extent are groynes the most effective coastal management strategy in Sheringham?
- Sexuality influences perception of place in Bristol.

You should develop one (or more if appropriate) statement, question or hypothesis that can be tested. This may form your actual investigation title or your sub-question/s or sub-hypotheses.

Above all else, your title needs to be something that you can actually address through the data you will collect and secondary sources you will also draw on.

Sub questions/hypotheses

It is not just your title that is important; you may also have sub-questions (potentially two to four of them) and these will guide your research and provide a framework. Your sub-questions enable you to break your title down and look at aspects of it in more depth. It is advisable that your sub-questions follow a logical sequence. Each sub-question/hypothesis should be an answerable question, or testable hypothesis that is clear and well-defined, so that you can do the research needed within an appropriate time frame.

Top tips: thinking about your title

Is your title relevant?

- Is it relevant to an academic debate or intellectual interest?
- Is it a topical issue from the news or personal experience, and what makes this issue geographical?
- Does your investigation lend itself to meaningful data collection, analysis and evaluation?
- Does your title enable you to go in search of information and data which enables you to reach conclusions, recognising that there might be more than one answer?

Is your title manageable?

- It must be within your ability to tackle your question in terms of scope and scale. Can you collect all the data you need from your primary data collection techniques and/or the secondary sources in your methodology?
- Where and how are you going to collect data for your investigation? Is this accessible, practical, safe, etc?
- What are the timescales you have to complete your investigation?

Does your title meet the requirements of the assessment?

- Your title must have a link to a topic(s) within the specification. *
- Can you access all parts of the mark scheme by using your title? *
- Does your title enable you to collect and use sufficient data, e.g. primary or secondary, qualitative and/or quantitative?

* Don't forget you can look these up on the [AQA website](#) and talk to your teacher about this.

Is it of interest to you?

- If your question is of interest to you it will help you remain motivated and engaged with your investigation.
- Is your question clear and straightforward? What looks like a simple question could allow the complexity to develop once the investigation, research and fieldwork begin.

Final thoughts

Your Independent investigation title needs to be clear and concise; what is it you want to investigate, where and why? Your title can be very specific and narrow in focus or a little broader with focused sub-questions to break the title down.

There is no definitive way to approach this but remember your initial ideas for your title will be refined as you do some reading and become more 'expert' in your chosen topic area. Your title will evolve and change and, as you complete your Independent investigation Proposal Form, you can plan your investigation and think through your ideas. Your teacher will finally sign your form indicating that your title and investigation is fit for purpose.

The information you provide in your proposal form should demonstrate how your investigation is capable of being tested or answered. This will enable you to analyse your data and reach substantiated conclusions within an appropriate time frame. The mark scheme can be used in the early stages of your planning so that you know how to plan an investigation that will enable you to reach your potential. Your teacher will take you through the mark scheme to make sure that you understand the stages of the investigation and this will support you in putting your Independent investigation Proposal Form together.

Glossary

- Title: this frames your investigation and can be in the form of a question or statement.
- Hypothesis: a statement which is a prediction and can therefore be tested (through data collection, analysis and evaluations).
- Sub-question: this is a question which addresses an aspect of the title and helps to break it down for the purpose of research and data collection.

Important note for risk assessments and ethical considerations

While specific guidance is generally not permitted by the teacher, the exception to this is with regard to **risk assessments** and **ethical considerations**. It is imperative that teachers ensure all students are able to conduct their investigations in a safe and appropriate manner; therefore, a suitable risk assessment and any ethical considerations must be accounted for prior to the student embarking on fieldwork. Teachers are able to provide students with any relevant detail as part of the risk assessment. To deal with ethical considerations, teachers should provide students with any relevant details to protect themselves, the environments they are working in, their participants and anyone else involved in the data collection and whether it is appropriate to collect and hold certain types of data (e.g. peoples' personal details) or take samples (e.g. flora or fauna).

The Candidate record form

The CRF is an important means of confirming the authenticity and independence of a student's work. It should be:

- submitted with a student's investigation
- signed by both the teacher and the student
- fully completed.

Guidance on completing the CRF proposal form for teachers

The proposal form must be completed by the students and checked by the teacher prior to the student beginning their investigation.

The proposal is a concise and coherent summary of the planned investigation. It outlines the central issues or questions to be considered, and the general area of study within which the research falls. It also demonstrates the independent nature of the investigation, provides a locational context and gives clear indication of appropriate methodologies linked to the chosen theme.

The proposal form will normally include the following information:

- Investigation title. This should provide a locational and theoretical context for the study.
- How the title links to the specification content. State the specification code numbers or page references to demonstrate the connection and provide a brief rationale.
- Planned investigation hypothesis or question/sub-questions. Make sure that these are manageable and achievable and are linked closely to the title. Restrict the number of sub questions/hypotheses to three or four.
- The focus of the investigation. This includes details of the theoretical background in relation to the chosen location(s). Explain why the chosen spatial area has been selected for this investigation.
- Planned methodology. In this part of the form there should be clear indication of the techniques to be used in collecting primary and, if relevant, secondary information. Ideally, they should be linked to each of the sub questions/hypotheses, stating whether they are qualitative or quantitative methods and what sampling strategies are to be used in each case. It is important to obtain a fair and representative sample as well as one which can be analysed.
- Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given. It is vital to provide feedback on the proposal form, as this is the main opportunity to provide direction to the student. Although advice can't be too specific, it is a chance to monitor plans for group activity, consider safety and risk, look at the feasibility of the proposal and whether it demonstrates some independence. Note that the proposal form is not an absolute blueprint; it can be a way of managing changes and adaptations within the enquiry. Sometimes hypotheses may be altered as the investigation proceeds and methods may be modified or abandoned. As long as the essence of the enquiry remains the same, there is also no reason why the student shouldn't review the proposal in the light of experience at various stages during the route to enquiry.

Teacher approval

It is essential that the teacher comments on the proposal and provides general advice before the student starts to collect data for the investigation. Often work is submitted where no guidance is provided at all to the students.

It is fine to ask general questions and:

- indicate if the study is over-ambitious or unclear
- check health and safety
- ensure the study is at the right scale
- ensure the study is linked to the specification content
- ensure the study is feasible and realistic
- ensure the study can be completed in the available time and will give sufficient data.

It is important to take the opportunity at this stage to reduce breadth and advise against potentially very long studies. The programme of data collection should be appropriate to the investigation and have the potential to yield sufficient data commensurate with the requirements of a 4000 word study. Avoid making specific recommendations, for example about the wording of hypotheses or specific sources of secondary data in line with the regulations.

The teacher must respond to the initial proposal by indicating one of the following:

- Approved: If the study is approved, the student may go ahead with the investigation without making any changes to the plan.
- Approved subject to amendment: If it is approved subject to amendments, the student should follow the advice of the teacher in making the recommended changes to the plan before proceeding (although it is not necessary to resubmit the proposal).
- Not approved: If the proposal is not approved, the CRF should be resubmitted with a new plan.

If changes are subsequently made to an approved plan, it is good practice for the student to state these changes in the report. For example, if a new method is introduced or a planned method dropped, this can be explained in the methodology section of the report.

Note that the proposal form is a way of managing changes and adaptations within the investigation and is not an exact blueprint. It may be necessary to revise and review this through the various stages within the route to enquiry. In some cases, the number of methods, sampling strategies and even the number of hypotheses may alter as the student reflects on the task in hand.

Attach the approved version of the CRF to the work; there is no need to submit earlier versions where the student proposal was not approved. Where internal standardisation has produced more than one mark, only the definitive agreed result should be submitted.

The title and proposal form must be completed independently. Very similar or identical titles may result from discussion or collusion between students. Those with similar aims can collaborate on sampling and data collection and share data, but the work cannot be teacher

directed. Students should also avoid producing formulaic work with similar presentation and analytical techniques, outcomes and evaluations.

Example NEA proposals

The following NEA proposals demonstrates aspects of good practice including:

- Title has an evaluative focus, and includes both a locational and theoretical context.
- The link to the specification is specific, with the relevant numbers and a short rationale or justification.
- There are no more than three sub questions or hypotheses. These are all closely connected to the title. If a hypothesis-testing framework is adopted, the hypotheses are capable of being tested based on evidence collected.
- The focus indicates why the area chosen is suitable for carrying out the investigation.
- The proposed methods are all linked to the sub questions or hypotheses. Sampling type and size are given.
- Teacher approval provides some realistic advice and makes recommendations relating to scale and manageability.

The example NEA proposals cover a range of topics and are not intended to be an indication of topics that should be investigated, but to provide further guidance.

Example NEA proposal: How has hard engineering affected sediment flow at Start Bay, south Devon?

NEA proposal

To be completed by the candidate

Investigation title How has hard engineering affected the sediment flow at Start Bay, south Devon?

How the title links to the specification content

A study of how the introduction of hard engineering has affected sediment flow at Slapton and Beesands. Both Slapton and Beesands are high and low energy coastlines, and the flow of sediment in these areas contribute to the local geographical features. With the supply of sediment changing, how have these areas been affected by this different flow. This all links with Coastal Systems and Landscapes.

The Coastal System (3.1.3.1) = This looks at dynamic environments, as well as sediment cells. In fact Start Bay can be counted as its own sediment cell

Coastal Processes (3.1.3.2) = Different areas have different ways of eroding and transporting sediment. This is directly linked to my question on sediment movement.

Coastal Landforms (3.1.3.3) = The most effective method to see how the sediment flow has changed over time is to look at these coastal landforms. They tell us just how much sediment has been moved about, but also what type of sediment have been deposited on coastlines.

Coastal Management (3.1.3.4) = Hard engineering is a form of Coastal Management, this investigation hopes to look at the impacts of recently put in defences.

Planned investigation hypothesis or question/sub-questions

1. How have recent storms such as Storm Emma affected Start Bay?
2. Has hard engineering at Slapton affected sediment flow?
3. Will the beach gradient decrease from South to North at Slapton?
4. Will the sediment type be from mostly the surrounding area for both Slapton and Beesands?

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

Both Slapton and Beesands are a part of a dynamic coastline called Start Bay. This bay is part of a sediment cell that extends from Lands End to Portland Bill. In 2018, Storm Emma had major impacts on both areas. For Slapton they lost their coastal part of the main road into the village, namely the A379, they also lost the car park and toilet station on the sea front. Beesands suffered extreme flooding and damage from the ocean. Money was given to areas by the government for future improvements. Due to these relatively new additions to the coastline, sediment flow or coastal transportation has changed slightly. This makes them the perfect areas to study.

The methods I have chosen allow me opportunity to collect both qualitative and quantitative data to answer my hypothesis and, eventually, form my conclusion. With the beach profiles, it will help me with the deposition of the amount sediment due to Long Shore Drift according with the amount of hard engineering in that section of the beach. Sediment analysis will show the direction and intensity of (LSD) as sediment will decrease in size the more it is eroded by LSD, which is controlled by how long it has been in the water for. With this, I can find out where the sediment has come from, and compare to former data to see if it has changed over the last few years.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

I will use both primary and secondary data that is both qualitative and quantitative. To allow the beaches at Slapton and Beesands to be proportionally represented, I will divide it up equally into sample areas that are equal distance from each other. I will perform my data collecting techniques at each area.

Primary Data:

Beach Profile- Using this systematic approach, I will measure beach profile to allow comparison of the width and gradient of the beach.

At each sampling area, I will use a random number generator to tell me random coordinates before collecting sediment and record their size using quantitative techniques. Using sampling areas along the length of Slapton Sands allows the whole beach to be proportionally represented. Also allows for data comparison.

Secondary Data

Using older photos taken of both areas to compare to photos I take on the day

Using previous case studies data from the previous year to compare to the data I collect on the day

Using data collected from SCOPAC Sediment Transport Study 2012 to compare to data collected nearer the time.

Data collection: ☒ Individual ☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

This is a good proposal with potential to collect plenty of meaningful data about an interesting topic. You may wish to consider reducing the number of sub questions to three-make sure they are all linked to the research question. Link each of the methods to the sub-questions. Sampling has been included in your proposals, and it is clear that you are intending to obtain some useful secondary data. How will you answer the first question about various storms?

Baseline data will be essential here

☐ Approved ☒ Approved subject to the implementation of amendments above ☐ Resubmission required

Full name _____

Teacher signature.

Date [Click here to enter a date.](#)

Example NEA proposal: To what extent has the restoration of the River Biss in Trowbridge been successful?

NEA proposal

To be completed by the candidate

Investigation title To what extent has the restoration of the River Biss in Trowbridge been successful?

How the title links to the specification content

3.2.3.5 Urban Drainage. River restoration and conservation in damaged urban catchments, and the reasons for and aims of the project. The study will consider the reasons for the restoration of the River Biss, as well as the project's aims. It will then evaluate the success of the project by considering the extent to which these aims have been fulfilled, with a focus on biodiversity, environmental quality, and popularity among local people.

Planned investigation hypothesis or question/sub-questions

1. "The restored section of the River Biss will have greater biodiversity." I believe that there will be a greater variety of flora and fauna in the restored section than the unrestored section.
2. "Environmental quality will be lower in the unrestored section of the River Biss." I think that the unrestored section of the river will have a lower proportion of indicative factors of a healthy river. For example, shade cover keeps rivers cool, protecting vulnerable biological communities from the heat. This increases the health of the river, and so by measuring these indicative factors the overall environmental quality can be determined
3. "The popularity of the River Biss will be greater in the restored section." I expect the restored section to have greater footfall, and for local people to feel more positively about this section.

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

River restoration involves implementing measures to restore the inherent ecological and hydrological functions of a river after it has been degraded by human activity. It can involve large scale, disruptive methods like the construction of a new channel. Smaller scale, more ecologically sensitive methods are also implemented depending on factors like the rivers rural-urban setting, geology, typology, and history. These methods involve adding sediment, cleaning the river, and adding natural cover to shade the riparian zone. The restoration of the River Biss explores the latter kinds of restoration.

Through this study, the restoration of the River Biss will be evaluated by comparing evidence from the restored section of the River Biss to the unrestored control site. The restored site that I am studying is in the meadow of Biss Meadow Country Park, whilst the unrestored site is around 750m downstream, in the furthest accessible field before the river enters the arable fields of Biss Farm.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

Primary data.

1. Biodiversity of vegetation in the riparian zone will be measured using systematic sampling of quadrats along a transect parallel with the river. This ensures the data gathered will be as representative as possible of the entire section, but I still recognise that anomalies may not be accounted for. The different species will be counted and later identified using an online tool provided by shootgardening.co.uk, as well as a guide from the Natural History Museum on vegetative orchids. Data regarding larger vegetation like trees will be collected by opportunity sampling because there is a limited number of trees at each site, and the distribution of different tree types can be assumed to be random as it's in a localised area. Trees will then be identified using a guide provided by discoverthewild.co.uk. From the data, the biodiversity index of both sites will be found by dividing the number of plant species counted by the total number of individual plants counted.
2. An environmental quality survey (adapted by myself) will be used to quantify indications of river health, such as shade cover, large woody debris frequency, substrate quality, and litter. Soil moisture content will be measured by heating it in an oven and recording its mass before and after. Five samples will be taken systematically from the restored and unrestored sites respectively. It must be noted that some organic matter may be burned off in the drying of the soil, so to combat this the soil will be heated at 60 degrees Celsius. Water quality will be qualitatively assessed using coffee filters, since the mass of the particulate matter gathered will be too low to weigh accurately. Water pH will be measured using litmus paper. Both methods involve taking 5 samples at each location, dictated by random sampling from a grid over a map of the river sections. Photographs will aid the assessment.
3. Questionnaires with 20 local people at both sites will take place. Footfall will be counted across both sites, and the types of people (e.g. dog walkers or families) will be recorded to allow grouped frequency data to be analysed. Secondary data. Past photographs, where possible, will be compared with present day pictures. GIS like Google Earth Pro will be used for recording data like topography which I am unable to gather myself accurately and safely, and will aid planning.

Data collection: ☒ Individual ☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

A good evaluative question with a locational context. Remember that to evaluate success you will need accurate and reliable baseline data which predates the restoration scheme. Past photographs will help, and the comparison with unrestored sections of the river will be useful. I like the varied ways that the data will be collected and feel that you have given much thought to the structure of the investigation. Sampling has been considered for most of the techniques. It is a good example of a project which has both human and physical elements. The scale is suitable, given the word guidance of 4000 words, and there is much scope for secondary data collection as well. I do wonder whether water quality and pH will vary much over short distances-it will be interesting to see the outcome. The study has the potential to produce a successful investigation.

☒ Approved ☐ Approved subject to the implementation of amendments above ☐ Resubmission required

Full name _____

Teacher signature.

Date [Click here to enter a date.](#)

Example NEA proposal: To what extent does the microclimate of Newcastle differ along a transect moving from the CBD to the suburbs?

NEA proposal

To be completed by the candidate

Investigation title To what extent does the microclimate of Newcastle differ along a transect moving from the CBD to the suburbs?

How the title links to the specification content

This looks at section 3.2.3 Contemporary Urban Environments and in particular sub-section 3.2.3.4 Urban Climate: the impact of urban forms and processes on local climate and weather. Urban Temperatures: the urban heat island effect. Wind: the effects of urban structures and layout on wind speed, direction and frequency.

Planned investigation hypothesis or question/sub-questions

1. The spatial orientation of urban structures has a greater influence on the windspeed in the town centre compared to the suburbs
2. As the distance from the CBD increases, the temperature and windspeed will decrease.
3. The level of traffic has an impact on the microclimate of Newcastle's CBD and rural suburbs.

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

I want to see how human activity and the built environment of Newcastle affects the microclimate in different locations, for example seeing if there is a clear difference between the CBD and the rural suburbs. I have chosen Newcastle as my location as I know it well, it is local to me and there are multiple areas that will fit my criteria for data collection, for example a range of busy shopping areas in comparison to a variety of housing estates located in the outskirts.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

Primary data collection includes: using a digital thermometer to measure the temperature at different locations along a 6km long transect from the town centre to housing estates in the suburbs. I will use systematic sampling and record a reading every 250 m in order to obtain 24 readings. I will also measure the windspeed at these locations using an anemometer to determine the effect of the built environment. Finally I will complete a traffic survey to determine whether traffic congestion and air pollution has an effect on the microclimate, in particular the temperature. The Secondary data that I will use includes references to past investigations, for example the 2021 census, and using land-use surveys to compare to the data that I collect.

Data collection: ☒ Individual

☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

Try to link each of the methodologies to the key questions or hypotheses. You have chosen a study which offers potential for collection of suitable quantitative data, and you have given thought to sampling strategies and size. Be careful to think about the best times to carry out this type of investigation-will it be done under different weather conditions and how will you account for the natural change in temperatures during the day? For example, if the weather is dominated by low pressure conditions wind speeds may be much higher and temperature differences become minimised. More than one transect would be desirable for this type of study.

☒ Approved☐ Approved subject to the implementation of amendments above☐ Resubmission required

Full name _____

Teacher signature.

Date

[Click here to enter a date.](#)

Example NEA proposal: To what extent have traffic management systems been effective in Bath?

NEA proposal

To be completed by the candidate

Investigation title To what extent have traffic management systems been effective in Bath?

How the title links to the specification content

As transport is a factor within globalisation: “3.2.1.1. Globalisation”.

Since Bath is a major UK city, the amount of traffic it experiences will be affected by companies moving product across the global and therefore ties into “3.2.1.4 Global governance”.

“3.2.2.3. Social and economic issues associated with urbanisation” is an important section of the specification that links well with my investigation title since the traffic experienced will largely be affected by both social and economic issues in Bath.

“3.2.3.8. Sustainable urban development” is necessary since the traffic management systems may impact how sustainable the development of Bath is.

“3.2.4.2. Environment and population” will be used to assess how the environment actually affects the population and vice versa.

Throughout the investigation, I am going to also be testing how the congestion impacts the environment, health, and well-being of the people living there “3.2.4.3. Environment, health, and well-being”.

The part of the specification “3.2.4.4. Population Change” will be used to compare how the increasing population impacts the traffic congestion and coincidentally the traffic management systems.

I am also going to be using the data to test the impacts on the national environmental level and therefore on a global level “3.2.4.6. Global population futures”.

Planned investigation hypothesis or question/sub-questions

My investigation is going to include 3 main sub questions that will allow me to answer my main hypothesis of “To what extent has traffic management systems been effective, with a specific focus on Bath”

1. To what extent has the environment been impacted by the implementation of the traffic management systems?
2. What are the benefits of different kinds of traffic management systems?
3. To what extent has the electric scooter scheme impacted bath?

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

Bath is a suitable place to investigate traffic management. The local council has implemented several “liveable neighbourhoods” or low traffic neighbourhoods. These areas restrict through-traffic to create safer, more pedestrian-friendly environments. Efforts are being made to improve public transport and cycling infrastructure.

To see how traffic congestion has affected the environment and economy, I will look at previous data around the economy and CO2 emissions, after this I will visit Bath to collect primary data on these.

To assess traffic management systems, I will create a survey for local people and look at data of congestion before and after the systems were introduced. I will also assess population change, including tourism increases, in relation to traffic congestion.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

For question 1 I will be conducting environmental quality surveys, I will sample these at systematic points across the clean air zone. These will show me the state of the environment at a point after the traffic management systems have been implemented. The use of secondary data such as local authority data on emissions released by vehicles in the city centre from both before and after through bathnes.gov.uk which is the website made by Bath and Northeast Somerset.

An online survey will be extremely important for question 2 (although this will be opportunity sampling) as I can discover their personal opinions on all traffic management systems such as the clean air zone, park and ride, and electric scooter scheme. Along with this, I can contact the Bath & Northeast Somerset Council to have an interview on the effectiveness of the Clean Air Zone, since its launch date. As secondary data for question 2 I can use newspapers and online articles and websites as sources of various opinions on the different TMS.

Finally, question 3 will require statistical data from the local council and company itself. This information will be used to figure out how many people in the local area of bath actually use this as a mode of transport. After this, I will use a survey to determine if it is economically viable to use over other forms of transport around the city such as private cars, bicycles, or public transport (buses or taxis). I will also use photos for certain parts in my methodology such as pictures of local green spaces before and after for the sub-question 'to what extent has the environment been impacted by the implementation of the traffic management systems'. I will also create a geospatial map that could represent where each of the traffic management systems are in an abstracted format which again will help with the sampling of each area.

Data collection: ☐ Individual ☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

The key thing with this enquiry is to obtain reliable baseline data that enables you to compare the situation prior to the traffic management schemes with the present day. This has been mentioned in your proposal but needs to be given further consideration. The theme of your study is fine, and is closely linked to the spec as you have indicated in several places. I can see some potential overlap between questions 1 and 2 unless the benefits are social and economic in 2. Think a bit more about the sampling strategies and numbers. These are not entirely clear-it is essential to have plentiful data of high quality, often with repeat observations. Just be careful not to have too many methods or to spread yourself too wide. A good overall submission with lots of potential.

☐ Approved ☒ Approved subject to the implementation of amendments above ☐ Resubmission required

Full name

Teacher signature.

Date

[Click here to enter a date.](#)

Example NEA proposal: To what extent do physical factors affect vegetation growth at Studland Bay?

NEA proposal

To be completed by the candidate

Investigation title To what extent do physical factors affect vegetation growth at Studland Bay?

How the title links to the specification content

3.1.6.1 Ecosystems and sustainability. The concept of biodiversity. Local and global trends in biodiversity. Causes, rates and potential impacts of declining biodiversity. Ecosystems and their importance for human populations in the light of continuing population growth and economic development. Human populations in ecosystem development and sustainability.

3.1.6.6 Local ecosystems. The main characteristics of a distinctive local ecosystem (such as an area of heathland, managed parkland, pond, dune system). Ecological responses to the climate, soil and soil moisture budget – adaptations by flora and fauna. Local factors in ecological development and change (such as agriculture, urban change, the planned and unplanned introduction of new species).

3.1.3.3 Coastal landscape development Origin and development of landforms and landscapes of coastal deposition. Beaches, simple and compound spits, tombolo's, offshore bars, barrier beaches and islands and sand dunes; factors and processes in their development.

Planned investigation hypothesis or question/sub-questions

The three aims of this investigation are to establish

1. How the pH of soil affects vegetation growth at Studland Bay?
2. How does the content of humus affect vegetation growth at Studland Bay?
3. How does soil moisture affect vegetation growth at Studland Bay?

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

Vegetation growth is determined by many physical factors that either cause many types of vegetation to flourish. These physical factors may also cause many plants to not survive, with only a few types of vegetation being able to grow. This is seen in hot or cold deserts where the conditions are so hostile that the only plants that are able to withstand the extreme conditions have adapted to do so. I am going to be investigating the different factors that causes the plant growth at the coast on a local scale in Studland Bay so that I can determine the factors that affect plant growth at the coast.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

When doing my investigation, I am going to use a range of techniques so that I am able to use qualitative and quantitative data as well as primary and secondary data while also ensuring there is no bias in my experiments and that all my data has validity. Before collecting my data, I am going to visit Studland Bay for a pilot day where I can find where I am going to collect my data as well as the range of where I am going to collect from. This allows me to be prepared for my data collection meaning there will be less mistakes made. For my first investigation, I am going to systematically place a quadrat going away from the sea and towards the sand dunes. At each interval, I am going to record the percentage of foliage coverage. I am then going to identify the plant species and calculate the percentage of each plant type. Next, I am then going to collect samples of the soil. I will take these samples systematically and from the same places and intervals as I did the quadrat experiment. Here, I am going to dig 3-4 inches into the soil and measure the amount of soil I am taking. I will label each sample as I go to ensure that I do not get mixed up and make errors with where I got the sample from. After collecting my samples, I will pick up a different bit of soil at each interval and mix it with a drop of water between my fingers. This will then allow me to assess the texture of the soil and identify if it is sandy and permeable or clay like and impermeable. I will then also look at the colour of the soil and make a note of that. This is a qualitative collection method meaning that it is opinion based. If another person were to assess the texture of the same soil, they may have slightly different outcomes of the investigation. To find the moisture content of the soil, the first step is to weigh the sample pot and the samples as I take the sample to get the most accurate reading of the moisture content of the soil. Over the summer, I will then leave the samples to dry out and weigh them again once they have fully dried. To ensure that my samples have fully dried, I will heat them in an oven at 105 Degrees Celsius. With this data, I am then able to calculate the moisture content of the soil using an equation: $\frac{(\text{wet-dry})}{(\text{dry-container weight})} \times 100$. Using the same samples of soil, the moisture content calculation, I am going to measure the content of humus in the soil. To do this, I will need a crucible, tripod, gauze sheet and a Bunsen burner. I will weigh the dry soil sample before placing it in the crucible on top of the tripod. I will then let the Bunsen burner burn for 30 minutes to 2 hours. I will ensure that all samples burn for the same amount of time. While I am at Studland, I will collect another set of samples in plastic sandwich bags and label this as I go at the same time as collecting my other samples. I will use these samples to test the soils pH. I will do this by placing the soil samples in test tubes and mixing them with 15ml of water. I will then let the soil settle to the bottom of the test tube and put in 2 drops of universal indicator. After mixing the universal indicator into the soil solution, I will compare the colour to a pH chart and identify the pH of that soil sample.

Data collection: ☒ Individual ☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

The links to the spec are currently too broad-narrow it down to the relevant aspects. The title is quite open (Physical factors) and when I look at the sub questions the main focus is on soils and their influence on vegetation, so should it be soil or pedological factors rather than physical? You are not for example looking at relief or microclimate variables for instance. Your methodology looks like a mini plant succession study-make sure you have a long enough transect to cover the range of vegetation types-it varies a lot at Studland. Be careful about doing soil sampling here-it may be best to approach the warden first- as they have many sixth form groups arriving throughout the year. With all these measurements things will change quickly and you really have just a snapshot in time-moisture levels change as does evidence for different plants etc-so revisits will be recommended. You may find that human influences are quite strong in this location-so these might need to be taken into account when undertaking your systematic sampling. Good luck-looks like it has the makings of a promising study.

☐ Approved☒ Approved subject to the implementation of amendments above☐ Resubmission required

Full name _____

Teacher signature.

Date

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Example NEA proposal: To what extent does the physical environment and socio-economic factors influence the rate of crime in two contrasting areas of Leicester?

NEA proposal

To be completed by the candidate

Investigation title To what extent does the physical environment and socio-economic factors influence the rate of crime in two contrasting areas of Leicester?

How the title links to the specification content

3.2.2.1 The nature and importance of places- Endogenous: location, topography, physical geography, land use, built environment and infrastructure, demographic and economic characteristics.

3.2.2.2 Meaning and representation- The importance of the meanings and representations attached to places by people with a particular focus on people's lived experience of place in the past and at present.

3.2.3.3 Social and economic issues associated with urbanisation-Issues associated with economic inequality, social segregation and cultural diversity in contrasting urban areas.

Planned investigation hypothesis or question/sub-questions

1. How does the amount and type of crime vary in two contrasting areas of Leicester, Westcotes and Knighton?
2. How does the physical environment have an impact on the nature of crime?
3. What are the socioeconomic characteristics of the two areas and how does this affect the incidence and type of crime?

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

The rate of crime is a ratio of crimes in an area to the population of that area: expressed per 1000 population per year. This study will focus on two areas of Leicester. It will look at evidence which shows how crime varies in the two contrasting areas. I will be focusing on socioeconomic deprivation rates in Leicester will look at how this may influence different rates of crime.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

For question 1, I will collect secondary data such as newspaper articles, crime maps and data collected by the Police to contrast the two areas of Leicester.

For question 2, I will also be conducting an index of burglarability to compare and contrast the two areas of Leicester and see if there is a link between the security of the areas and how it may influence crime rates. Annotated pictures of both areas will give me a clear idea of the safety of the 2 areas. From this, I will use statistical data in the form of Chi Squared to demonstrate whether or not there is a clear correlation. Furthermore, I will be producing a land use survey to investigate housing features such as double glazing, back alleys, security cameras, street lights etc. I will also be conducting a bipolar assessment of crime vulnerability in the two areas.

For question 3 I will be using the 2021 census to demonstrate if there is a correlation between education, poverty and wealth with crime in the areas. In addition, I will be conducting primary data in the form of a survey to compare how safe residents feel in the contrasting areas of Leicester. I will be using house pricing sites such as Zoopla to compare the different properties in the areas and why crime rates may differ in the two areas. I will also conduct a number plate assessment for the two areas, I will survey streets in both areas and produce a tally chart to assess car age. I plan to record the car age will be divided into two year sections but may change after my pilot survey.

Data collection: ☒ Individual ☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

Your title and proposal are closely tied to specification content (although you may wish to justify these links in more detail) and the questions are linked in logical sequence. You have thought carefully about the context and methodology relating to each sub-question. It is useful that you have gone further and indicated the way in which some of the data will be processed and analysed. You might consider other secondary sources to back up your findings.

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Full name _____

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Date

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Example NEA proposal: To what extent do carbon stores and rates of carbon sequestration vary between trees in Brankley Pastures and Cannock Chase?

NEA proposal

To be completed by the candidate

Investigation title To what extent do carbon stores and rates of carbon sequestration vary between trees in Brankley Pastures and Cannock Chase?

How the title links to the specification content

3.1.1.3: The carbon cycle. Major stores of carbon- biosphere. The investigation proposes to calculate the carbon stored in sample sites within two woodlands. 3.1.1.4: Water, carbon, climate and life on Earth. Human intervention in the carbon cycle designed to influence carbon transfers and mitigate the impacts of climate change. Human activity in the form of tree planting and management of forestry will be considered as an important factor.

Planned investigation hypothesis or question/sub-questions

I will investigate carbon stored in sample sites within the two woodlands in order to test the following hypotheses;

- 1: Carbon stores will be higher in a managed woodland than in an unmanaged woodland
- 2: Deciduous trees will have a greater carbon store than coniferous trees.
3. The rate of carbon sequestration will vary according to the tree type and age of tree

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

Brankley Pastures is a relatively small area close to my home area, which is a fully established wood yet completely unmanaged and contains both deciduous and coniferous vegetation. Cannock Chase also has mixed woodland and is sustainably managed through coppicing to promote increased biomass. Therefore these locations will be ideal to investigate my proposed hypotheses. I will expect to find higher carbon content at my chosen sites in Cannock Chase due to the management practices. Theory indicates that deciduous trees have a higher carbon content so I expect to find differences between these two types of tree across the two woodlands. Long-lived trees such as oak and beech are slow to mature therefore maximise carbon storage compared to fast growing species. Broadleaved trees have a higher biomass than coniferous species which in turn will affect the amount of carbon stored. The investigation will be able to demonstrate both the stock of carbon and the flux within two woodland contexts.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

Hypothesis 1. Primary data collection will be based on studying a 200m² area in each woodland through random sampling and measuring tree circumferences and heights, using a tape measure, clinometer and tree species identification card. To calculate the biomass in each tree, I will use the data to then calculate the tree volume and then average the findings in the sample area. I will then scale this up to calculate the average carbon content in a hectare of woodland in that area. There are standard equations to estimate living biomass of trees from the diameter measured at a height of 1.3 metres.

Hypothesis 2 Carbon storage will also be calculated by tree type, deciduous vs coniferous. A stratified sampling method will be used to ensure that the proportions reflect the woodland as a whole. It is intended to have a total sample of 50 trees.

Hypothesis 3. Tree age will be estimated from the girth of the tree, knowledge of the site and from evidence from felled trees. From this information the rate of carbon sequestration as mass of carbon can be calculated.

Data will be collected individually but I will ensure I have a friend with me for safety reasons. Secondary information will be important to help with the calculations of biomass and carbon sequestration as well as the use of maps and tree species ID cards.

Data collection: ☒ Individual ☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

You have a clear direction for your proposed study with three testable hypotheses. There is a slight danger that not all parts of this study will link together-the methodology and sampling strategy for the last of your hypotheses is not entirely certain and this needs more thought and research. Ensure that you know exactly how to conduct your calculations for carbon content and carbon sequestration in the trees as these can be complex. You will need to seek permissions to conduct these studies in each woodland and consider ethical issues too.

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Full name _____

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Date [Click here to enter a date.](#)

Example NEA proposal: How and why does perception of York differ between locals and tourists?

NEA proposal

To be completed by the candidate

Investigation title How and why does perception of York differ between locals and tourists?

How the title links to the specification content

The investigation is based around perception of place and how the factors of physical environment, land use and demographic characteristics such as age can influence perception. This links to Changing places 3.2.2.2: "The nature and importance of places...location, topography, physical geography, land use, built environment and infrastructure, demographic and economic characteristics...". "3.2.2.2.2 Meaning and representation" refers to "How humans perceive, engage with and form attachments to places and how they present and represent the world to others". This part of the specification also details how places are represented by external agencies (the media) and how this might influence perception.

Planned investigation hypothesis or question/sub-questions

My planned research questions are:

1. What differences in perception of York are there between local residents and tourists?
2. What is the relative importance of media representation and lived experience in determining individual perception of the study area?
3. What are the roles of physical environment and land use on individual perception of place?

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

The study area of central York is ideal for this study because of the variation in land use, population characteristics and built environment over short distances. Because of its cultural appeal the area is visited by large numbers of tourists and day visitors. Three different areas will be selected for survey in the central part and inner city of York.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

Question 1. Questionnaires aimed at both residents and visitors focusing on perception of the study area (stratified sampling, based on demographic criteria, 20 in each area); environmental quality-type survey of perception (random survey of 20 people in each of the survey areas); noise level measurements using decibel meter to see if there is a link between noise levels and perception score (systematic coverage of the 3 areas, with 8 recordings in each)

Question 2. Data collected from three news websites with regular news about York, resulting in media survey score based on positive and negative portrayal of the three areas (scores based on 30 day period); extension of questionnaires used in question 1 to include questions about lived experience and role of media.

Question 3. Land use of central York with buildings categorised and colour coded (complete coverage of the 3 study areas); subjective survey of physical environment using numbering scale -2-+2 (8 surveys in each of the 3 areas)

Data collection: ☒ Individual ☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

You have a well-structured study with research questions that should be generally testable. Your choice of title is effectively linked to the specification. There is potential to collect a wide range of data, and the scope of the investigation is broad, requiring extensive sampling of the three areas. How do you intend to select questionnaire respondents? Be clear about the geographical extent of the 3 study areas before you start the work. It may be a challenge to link the data required to test the 3 research questions and to collect comparable data for locals and tourists/visitors. Remember that it will be essential to have reliable and representative data for all aspects of the study. Sampling strategies are generally clear. Bear in mind the ethical considerations of questionnaire surveys, ensuring that personal or sensitive data is not requested. Permission needs to be sought if you are working in shopping precincts.

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Full name

Teacher signature.

Date

Example NEA proposal: What are the impacts of wind farms in North Cornwall on the surrounding landscape, people and economy?

NEA proposal

To be completed by the candidate

Investigation title What are the impacts of wind farms in North Cornwall on the surrounding landscape, people and economy?

How the title links to the specification content

3. 2.5.4 Energy security. Sustainable resource development. Strategies to increase energy supply, including development of renewable sources. Sustainability issues associated with energy production. Case study of a specified place to illustrate and analyse how aspects of its physical environment affects the availability of energy. This investigation will examine the suitability of the local environment for wind farming and the impacts of two windfarms of contrasting size on the local area.

Planned investigation hypothesis or question/sub-questions

1. To what extent is the physical environment suitable for the establishment of wind farms at Delabole and Truro?
2. What are the environmental effects of the windfarms at Delabole and Truro?
3. To what extent does distance from windfarms affect perception of their impacts?

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

The area selected for my investigation comprises two wind farms. One is small scale and long established whereas the other is newly constructed and much more prominent. Their construction caused widespread debate in the local area with strong views held by different interest groups.

The investigation will focus on the various impacts of development of this sustainable energy source and the balance of positive and negative impacts as perceived by local people. Wind energy environmental concerns include, noise, visual impacts, and avian/bat mortality. Wind farms can be cost effective and provide or support some local employment in rural areas.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

Question 1 - Base map and photographs of area labelled to show key land uses, distribution of turbines, access routes. Site descriptions of wind farm locations. Record wind speeds over a set period (1 month) to show variability.

Secondary data. Compare with published statistics. Obtain power output statistics for the windfarms studied, highlighting variation and efficiency.

Question 2 - Landscape evaluation (EQS) based on visual intrusiveness, landscape quality, attractiveness, agricultural land quality etc (systematic sampling of 10 sites at each wind farm) Species diversity survey. Noise survey-use decibel meter at points radiating out from wind farm to create sound map (sampling at 20 metre intervals) .

Question 3 - Questionnaires at varying distances from wind farm locations (stratified sampling according to age groups) aimed at local households-degree of support for wind farms, rating intrusiveness, noise, wildlife etc. Interview with farmer/landowner to find out reasons for scheme, subsidies, opposition and support.

Data collection: ☒ Individual ☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

The investigation covers 3 major elements-the scope is quite large and it is important that the various questions are linked as you carry out your work. Although the work is appropriate to the specification I wonder whether you are being too ambitious with your methodology. Altogether, there are 9 different methods, and whilst all are relevant to the enquiry, the priority is to obtain a representative sample of high quality data. Think carefully about whether you need them all. Sampling is indicated for some techniques but others need a little more thought. The centre has the basic equipment you are likely to require (and some might be available as apps on your phone). Be clear in your mind about how you will make contact with members of the public. How will you ensure that you have sufficient responses at different intervals? Is there scope for making more use of secondary data, which might reduce some of the work done elsewhere?

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Full name

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Example NEA proposal: To what extent do vegetation type, wind speed and precipitation intensity affect interception and throughfall rates within Sherwood forest?

NEA proposal

To be completed by the candidate

Investigation title To what extent do vegetation type, wind speed and precipitation intensity affect interception and throughfall rates within Sherwood forest?

How the title links to the specification content

3.1.1.2 Drainage basins as open systems – inputs and outputs, to include precipitation, evapotranspiration and runoff; stores and flows, to include interception, surface, soil water.. stemflow. The study will focus on interception which is a process whereby water is retained in vegetation canopies. Interception loss may take place as a result of evapotranspiration, before the precipitation becomes throughfall and stemflow. Throughfall is the precipitation that reaches the soil under the canopy whereas stemflow is the precipitation that reaches the soil via the stem and branches of the plants

Planned investigation hypothesis or question/sub-questions

1. Plant species differ in their rates of interception because of plant structure and leaf characteristics.
2. Precipitation (amounts, duration and intensity) affects interception rates. Higher precipitation leads to lower interception capacity.
3. Wind speeds will affect interception rates. Stronger winds result in lower interception capacity

Investigation focus – indication of how the enquiry will enable the candidate to address the investigation title and explore the theme in relation to the chosen geographical area

The mixed woodland area to be studied, within Sherwood, includes 4 different species of trees, 2 coniferous and 2 deciduous, which will form the basis of the investigation. Research suggests that interception loss varies between 15-35% for coniferous forests and 9-25% for broad-leaved forests, with values averaged over a year. My enquiry will take place in mid-summer which will mean that the leaf canopy will be atypical of the year as a whole. Other factors will be taken into account including the effects of precipitation intensity-it is likely that interception capacity decreases when vegetation becomes saturated during a rainfall event. Stronger winds result in lower capacities because vegetation is less able to hold water in the canopy-it is blown off the trees.

Planned methodology – indication of qualitative and/or quantitative techniques including primary and, if relevant, secondary data collection techniques. Indication of the planned sampling strategy or strategies

Hypothesis 1 Rain gauges will be made from empty water bottles, with tops cut off and placed upside down on the lower half of the bottle. After each rainfall event, all rainfall measuring plots will be visited to record the amount of throughfall under the trees. Stemflow will be neglected because of the difficulty of recording it. Gross precipitation will be measured in open fields nearby away from canopy influences. 8 different rain gauges will be set up under the 4 tree types with 2 other gauges set up in open fields.

Hypothesis 2 Precipitation data from local weather stations will be used to establish the duration of precipitation as well as its intensity over a short time. This will be used in conjunction with the rain gauge data to determine the importance of the precipitation factor

Hypothesis 3 Wind speeds will be recorded during each rainfall event in areas of open ground (to reduce the distorting effects of shelter at ground level).

Data collection: ☒ Individual

☐ Group

To be completed by the teacher

Teacher approval for the investigation or details of any necessary amendments that need to be made before approval can be given

You have the basis of a well-structured investigation and the theoretical context has been researched. You are right to identify various factors that affect interception, although others are difficult to measure and should be borne in mind when interpreting results. Be clear before you start how you intend to calculate interception. The challenge in this study will be to link the data required to test the 3 hypotheses together, and you may wish to reconsider whether all of these are feasible. Remember that it will be essential to have reliable and representative data for all aspects of the study. Sampling strategies are not entirely clear. What is the projected timescale for this investigation? Bear in mind also the practical and technical limitations such as accessibility of the plots, time taken to reach them and availability of space under the trees, with little or no risk of interference. Permission needs to be sought for working within the forest area

☐ Approved☒ Approved subject to the implementation of amendments above☐ Resubmission required

Full name

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Date

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Guidance on awarding marks and completion of CRF mark sheet for teachers

To meet Ofqual's qualification and subject criteria, students and teachers must complete and sign the CRF. Teachers must ensure that a CRF is provided with each student's investigation.

As well as annotating the work, teachers should make a summative comment for each area of the mark scheme on the CRF.

Teachers must show clearly how marks have been awarded against the assessment criteria in the specification. Teacher comments must help the moderator see where students have met the assessment criteria. They should:

- record comments on the CRF
- check that the correct marks are written on the CRF and that the total is correct.

Students' investigations must be internally assessed by centres, and annotated to indicate how and why marks have been awarded. Where marking has been carried out by more than one teacher in a centre, there must be a process of internal standardisation carried out to ensure that there is a consistent application of the assessment criteria. This helps to ensure fairness, accuracy and reliability.

There are a total of 60 marks available for 7037/C: Geographical investigation. A mark should be awarded for each of the four areas of the mark scheme and added together to reach a total out of 60 marks. It is possible that students may achieve very different marks/levels for each section of the marking criteria. Marks are allocated according to the level of competency demonstrated for each area individually.

The marking should be on a 'best fit' principle. A judgement of performance is made for each criterion or section, and a 'best fit' judgement is made for the two or three criteria, awarding an overall level for that area of the mark scheme. There is no weighting of the criteria – they are equal. If a student's work meets all criteria in a particular level, this should be awarded the top mark in the level. An answer does not have to meet all the requirements of a level descriptor before being placed in that level. The extent to which it meets all the requirements of a level descriptor will determine its placement within that level. Note the uneven number of marks in each level.

There are four levels of achievement for each assessment criterion. Each area of the mark scheme is divided into either two or three criteria. Area 1 has two criteria whereas the other areas have three. When assessing the work, the teacher should identify the level for each individual criterion based on the descriptors in the mark scheme. When this has been determined, a decision must be taken on whether the work is placed at the 'bottom', 'middle' or 'top' of this mark range. A mark can then be confidently awarded. It may be helpful to indicate the position in the level using + and – symbols.

An overall level is then produced for the area of the mark scheme, taking into account the levels awarded for individual criteria. This is converted into a mark. For example, the teacher

may assess Area 1a as Level 2+ and Area 1b as Level 3. Therefore the overall level for Area 1 is Level 3-. Using the mark allocations in the mark scheme, the student is awarded 6 marks.

It is possible that students may achieve very different levels for each criterion of the mark scheme. For instance, a student may develop an effective research question which is fully linked to the specification (Area 1a Level 4) but the literature review may only be partially relevant and theoretical context inconsistently stated (Area 1b Level 2). Levels are allocated according to the degree of competency demonstrated for each criterion individually, which have equal weighting in each area.

The mark scheme should be applied **positively**. Students must be rewarded for what they have shown they can do rather than being penalised for omissions. All the marks on the mark scheme are designed to be awarded. Teachers should award full marks if deserved and should be prepared to award zero marks if the student's response is not worthy of credit according to the mark scheme.

In addition to the levels and marks given on the marking grid, teachers can make comments on each area of the mark scheme in the right-hand box of the mark sheet to justify or support the marks awarded. This may be a summative comment for each of the four areas of the mark scheme or may be split into the individual criteria.

The following sections detail considerations when marking each area of the NEA. There is a separate table for each strand of the mark scheme. Each table presents questions and key takeaways that can assist when marking each strand. This information is not to be used in place of the mark scheme but to provide further guidance.

Area 1: Selecting a suitable title and developing a theoretical context

Mark scheme content	
To define the research questions which underpin field investigations (AO3).	
Has the student...	- Identified a suitable research question which can be investigated using fieldwork techniques? - Identified the pertinent areas of specification content and commented on them?
Key takeaways	- Note the two parts to this strand: Title, research question(s) /hypotheses. - Link to the specification. - In the mark scheme, 'complete referencing' means that the study includes the relevant wording of the specification content and a suitable comment as to how it's relevant. 'Secure referencing' might mean that the relevant wording of the specification is used, but there's more limited additional comment or rationale, or that the meaning is stated less directly.

Mark scheme content To research relevant literature sources and understand and write up the theoretical or comparative context for a research question (AO3).	
Has the student...	• Researched a range of relevant literature sources? • Demonstrated understanding of the theoretical or comparative context? (Comparative context refers to the outcomes of other investigations on this topic that have been undertaken in the past.) • Demonstrated good practice in terms of referencing and using a bibliography system?
Key takeaways	Note that numbers aren't stated; a range of sources might be three or more. Purposes: • To help set the context, e.g. locational details (geology map, large scale OS maps etc). • To explore parallel examples and places. • To get the most up-to-date thinking about a topic or subject. • To explore local opinions and to see how these fit in with national thinking on an issue. • To explore geographical models and theories that may be relevant to the idea or focus.

Area 2: Selecting and applying the appropriate methodology

Some, or all, of your work must be undertaken outside the classroom in the field as first-hand (primary) data has to be collected. This may include work undertaken at field study centres. This work can be undertaken independently or as part of a group. Any data you collect from other written sources is classed as secondary data, and it must be collected independently.

Sampling size and type should also be considered. Many investigations rely on a representative sample from the parent population. This population may, for example, be pebbles on a beach, trees in a forest or residents in an area. 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 and so are unreliable and can lead to incorrect interpretations and explanations. Large samples can become unwieldy and difficult to process.

Sampling may be random, systematic, stratified, clustered, opportunistic or a combination of these. It is important to be able to justify the decisions you make about sampling.

Mark scheme content To observe and record phenomena in the field and devise and justify practical approaches taken in the field including frequency/timing of observation, sampling, and data collection approaches (AO3).	
Has the student...	- 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? - Designed a valid sampling framework explicitly linked and appropriate to the geographical focus being investigated? - Given consideration to the frequency and timing of observations?
Key takeaway	Note that this strand is a combination of justification of methodology, sampling strategies, frequency and timing.

Mark scheme content To demonstrate practical knowledge and understanding of field methodologies appropriate to the investigation of human and physical processes (AO3).	
Has the student...	- 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 (i.e. are they fully replicable)?
Key takeaway	This strand focuses on the description and explanation of methods, and how replicable they are.

Mark scheme content To implement chosen methodologies to collect data/information of good quality and relevant to the topic under investigation (AO3).	
Has the student...	- Shown evidence of collecting the relevant data based on the methodologies described (i.e. have the various methods been executed in the field)? - Collected data of suitable quality appropriate to the chosen theme?
Key takeaway	This strand considers whether the methods have been implemented and the quality and quantity of data collected.

Area 3: Presenting, analysing and interpreting data

The data presentation section should not be isolated - it is best integrated into the analysis and interpretation of results.

Mark scheme content To demonstrate knowledge and understanding of the techniques appropriate for analysing field data and information and for representing results, and show ability to select suitable quantitative or qualitative approaches and to apply them (AO3).	
Has the student...	- Chosen a range of presentation techniques that are appropriate and well selected? - Chosen suitable techniques to support the analysis of findings? - When appropriate, used statistical analysis to explain data and information? - Shown ability to select quantitative and/or qualitative approaches and to apply them to the investigation? - Shown knowledge and understanding of the techniques selected for presentation and analysis?
Key takeaway	The strand focuses on the appropriateness of presentation and analysis techniques.

Mark scheme content To demonstrate the ability to interrogate and critically examine field data in order to comment on its accuracy and/or the extent to which it is representative, and use the experience to extend geographical understanding (AO3).	
Has the student...	- Analysed and interpreted the field data/information collected? - Commented on the accuracy and reliability of the data collected? - Indicated the extent to which the data constitutes a representative sample?
Key takeaway	This strand considers the interpretation of data, plus the accuracy of data and the degree to which it's representative.

Mark scheme content To apply existing knowledge, theory and concepts to order and understand field observations (AO2).	
Has the student...	- Applied knowledge and understanding to find links between the investigation and the broader geographical context? - Looked into if there's evidence of insight into the connections between the information collected and other aspects of geography? Students will need to address the synoptic elements of their study.
Key takeaway	This strand focuses on the application of geographical theory to the results, and should refer back to the theoretical context stated in the literature review.

Area 4: Drawing meaningful conclusions and evaluating each aspect of the investigation

Mark scheme content To show the ability to write up field results clearly and logically, using a range of presentation methods (AO3).	
Has the student...	- Produced a structured and logically sequenced report, following the stages of geographical enquiry? - Used a mix of presentation techniques that are embedded within the report?
Key takeaway	This strand assesses the overall presentation of the study, its structure and coherence.

Mark scheme content To evaluate and reflect on fieldwork investigations, explain how the results relate to the wider context and show an understanding of the ethical dimensions of field research (AO3).	
Has the student...	- Provided an appraisal of the reliability of the evidence and validity of analysis and conclusions reached? - Given an overall evaluation and reflection on the success of the investigation? - Shown how the results collected fit into a wider context? - Considered the ethical dimensions of field research?
Key takeaway	Note that evaluation includes consideration of validity of results and conclusions as well as effectiveness of methodology.

Mark scheme content To demonstrate the ability to write a coherent analysis of fieldwork findings in order to answer a specific geographical question and to do this drawing effectively on evidence and theory to make a well-argued case (AO3).	
Has the student...	- 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?
Key takeaway	Note the importance of summarising the main findings based on evidence and linking these to theoretical background.

Addressing mark scheme misconceptions

This section addresses some common misconceptions of the NEA mark scheme. This information is not to be used in place of the mark scheme but to provide further guidance for the delivery and marking of the NEA. These are grouped by the areas of the mark scheme.

Area 1: Selecting a suitable title and developing a theoretical context

Misconception: Once approved, the CRF can't be changed.

In reality, the proposal form is a way of managing changes and adaptations within the investigation. It may be important to revise and review this throughout the various stages on the route to enquiry. It is not an inflexible blueprint. As long as the title and main structure doesn't change, students can adapt their methods and research questions, e.g. to reduce the number of methods or sub-hypotheses.

Misconception: Evidence from the CRF can't be used when assessing the work.

Information given in the CRF can sometimes be used to support the assessment of the NEA, e.g. details about links to the specification (Area 1a) or about methodology (2a/b). This may be important if it is missing from the written report.

Misconception: The title simply states the purpose of the investigation in general terms.

Poor titles lead to poor investigations. The title needs potential for analysis; the question should be open, not closed, and a clear link to the specification. Avoid titles that begin with 'to find out', 'to explore', 'to investigate' and ensure an assessment of something is in the title, e.g. 'how far does...?', 'to what extent?', 'how and why?'.

Less successful investigations often have flaws in the title, for example where students tried to assess success, effects or impacts. It's often difficult to assess impacts, as few students can effectively obtain baseline data prior to new developments or redeveloped sites. There must be clear indicators to measure success, sustainability or impacts should be identified at the outset.

Titles should include a clear locational and theoretical context. Successful enquiries are based on areas at an appropriate local scale with clear geographical logic. They should be capable of being answered (even if only tentatively) using a range of data which is appropriate for the age group and can be collected in four days. Students need to be reassured that real data is unlikely to fit perfectly so answers may be partial, tentative and incomplete – to reflect the sometimes messy geography of the real world.

Below are examples that all have an evaluative focus, a theoretical or conceptual element and a locational context. Most can be studied at a manageable, small scale:

Human geography titles	Physical geography titles
To what extent does media representation of [location] accurately represent local lived experience of place?	How important is geology in determining cliff height, shape and gradient at [location]?
How do gender and ethnicity influence perception of place in [location]?	To what extent do the benefits of the coastal management strategies used on [location] beach outweigh the costs?
How and why have the demographic and cultural characteristics of [location] been shaped by shifting flows of people?	How and why does the amount of carbon sequestration differ between managed coniferous and natural deciduous forests on a local scale?
To what extent has migration affected the provision of shops, services, restaurants and places of worship in [location]?	Analysis of the impacts of footpath erosion on the local ecology of [location] tourism hotspots.

Misconception: Listing the specification content is all that is required to access Level 4.

‘Complete referencing’ (Level 4) means that the study includes the relevant wording of the specification content and a suitable comment as to how it’s relevant.

‘Secure referencing’ (Level 3) means that the relevant wording of the specification is used but there’s more limited additional comment or rationale, or meaning is stated less directly.

“Imprecise referencing” (Level 2) means that the links are not entirely clear and are too generalised or lacking detail. There is unlikely to be justification or rationale for the link.

“Tentative referencing” (Level 1) means that the student might quote broad areas of the specification or simply state the specification topic. No justification or additional comment are provided.

Misconception: The research question should be split into three or more sub questions or sub hypotheses.

This much depends on the nature of the fieldwork research. Students shouldn’t feel that they have to follow the same formula when devising their titles and sub questions. Some topics lend themselves to a single aim or question/hypothesis. It is not a good idea to split the study into more than three or, at most, four sub questions/hypotheses. When divided up to this extent, work becomes fragmented and liable to lose continuity and coherence. It is often good practice to have an evaluative question (to what extent) and a title that includes both the theoretical and geographical context.

Misconception: The comparative context means that students need to collect data from at least 2 different places.

Comparative context refers to the outcomes of other investigations on this topic that have been undertaken in the past. This is likely to be considered in the literature review. Note that a comparative context is not always feasible and it is possible to achieve Level 4 for this strand by providing a thorough theoretical context. The mark scheme states “...write up the theoretical or comparative context for a research question”.

Misconception: To access Level 4, the students must refer to a wide range of literature sources, likely to exceed a dozen or more.

There is a widespread belief that the literature review should be an exhaustive list of multiple sources. The best studies focus on a limited number of sources and apply them to their study effectively; in both a theoretical and spatial context. They were pertinent to the study, considered different perspectives, were fully referenced and acknowledged, and were thoroughly embedded into the report. A range means a minimum of three (Level 4). It is important that the sources chosen are appropriate and that they provide an underpinning theoretical context for the investigation. The literature review is used to:

- give an overview of geographical theory/generalisation/concept/process that is being investigated through the NEA
- explore parallel examples and places
- Provide some context for the place where the research is being carried out.

Misconception: Literature review sources can simply be listed at the end of the report.

The bibliography should provide details of the secondary sources that have been used in the research, either as guides or as sources of information. Any diagrams or text that have been used or copied from secondary sources must be acknowledged. The most successful reports use specific referencing with footnotes and a full bibliography at the end of the report.

The following is referencing advice for common sources used in the literature review:

- Book - Name of the author(s), year published, title, publisher, pages used.
- Newspaper - Name of the author(s), year published, article title, newspaper name.
- Online source - Name of the author(s), year published, page title, website name, available at URL. Also give the last date you accessed it.

Misconception: The literature review is mainly intended to set the scene in the introduction.

Some see the literature review as a separate component largely unrelated to the rest of the study rather than an integral part that should be referred to at key points during the investigation. The most successful NEAs refer to geographical literature throughout the report. It is essential to link back to the theoretical geography when your data is being analysed and interrogated. For example, ‘My graph shows this ... which supports the theory that... as discussed in ... [name of source]’ (3b/3c).

It helps to provide a conclusion to the report, for example, ‘The [name of source] suggests that the process works like this ... However, what I actually found in my research was ... ’ (4c)

Common areas of weakness include:

- a selection of web pages giving background to the location with very limited geographical theory
- lengthy lists of apparent sources in a bibliography, but little or no evidence of these being used in the written report
- complex theoretical information at the beginning of their investigation, but this not used or alluded to in the rest of the investigation.

Misconception: The literature review should be a very detailed and comprehensive part of the report.

Some students write a long literary review, as many as 1,500 words, with reference to 10 or more sources of information. This may look great, but actually it's out of proportion and unnecessary. The whole NEA should only be around 4,000 words long and an effective literature review can be quite short; perhaps only 500 words. On the other hand, showing that the geographical theories, concepts, or processes that underpin the investigation is an important element of the report. So, a good report deals with the literature clearly in the introduction and then continues to make references to it in other places in the report whenever relevant.

Area 2: Selecting and applying the appropriate methodology

Misconception: A large number of data collection methods, both quantitative and qualitative, are needed to meet the requirements of the NEA.

Some students are highly ambitious with their methodology and will adopt a scattergun approach, using every conceivable method, regardless of its direct relevance to the research question. It is not essential to include both quantitative and qualitative techniques. A range of methods (at least three methods) is required to access Level 4. Methods should be appropriate to the research question and systematically linked to each sub-question/hypothesis. Stronger investigations demonstrate evidence of a well-designed planning phase, often including a piloting strategy, careful selection of a range of three to six appropriate methods, clear indication of the number of sites visited and surveys undertaken, explanation of the sampling techniques involved and justification of the methods being adopted in relation to the purpose of the enquiry.

In assessing 2a, the focus is on justification for each of the methods adopted, but the strand also includes consideration of sampling strategies (type and rationale), frequency and timing. Ideally group and/or individual contributions should be clearly identified.

Misconception: It is sufficient to provide a brief outline of each method, and to rely largely on secondary data sources.

The majority of studies achieve an appropriate balance between primary and secondary data. The main thrust of data collection should be primary, although secondary data is often useful to support many studies. Some enquiries have an over reliance on secondary data, eg some human geography investigations based on urban inequalities where IMD and census information predominated, with the addition of an EQS or a few photographs as the only primary sources. A step-by-step explanation of each technique should be given, almost as a set of instructions. With the most successful studies describing the detail of the methods

employed, clearly and without repetition. Methodology tables can be a useful way of ensuring that all parts of the mark scheme are addressed. Some often include other strands of the mark scheme, especially 4b evaluation.

Misconception: Primary data collection can be completed quickly, perhaps just a few hours, relying on a small sample size.

Small data samples are unlikely to be representative or provide useful and conclusive evidence. With many studies it is important to collect data at different times to investigate temporal change or from multiple locations to investigate spatial patterns. For example collecting wind and wave measurements on a single occasion is clearly insufficient to draw conclusions about prevailing winds and longshore drift processes.

Spend adequate time collecting data in the field (one to two days?). High quality and suitable quantity of data are both crucial, as they affect reliability and accuracy. Note that students can share data collected in groups if they are working together on similar themes, and that this is often an effective way of generating a larger and more useful sample.

Area 3: Presenting, analysing and interpreting data

Misconception: Statistical analysis is essential to access higher levels in the mark scheme.

Analysis doesn't always need statistical testing. However, where used appropriately, the results help to inform the analysis. The first stage in analysis is the interpretation of the data presented in relation to the original aims/questions/hypotheses. Statistical testing may form part of the analysis, which should follow on from more simple description and explanation of the patterns, trends and differences identified. The overemphasis on statistical testing tends to lead to the neglect of simple descriptive analysis. Where statistical tests are used, the best studies explain why they were used, show evidence of the calculations made and use the results to inform the analysis. If used, students should demonstrate an understanding of the limitations of the tests, e.g. Spearman's Rank. Many candidates used the test when there are too many tied ranks which makes the test invalid. Others applied the test when there were too few samples; using it with three or four pairs is pointless. Chi-square is another misused test. This test is inapplicable if too many expected values are zero or less than one. It is essential to state the significance of the result and to provide a geographical conclusion to the outcome.

Qualitative analysis includes well annotated photographs, mapping with superimposed symbols and annotations, or colour coding and graphical representation of interview transcripts. Polarising, theming, categorising or making linkages when coding text can be part of qualitative analysis.

Misconception: All data items should be presented visually/graphically, particularly where numerical data is involved.

A range of techniques to represent and analyse data should be used, but it is important for students to be selective about the material presented, especially from a questionnaire. Avoid an indiscriminate approach where multiple graphs are produced with little reference to the material in the text. It is important that presentation techniques include necessary conventions: clear titles, labelled axes, keys and appropriate scales. It is crucial to consider the

suitability of the techniques used as opposed to a rigid number of qualitative and quantitative skills. Complexity of technique is not the main criterion; it is more important to focus on the appropriateness of the presentation or analytical method adopted. Many students opt for 'safe' and very straightforward means of presenting data, such as numerous basic graphical technique. Although these may be appropriate, they often lack a spatial element.

Misconception: Systematic description of the data collected is all that is needed to be awarded Level 4.

Some students lose sight of their original aims/hypotheses when interpreting the graphs/maps so that it is the data there that is written about without always linking back to the initial purpose. The focus should be on punchy interpretation of selected data, linked to each sub question/hypothesis. Stronger responses at Level 3 and 4 make links to their initial purpose and often cross reference data sets (with data manipulation where relevant), being aware of the extent to which aims are met. The best scripts include logical and organised interpretations, with precise and plausible reasons for the results obtained, including anomalies. Students should also indicate the degree to which the data is representative as part of the critical examination of the field data. The accuracy of data is also part of this strand.

Misconception: Results can be analysed and interpreted in isolation, with little or no reference to the underlying theoretical context.

Underpinning theory should be integrated into the analysis and to help explain the results. The key ideas/concepts/models that form the basis of the literature review should play a crucial part in the interpretations of data (and conclusions). The most successful students tend to make links to theoretical understanding throughout their reports and include logical and organised descriptions with precise explanations of results with some data manipulation: patterns and trends identified, showing understanding of the 'bigger picture', connections between data sets and explanations for anomalous results.

Area 4: Drawing meaningful conclusions and evaluating each aspect of the investigation

Misconception: Assessment of 4a 'To show the ability to write up field results clearly and logically, using a range of presentation methods' is exactly the same as 3a, it only refers to the data presentation techniques.

This part of the mark scheme requires the student to produce a structured and logically sequenced report, following the stages of geographical enquiry and to use a mix of presentation techniques that are embedded within the report with results written up clearly and coherently. It focuses on the overall presentation of the report, its organisation, structure, sequence and clarity. All forms of presentation should be assessed here, including location maps, photographs etc.

Misconception: Evaluation of the investigation is mainly about logistical problems associated with methodology.

An effective evaluation should be multi-faceted, examining critically several of the strands of enquiry. This includes consideration of validity of results and conclusions as well as reflection

on the methods of data capture. Students should suggest realistic ways to extend and improve their studies and identify avenues for further research. They may reflect on their findings in relation to the original task set and realise the tenuous nature of their conclusions in relation to the broader geographical context. Some students use evaluation tables to ensure that all aspects of evaluation are covered, including successes, limitations of methodology, impacts on accuracy and reliability, ethical issues and possible further research.

Misconception: The ethical dimension is the same as a risk assessment.

The ethical dimension deals with issues in collecting the data which may impact on people and/or environment. It should be specific to the investigation methods rather than a generic list of points. It may involve being aware of cultural differences and of the possibilities of causing offence through manner or dress, building 'consent' and 'confidentiality' into questionnaires and interviews and generally avoiding causing problems for the public such as blocking pavements or interrupting trade.

In physical geography, main ethical considerations relate to consent and access to study sites and potential damage; it could include concerns over trampling, damage to plants and animals or possible pollution, including litter or contamination of study sites. Risk assessment is an important part of planning but is not creditworthy in the mark scheme unless it touches upon ethical issues.

Misconception: The conclusion is largely a summary of findings based on the data collected.

The most successful conclusions are kept quite concise, they should not repeat the analysis but draw evidence together. A good conclusion will provide a clear overview and return to the underpinning theory and literature review to discuss the extent to which the hypotheses are supported by evidence, allowing them to progress into a natural conclusion in relation to their overall question or title. Conclusions should be evidence-based and not just assumptions.

Stronger reports will recognise the tenuous nature of the conclusions and avoid a dogmatic approach, especially where the evidence is partial or limited. The conclusion can be written on a hypothesis-by-hypothesis basis, but an overall summative conclusion is advised, to draw the various strands of enquiry together.

Sample Mark sheet with teacher comments

Title of investigation: Polish immigration promotes stability, growth and development in Lincoln's Park and Abbey wards.

To be completed by the teacher

Marks must be awarded in accordance with the instructions and criteria in the specification.

Area	Level	Overall level	Mark	Comment
Area 1. Introduction and preliminary research 10 marks (a) To define the research questions which underpin field investigations (AO3)	4	4	10	1a. Effective research title taken directly from the specification on global systems, with clear rationale. The link to the specification is clearly stated in the aims (p2) and developed further e.g. on p6. Level 4 1b. Comprehensive, balanced and relevant literature review, fully referenced in footnotes e.g. p4, p5 and bibliography p 27. Theoretical context is well understood and fully stated. Locational/comparative context shown clearly on p3. Level 4
(b) To research relevant literature sources and understand and write up the theoretical or comparative context for a research question (AO3)	4			
Area 2. Methods of field investigation 15 marks (a) To observe and record phenomena in the field and devise and justify practical approaches taken in the field including frequency/timing of observation, sampling, and data collection approaches (AO3)	4	4-	13	2a. 8 different techniques used to gather data, including some secondary methods. Justification for each method is fully stated in the method table, and generally linked back to title. Sampling strategies are indicated and justified eg random sampling for EQS, stratified sampling for questionnaires. Size of sample and frequency of observation is indicated for most surveys. Detailed use of approaches. Thorough justification of methodology Level 4 2b. Clear demonstration of Knowledge and Understanding relevant to the investigation. Some methods are explained fully, but others have missing details eg EQS, p8, questionnaires, photos p7. Rationale for questions is shown in appendix - annotation of field survey sheets. Level 3+ 2c. All techniques are followed up and implemented. Data is of good quality and relevant to the investigation Level 4+
(b) To demonstrate practical knowledge and understanding of field methodologies appropriate to the investigation of human and physical processes (AO3)	3+			
(c) To implement chosen methodologies to collect data/information of good quality and relevant to the topic under investigation (AO3)	4+			

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Area 3. Methods of critical analysis 20 marks			
(a) To demonstrate knowledge and understanding of the techniques appropriate for analysing field data and information and for representing results, and show ability to select suitable quantitative or qualitative approaches and to apply them (AO3)	4		
(b) To demonstrate the ability to interrogate and critically examine field data in order to comment on its accuracy and/or the extent to which it is representative, and use the experience to extend geographical understanding (AO3)	4		
(c) To apply existing knowledge, theory and concepts to order and understand field observations (AO2)	4	4	3a. A wide range of techniques is used, including land use maps of Polish areas p12, pie charts eg p13, 18, 23 dot maps, p13, isoline maps p14, located proportional circles p15, bar graphs p15, 16, located bars p18, 19, located proportional circles p 20, 22, choropleth map p 20, word cloud p20, radar graphs p22, dispersion graph p23. Some statistical analysis. Thorough ability to select suitable methods for analysis and presentation. 3b. Results are fully interrogated. Each set of results is considered and links made between data sets. Data is thoroughly manipulated and reasons given. Some recognition of limitations of sample size eg p26 email survey. Level 4 3c. Links are made with theoretical context throughout, with further references to literature eg p21. Effective application Level 4 20

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Area 4. Conclusions, evaluation and presentation 15 marks (a) To show the ability to write up field results clearly and logically, using a range of presentation methods. (AO3)	4+			
(b) To evaluate and reflect on fieldwork investigations, explain how the results relate to the wider context and show an understanding of the ethical dimensions of field research. (AO3)	3+			4a. A well-structured investigation, based on a single research question. The report covers all aspects of the enquiry route, and includes several appendices. Wide range of presentation methods, effectively embedded in the report. Level 4.
(c) To demonstrate the ability to write a coherent analysis of fieldwork findings in order to answer a specific geographical question and to do this drawing effectively on evidence and theory to make a well-argued case. (AO3)	4+	4	14	4b. Each method is systematically evaluated, although the account occasionally strays into suitability of presentation techniques rather than reflecting on whole investigation. Suggestions for improvement or further research not explicitly stated. Limited comment on validity of conclusions. Ethical dimension not considered separately, but issues incorporated in discussions of methodology and interpretation. Methods evaluated in methodology table p7-10. Secure evaluation and reflection on the fieldwork investigation. Level 3+ 4c. Clear connections made with initial research question. Conclusions strongly supported by evidence, Thorough and coherent conclusions drawn, relating results to wider context.
	Total (60 marks)		57	

Advice on annotation of student work

Teachers may use abbreviations and brief comments to provide evidence of the areas and strands of the mark scheme, e.g. '1a Research question identified, 1a Secure link to specification 1b Limited literature review 1b Inconsistent theoretical context.' There is no expectation that annotations go into details that include the reasons why marks are awarded.

At the end of each section of the work, a summative level for the relevant area and strand of the mark scheme should be indicated, e.g. 1a Level 3+ , 1b Level 2-. Plus and minus symbols may be used to indicate if the level awarded is close to the top or bottom of the level.

In some cases more than one area or strand of the mark scheme might appear on the same page. For instance, in a methodology table there may be evidence of two aspects of methodology (2a, 2b), as well as some evaluative comments (3b or 4b) or reference to the ethical dimension (4b).

It is not recommended to state a level next to a specific item such as an individual presentation or analytical technique.

For the purpose of moderation, avoid the use of adjectives and descriptions that are not linked to the mark scheme. For instance, making comments such as 'outstanding work', 'excellent description' or 'superb presentation' is not helpful in justifying the marks awarded. Teachers may wish to add a brief comment on some or all the annotations, but this is not essential.

Example of annotation of student work

The following piece shows part of an investigation report with sample annotations linked to the mark scheme. As per the guidance outlined previously, these annotations use abbreviations to indicate where different aspects of the marking criteria are being address.

Note that the levels awarded are indicated at the end of each section only (Introduction and methodology). It is not usually helpful to place levels intermittently through the study. For some criteria, evidence may be found in different parts of the written report, particularly for strands such as 2c (implementation of chosen methodologies), 3c (application of knowledge, theory and concepts), 4a (ability to write up field results and include a range of presentation methods) and 4b (evaluation, wider context and understanding of ethical dimension).

Aim

This investigation will decide if Polish immigration promotes stability, growth and development in Lincoln's Park and Abbey Wards, linking in with the specification as Global Systems 3.2.1.2 says 'unequal flows of people ... can sometimes act to promote stability, growth and development'. In order to do this, the core area of Polish settlement in each ward needs to be delimited (Objective 1) to see how data collected in these areas compares to data collected in areas not associated with Polish migrants. This should allow the comparison of the ways in which native Britons and Polish immigrants are affected by unequal flows of people (Objective 2). The collection, presentation and analysis of primary and secondary data should also permit the assessment of attitudes towards Brexit found amongst native Britons and Polish immigrants (Objective 3).

1a: Relevant link to spec

1a: Research question with three objectives

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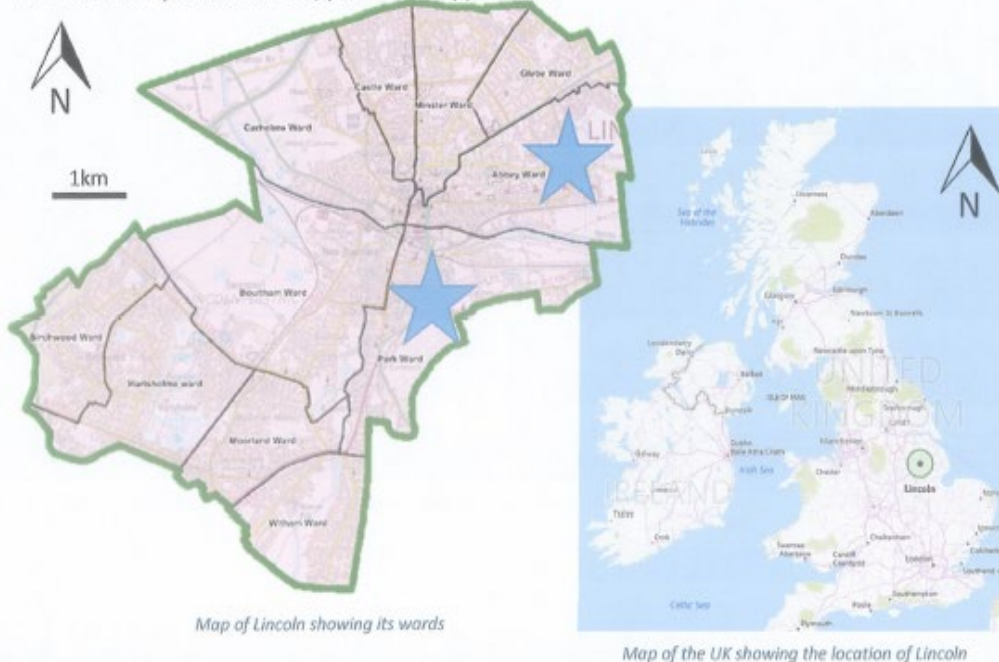
4a: Evidence of sequence and organisation

Introduction

The words 'stability', 'growth' and 'development' in the title are given very loose meanings for the purpose of this investigation. Stability will be seen if Poles have similar effects on Lincoln to native Britons as this means that their migration has not caused disruption. Growth and development are interpreted very similarly as they are both to do with Lincoln improving in some way, with growth especially being associated with the economy.

In each of the eleven Lincoln wards, Polish is the most common non-English first language¹ so Lincoln as a whole suits the investigation title. The specific area of focus was originally just supposed to be Abbey Ward as this is where Monks Road is, an area many of Lincoln's native Britons associate with Polish migrants. However, it seemed wrong to not include Park Ward, home to 'Mała Polska' (Little Poland), as it is known to the migrants. Both of these areas seemed suitable for an investigation into Polish migration. For example, they are inner city areas, so fit in with the theory of the inner city being where immigrants go. It is also clear without even beginning a proper investigation that evidence of Poles such as shops and TV satellite dishes are found there.

For words and phrases in **bold**, please see Appendix A.



¹ City of Lincoln Council *Lincoln Community Cohesion Strategy 2013 - 2018* p6
<https://www.lincoln.gov.uk/resources/assets/attachment/full/0/5701.pdf> [18/09/17]

1b:
Theoretical
context

1b: Clear
locational
context

Literature review

In order to get some context for the investigation, some research was done and the most useful pieces of literature are discussed here. Okólski and Salt² have retrieved their information largely from UK census data so is based on fact. It is also the latest census so should be up-to-date, but was carried out over 5 years ago, before **Brexit**, so the information may no longer be as relevant. That said, their work is still more useful than Kurekova's³ as they specifically deal with Polish migration whilst she deals with Central and Eastern European migration as a whole. Finally, Hawkins and Moses'⁴ work should be reliable because they were working for the government so would have had access to the largest possible range of up-to-date, detailed information. However, they may have a political agenda. Furthermore, they have not gone into as much detail as the others.

Polish immigration promotes stability:

The transition from a **communist** to a **capitalist** economy was very quick and drastic, leading to labour market imbalances and mismatches between newly-emerged employment opportunities and skill structures inherited from the old regime. For example, there was a strong focus on the **primary sector** in the **communist** economy, in order to repay foreign debts accrued to pay for grand **socialist** projects. As a result of this, Poland lacked socio-economic stability so Poles sought it elsewhere. Many believed the UK would provide this stability due to its passive and active labour market policies, family support and good access to healthcare, which would greatly affect their everyday lives. (Kurekova)

In comparison with all families in the UK, a much larger proportion of Polish families are married couples with dependent children, reflecting the Polish immigrant population's younger age-structure (mainly due to the fact that younger people are more prone to search abroad for 'decent

² Okólski, M and Salt, J (2014) *Polish Emigration to the UK after 2004; Why Did So Many Come?*

<http://www.ceemr.uw.edu.pl/vol-3-no-2-december-2014/articles/polish-emigration-uk-after-2004-why-did-so-many-come> [17/06/17]

³ Kurekova, L (2011) *Theories of migration: Conceptual review and empirical testing in the context of the EU East-West flows*

http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKFwiI99L1itzVAHXKBcAKHafLAIsQFggoMAA&url=http%3A%2F%2Fcream.conference-services.net%2Fresources%2F952%2F2371%2Fpdf%2Fmecsc2011_0139_paper.pdf&usq=AFQjCNF3XikGF8HAvf6SbFNW4uCATK4f-g [17/06/17]

⁴ Hawkins, O and Moses, A (2016) *Polish population of the United Kingdom*

<http://researchbriefings.files.parliament.uk/documents/CBP-7660/CBP-7660.pdf> [17/06/17]

1b: Relevant literature sources support theoretical context

1b: Clear referencing of sources

work and better living conditions, education, family reunification and for humanitarian reasons⁵). This shows the structure of Polish migrant families to be one which promotes stability. (Hawkins and Moses)

Polish immigration promotes growth and development:

The main motive for Polish migration to the UK was employment, through which Poles hoped to achieve growth and development. They generally attained this as they were happier than native Britons to work for minimum wage or less. This is because minimum wage in the UK still tends to allow Poles to earn more than they would in Poland as the monthly minimum wage in Poland is €497.91 whilst the monthly minimum wage in the UK is €1354.17.⁶ The UK government granting immediate access to the British labour market when Poland joined the EU was another important factor in why many Poles chose the UK over other countries. This is important because it shows the UK believed it was **interdependent** with Polish migrants- both would gain growth and development from Polish migration. (Okólski and Salt)

A big factor in why Polish migrants should, in theory, bring a great deal of growth to the UK's economy, is that most are young, coming to the UK just as they join the **economically active** population and remaining for their time as a part of it. (Hawkins and Moses)

Polish immigration does not promote growth and development:

Employment of Polish migrants for minimum wage or less has allowed employers to avoid capital investment that would have increased productivity as it means people, as opposed to expensive machinery and technology, are the resources. For example, farmer Guy Poskitt has had to invest \$2.8 million into an automatic carrot grading machine to do the work of the 22 migrant workers he has lost due to Brexit.⁷ Therefore, even though Poles may achieve personal growth and development, this can be at the expense of the UK as people are not as efficient as machinery and technology in terms of manual labour. (Okólski and Salt)

⁵ International Labour Organization *Why do young people migrate?* http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_219045/lang-en/index.htm [30/09/17]

⁶ Eurostat (2017) Minimum wage statistics http://ec.europa.eu/eurostat/statistics-explained/index.php/Minimum_wage_statistics [30/09/17]

⁷ Beard, S (2017) *UK farms replace EU migrants with machines* <https://www.marketplace.org/2017/01/09/world/uk-farms-start-replace-eu-migrants-machines> [30/09/17]

Conclusions from literature reviewed:

In terms of relating these findings back to the title of 'Polish immigration promotes stability, growth & development in Lincoln's Park & Abbey Wards', the literature is not specific to the locations that will be investigated, but presents ideas which could be relevant to them. For example, due to Poland's history of instability, it is relatively easy for other countries to be stable for Poles in comparison, hence the lack of evidence for them not promoting stability. However, whether or not Polish immigration promotes growth and development seems more up for debate. On the one hand, Polish migrants can grow and develop their careers due to migration. On the other hand, perhaps their growth and development is at the expense of the growth and development of native Britons. Therefore, 'unequal flows of people ... can sometimes act to promote stability, growth and development but can also cause inequalities, conflicts and injustices'.

1a: Research hypothesis identified with clear rational for study

Commentary

1a: Level 4 Link to specification clearly stated. Research question effectively identified.

1b: Level 4 Comprehensive, balanced and relevant literature review that is fully referenced. Theoretical context well understood. Locational/comparative context shown.

2b:
Explanation of
methods
relevant to
investigation

2a:
Justification of
methods

4b: Evaluation
of methods,
pros and cons

Methodology

	How?	Why?	Positives	Limitations
Delimiting survey	Walk around Park and Abbey Ward, plotting evidence of the Polish communities on an Ordnance Survey map using a key.	To delimit the core area of Polish settlement in Lincoln on an Ordnance Survey map.	People are more likely to be off work and school in the summer, meaning more evidence to record. No proper sampling type so can be carried out quickly and easily.	May miss some evidence, meaning the result isn't completely accurate.
Photos	Take a series of images from Google Maps' Street View, showing evidence of Park and Abbey Wards' Polish communities.	To delimit the core area of Polish settlement in Lincoln on an Ordnance Survey map.	No proper sampling type so can be carried out quickly and easily. Done online so less time consuming than walking around Lincoln. Measures to respect people's privacy (e.g. blurring faces) will have already been taken by Google, again making it less time consuming.	The images might be old and therefore, not representative of the modern day situation.
Polish questionnaires (see Appendix B)	Formulate a questionnaire based on research into how to make them successful. ⁸ Print 50 and write on their intended recipients which are decided upon according to Polish immigrant demographics. ⁹ Give them out to Poles at St Hugh's Catholic Church.	To find out if Poles sought stability, growth and development when immigrating and whether they feel they attained these things. In 2011, 87.5% of Poles identified as Roman Catholic ¹⁰ so St Hugh's should provide a fair representation of Poles.	Reasonable amount and proportional allocation of questionnaires makes a fair overall representation of views more likely. Questionnaire format means I do not have to be present whilst they're filled in so less time consuming.	Immigrants may go back to Poland over the summer, meaning fewer potential participants. The allocation of questionnaires is based on data that is over 10 years old and not specific to Lincoln.

⁸ Burgess, T (2001) *A general introduction to the design of questionnaires for survey research*
<http://iss.leeds.ac.uk/downloads/top2.pdf> [01/07/17]

⁹ CRONEM (2004) *Polish migrants survey results* p4
https://www.surrey.ac.uk/cronem/files/CRONEM_BBC_Polish_survey%20results.pdf [01/07/17]

¹⁰ GUS (2013) *Narodowy Spis Powszechny Ludności i Mieszkań 2011* p99
http://stat.gov.pl/download/cps/rde/xbcr/gus/LUD_ludnosc_stan_str_dem_spo_NSP2011.pdf [01/07/17]

British questionnaires (see Appendix C)	Formulate a questionnaire based on research into how to make them successful. (Burgess) Print 50 and write on their intended recipients which are decided upon according to Lincoln's demographics. ¹¹ Give them out to native Britons on Lincoln High Street.	To find out how native Britons' stability, growth and development has been affected by Polish immigration. The High Street will have a wide range of people on it so should provide a fair representation of Lincoln residents.	Reasonable amount and proportional allocation of questionnaires makes a fair overall representation of views more likely. Questionnaire format means I do not have to be present whilst they're filled in so less time consuming. People are more likely to be off work and school in the summer, meaning more people on the High Street and thus, more potential participants.	Cannot factor out Polish people in British demographics.
Environmental quality surveys (see Appendix D)	Put a grid over Park, Abbey and Minster Wards and make 10 coordinates for each using Google's random number generator. Complete the Royal Geographical Society's environmental quality survey at each of these points.	To see how the more Polish Park and Abbey Wards compare to the more British Minster Ward- do the levels of stability, growth and development differ between more Polish and more British areas? As a result of this, how is Polish immigration affecting native Britons?	Only a few areas to visit and in a close proximity to each other so should be quick and easy. Random sampling reduces prior planning and bias. Comparing to Minster Ward makes it more reliable as the south is affluent and the north is more deprived so it gives a fair representation as Lincoln as a whole. It also borders the inner city like Park and Abbey Wards, limiting variables.	Only 10 areas in each ward may not be representative of the whole area. Surveys done in the summer holiday may not be indicative of the whole year. The randomly selected areas may be an unfair representation. Some of the survey points may be inaccessible.

2b: Detailed knowledge and understanding of methods

2a: Sampling type and size indicated

2a: Well-reasoned justification linked to title

4b: Clear evaluation of methods

3b: Reference to sampling reliability

2

¹¹ The Policy Team (2016) *The Lincoln City Profile – 2016* pp15-16
<https://www.lincoln.gov.uk/EasySiteWeb/GatewayLink.aspx?allid=23392> [01/07/17]

Bipolar landscape evaluations (see Appendix E)	Plot survey points at the beginning, middle and end of the High Street and Portland Street and connect these with lines to form a grid of more survey points. Plot 6 survey points equally spaced along Monks Road in Abbey Ward and alternate between adding another point above and then below, in between these. Formulate a bipolar landscape evaluation and complete 1 at each of these points and 1 in the core area of settlement of the other wards bordering the city centre.	To focus in more on the effects on Polish migration on the immigrants themselves as opposed to native Britons- how does their core area of settlement differ from those of the nearby more British wards?	Only a few areas to visit and in a close proximity to each other so should be quick and easy. More systematic sampling means a fairer spread of survey points and therefore, a better representation of the whole area.	Only 11 areas in Park Ward and 12 in Abbey Ward may not be representative of the whole area. Surveys done in the summer holiday may not be indicative of the whole year. Some of the survey points may be inaccessible.
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2b: Detailed explanation of method

2a: Justification of method

4b: Evaluation of method

3b: Aware that sample size and type may not be representative

Emails (see Appendix F)	Email academics at UCL's School of Slavonic and East European Studies and Lincoln University, representatives of Lincoln's UKIP branch, the Embassy of the Republic of Poland in London and the British Polish Chamber of Commerce, Lincoln's MP, Park and Abbey Wards councillors (including the Mayor of Lincoln), the head teachers of the primary schools Monks Abbey, St Peter At Gowts and Bishop King and Lincolnshire Police.	To find out if these people believe Polish immigration promotes stability, growth and development and to see if they have information that may help with the project. Also, to collect Park and Abbey Wards crime data from 2003 so it can be compared to the 2017 data in order to see if there has been stability, growth or development as a result of Poland joining the EU, allowing Poles to migrate.	Academics will have more time to respond over the summer holiday as students will have gone home. Academics should be highly knowledgeable about the topic area with access to more information than me, so data collected should be very useful and reliable. Those contacted cover people who represent both sides of the argument e.g. UKIP is likely to say negative things about Polish migration whilst the Embassy of the Republic of Poland in London will probably be in favour of it.	Unlikely to get many responses as not many people are qualified for what is needed out of this type of data collection. Academics and head teachers may not be willing to do work outside of term time. Some of the people contacted will not be able to answer specifically to Lincoln.
Online research (see Appendix G)	Look online for information to fill in any gaps in the investigation left by the other data collection methods e.g. find deprivation data for Park, Abbey and Boultham Wards.	To ensure the investigation is cohesive, covering all the relevant points, and that there is a range of evidence on whether Polish immigration promotes stability, growth and development.	No proper sampling type so can be carried out quickly and easily.	The data will be secondary so will not know how accurate it is.
	2b: Explanation of method	2a: Thorough justification	4b: Evaluation of method	

Commentary

2a: Level 4 Detailed use of approaches. Justification for each method (eight) stated clearly. Sampling strategies are indicated.

2b: Level 3+ Clear demonstration of K and U of methods relevant to investigation.

2c: Level 4 (see later evidence). All techniques followed up. Data is of good quality and relevant to investigation.

Further support and guidance

Contact our team

8am–5pm Monday to Friday

Tel: 01483 477 791

Email: geography@aqa.org.uk

NEA Advisors

All A-level AQA Geography Centres have an assigned geography specialist as a dedicated NEA advisor that can be contacted via email. Exams officers are informed of their contact details each academic year. Contact us if you do not have access to these details.

Teacher online standardisation (TOLS)

TOLS is found on [Centre Services](#) and is an on-demand resource that can be accessed at any time. There are selection of previous NEAs that the programme allows you to mark then receive feedback on your marking, alongside the principal moderators' marks and a summary of why these marks were received. You'll be able to find these by using the following steps:

- log in to Centre Services
- click 'Pre-exams'
- click 'Teacher online standardisation'
- this will redirect you to the TOLs page
- click the 'GCE' option near the bottom of the TOLs page
- chose 'GEOGRAPHY ADV NEA 7037/C' under the Humanities banner
- clicking the menu at the top right of the page will allow you to navigate through standardisation.