**Investigating and Research Skills at
AS/A GCE Geography**

**Teacher Guidance**

These resources have been prepared to develop student’s investigating and research skills and techniques at KS5 in preparation for external assessments at AS and A level.

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Resource materials and interactive activities have been developed to help learners set success criteria, develop key ideas and a sequence of questions for their investigations. The units exemplify how to use sources and data collection; how to present and analyse data before drawing conclusions and evaluating the investigation.

The resources can be used by a teacher, using a data projector and an interactive whiteboard, as a focus for discussion with the whole class or alternately they are suitable for independent use by students as they research and plan their investigation. The units may also be used as a revision tool prior to an examination. Some screens contain documents that can be downloaded and printed for completion by the students.

The units focus on skills related to the five stages of the enquiry approach which are documented in Appendix 1: Stages Relating To The Enquiry Approach.

The stages include:

1. Planning
2. Data Collection
3. Data refinement and display
4. Description analysis and interpretation
5. Conclusion and evaluation

The units do not include all stages of a complete investigation but exemplify the skills required at each stage so that that students can then embed these skills within their own investigations. The stage that is being highlighted is clearly noted in the title of the unit and the overview of coverage is explained in Appendix 2: Investigating and Research Skills – Overview.

The investigations included at AS level are:

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|  | **Investigation 1** | **Investigation 2** | **Investigation 3** |
| **Topic** | **Hydrology**  | **Counterurbanisation** | **Retail Patterns** |
| **Key** **Question** | What impacts do physical factors have on infiltration and overland flow? | What are the impacts of counterurbanisation on a small village? | What is the impact of competition from out of town retail locations on the CBD?  |

A level investigations include:

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|  | **Investigation 4** | **Investigation 5** | **Investigation 6** |
| **Topic** | **Deprivation** | **Microclimates** | **Deprivation** |
| **Key** **Question** | Does deprivation decrease with distance from the city centre? | Does Snowdon show characteristics of a mountain microclimate? | How do patterns of deprivation vary across a city?  |

**Using the Units**

The resources are very straight forward to use with simple navigation and other functions located on the tool bar as shown below.

Tools

Move forward and back

Go to Page

Full Screen

Print

Tools
Support

If a navigation arrow is located on a screen (rather than on the tool bar) then click on the arrow to reveal additional screens before moving on.

Some screens are supported with downloadable documents which can be adapted, saved and printed. A coloured symbol as shown here will appear in the bottom right hand corner of a screen where these documents are available.

As a small number of screens link directly to other websites to access maps, aerial photographs and data it is advised that these units are used on a computer **that has access to the Internet.**

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| **Appendix 1** **Stages Relating To The Enquiry Approach** |
| **1. Planning** |

* Develop your knowledge of the topic by consulting geographical literature or searching the Internet.
* Decide on issue to be investigated and develop your knowledge of the places being studied.
* Decide on the location for the investigation and develop your knowledge of the place(s) being studied.
* Visit your chosen location for a pilot survey.
* Undertake a risk assessment.
* Obtain any equipment (if required) checking availability and how to operate it.
* Prepare recording sheets/ design questionnaire surveys.
* Decide on sampling strategy/ies.
* Check weather conditions if relevant.
* Decide on day, date and time of survey.
* Arrange appointments if your investigation involves interviews/visits.

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| **2. Data Collection** |

* Identify a clear question, hypothesis or issue. Developing sub questions may help to bring greater clarity to complex investigations.
* Justify the reasons for selecting the location and the data set(s) you plan to collect.
* Briefly outline the geographical context of your investigation.
* Describe your field area with words and an annotated base map; you could also give some background information about the area.
* Describe how you collected the data for your study. Include recording sheets and/or sample questionnaires.
* Explain the sampling technique(s) used and justify your choice(s).
* Briefly discuss any difficulties/ factors affecting your enquiry (e.g. bad weather) and possible bias when collecting information.

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| **3. Data Refinement and Display** |

* Refine the data into tables.
* Use a range of appropriate graphical techniques to present the data accurately and clearly. Justify your choices.
* Include field sketches and annotated photographs.
* Include any cartographical (mapping) techniques. Justify your choices.
* Evaluate your methods of presentation – how effective are they in showing the data you collected. Would alternative methods have been better?

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| **4. Description, Analysis and Interpretation** |

* Describe and analyse each set of data. Summarise the data using measures of central tendency (mean, median and mode) and dispersion (standard deviation). Use other refining activities that may be relevant such as scaling, ranking and weighting.
* Look for relationships between the data shown on the graphs and where appropriate use correlation
* Discuss your findings using your geographical understanding of the topic, answering each sub-question in turn.

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| **5. Conclusion and Evaluation** |

* Summarise the conclusions you have been able to reach about each of your sub-questions. Your conclusions must be effective and acceptable, linking directly back to the questions.
* Evaluate the methods of data collection and sampling techniques used.
* Comment on the strengths and weaknesses of the study as a whole and the importance of obtaining accurate and reliable data.
* Suggest further research that could be carried out and/or questions to be answered.

**Appendix 2**

**Investigating and Research Skills - Overview**

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|  | **Investigation 1** | **Investigation 2** | **Investigation 3** |
| **Investigation Framework** | **Hydrology**  | **Counterurbanisation** | **Retail Patterns** |
| **Planning** | The aspects of planning in this unit include, choosing a suitable location for the investigation and how to conduct a risk assessment of the location. Sampling is also discussed and the unit ends with a planning activity. | The planning elements in this unit include an understanding and being able to recognise the features of counterurbanisation. Attention is given to asking relevant sub-questions and developing a methodology for sampling and gathering data. |  |
| **Data Collection** |  | A questionnaire is used to gather data in the village and a detailed introduction to questionnaire design is included. The sampling methodology discussed in the first unit is illustrated in the context of the investigation. | A variety of methods of gathering data relating to a retail study are outlined including the use of Goad maps, pedestrian counts, photographs, interviews and questionnaires. Appropriate sampling methods are also discussed. |
| **Data Refinement and Display** |  |  | Attention is given to the advantages and disadvantages of different graphing techniques. Flow diagrams, the effective use of photographs and the use of talking heads are also discussed.  |
| **Description Analysis and Interpretation** |  |  | Some activities regarding analysis and interpretation are included in the unit above. |
| **Conclusion and Evaluation** | Guidance on writing an effective conclusion to an AS GCE investigation. Having completed the unit the guidance may be applied to the students’ own work. |  |  |
|  | **Investigation 4** | **Investigation 5** | **Investigation 6** |
| **Investigation Framework** | **Deprivation** | **Microclimates** | **Deprivation** |
| **Planning** |  |  |  |
| **Data Collection** | Before exemplifying several data collection methods attention is given to the definition of deprivation and to its characteristics. Methods of data collection both primary and secondary are exemplified including questionnaires, bi-polar surveys, field sketches and mental maps. |  |  |
| **Data Refinement and Display** | This section gives students opportunities to evaluate methods of data display according to set criteria including compound and stacked bar graphs and radar charts. A model exam answer with commentary is also included. |  | An outline of the work developed in the two previous stages is included before several methods of data presentation are evaluated. Annotated photographs, dispersion graphs, proportional circles and located bar graphs are included in the unit. |
| **Description Analysis and Interpretation** |  | The section includes a number of screens introducing the work to this point with detailed reference to data collection methods. Scatter graphs, bar graphs and the Spearman Rank Correlation Coefficient are included in the analysis and interpretation work. | The unit focuses on the analysis of the quality of the environment along the transect. Certain contrasting areas are compared and the description, analysis and interpretation are clearly noted for each one. An example examination answer is included at the end of the work. |
| **Conclusion and Evaluation** |  | The projects strengths and weaknesses can be discussed with an interactive activity. Guidance on writing an evaluation is provided with two evaluations written under exam conditions. Mark schemes and comments are included. |  |