

Unit 2: Investigation/field study

Introduction

The investigation/field study provides learners with the opportunity to carry out a practical investigative project. This project recognises the importance of collecting, analysing and evaluating data to answer a question or support a hypothesis.

The unit requires the learner to plan, carry out and evaluate the project, to find out if the evidence supports their initial question or hypothesis. The validity, reliability and accuracy of the data must also be examined to ensure that the conclusion reached is robust. The learner will present their findings to a selected audience.

The investigation/field study requires the learner to manage the project and to take responsibility for adhering to safe working practices. It provides opportunities to develop skills in problem solving, decision making and communication. The learner is also introduced to the specialist techniques involved in an investigation/field study.

It is estimated that the investigation/field study will be between 4000-5000 words in length, tending towards the lower end where significant quantities of quantitative data are involved. Learners will not be penalised for producing work outside the suggested word count, but they should ensure their word count allows them to meet the assessment objectives.

Learning outcomes

On completion of this unit a learner should:

1. Be able to identify, plan and manage an investigation or field study
2. Be able to undertake research, collect evidence and select information using appropriate methodology
3. Be able to interpret evidence, draw conclusions and write up results into a finished investigation or field study
4. Be able to present findings, conclusions and an evaluation to an audience.

The assessment evidence presented by the learner must evidence all the above outcomes

QCF unit summary

Outcome Number	Learning Outcome The learner will:	Assessment The learner can:
1	Be able to identify, plan and manage an investigation or field study	identify the main objectives for the project provide an appropriate plan with risks identified use organisational skills and strategies appropriately
2	Be able to undertake research, collect evidence and select information using appropriate methodology	select relevant information from appropriate sources obtain data or information relate resources to the research question or hypothesis
3	Be able to interpret evidence, draw conclusions and write up results into a finished investigation or field study	write up the investigation/field study, using appropriate style and structure interpret evidence gathered and present data appropriately draw conclusions
4	Be able to present findings, conclusions and an evaluation to an audience.	review and evaluate the project and own learning present the project outcomes in an organised manner, engaging with audience and responding to questions.

Unit content

1 Be able to identify, plan and manage an investigation or field study

Identifying and planning the project

Learners should select a topic from an area which interests them. They should conduct a literature review to help them narrow down the topic to a working title, which is likely to be in the form of a question or hypothesis. Before they begin, learners should be clear about what they plan to investigate and how they will do it.

Learners should ensure the following when finalising their question or hypothesis:

- Required primary and secondary sources are identified in advance and learners have ensured that these are accessible during the project
- Required resources are available to the learner to use.

As part of their proposal, learners must complete the Project Proposal Form (Annexe B). This must be signed off by the teacher-assessor before any further work can be carried out. For further information, see pages 56-57). The title/topic must be considered suitable by the teacher-assessor, be capable of investigation and suitable in size and scale to be completed in the time available.

Completed project proposal forms should include objectives and a rationale for their choice of topic/title. They should also identify the proposed activities that they will need to undertake, for example:

- Background reading
- Conducting research and collecting data
- Analysing information and drawing conclusions
- Writing up the project, checking and re-drafting
- Evaluating the project and own learning
- Preparing for the presentation.

Plans should also include the resources that they will require and an attempt to prepare for contingencies.

Managing the project

During the course of the project, learners must keep individual 'project activity records' which document its progress, the activities undertaken and decision-making process, eg by means of a diary, IT logging system or records of periodic reviews with the teacher-assessor.

Learners should monitor their own progress, adapting their plan and adjusting their timelines where necessary; where this occurs, this should be recorded in the project activity records

Summary of evidence required from learner

- The project proposal form
- Project activity records.

2 Be able to undertake research, collect evidence and select information using appropriate methodology

Learners should:

- research, analyse and interpret information from primary/secondary sources
- extract, interpret and summarise information
- show connections between ideas, information, sources, etc
- present the research in a coherent, well-organised manner
- be independently motivated and seek out their own research material.

Learners should select a range of secondary sources that contain information appropriate to their question or hypothesis. Information can be gathered from a range of sources (eg books, journals, internet). Learners should assess the usefulness and validity of evidence and reference them clearly in their report, using a consistent system of referencing. References should make clear which author is being quoted, and from where the quotation comes. There should also be a bibliography which uses an appropriate and consistent format.

In contrast to *Unit 1: Dissertation*, in *Unit 2: Investigation/Field Study* learners are expected to use relevant data collection methods, eg measurements, observations, experiments, surveys, questionnaires. Learners therefore need to understand why valid data collection methods are important. They must consider the accuracy and reliability of data that they will collect, to ensure that the measurements and observations can be reproduced by others. Learners need to understand that the materials, procedures and calculations that they select must be the most appropriate for their investigation/field study. Learners should demonstrate that they have considered variables and used control methods where appropriate.

They should use their chosen techniques safely to collect their data, with careful use of materials and equipment. The collection of data should be methodical and well organised.

Summary of evidence required from learner

- Research carried out. This is likely to be contained within relevant sections of the written up investigation/field study (see learning outcome 3 below).

3 Be able to interpret evidence, draw conclusions and write up results into a finished investigation or field study

The write-up of the investigation/field study needs to be organised. There are different possible ways of structuring it, which may vary depending on the nature of the question and the type of research carried out. One possible structure is as follows:

- Introduction
- Literature review
- Methods
- Results and discussion
- Conclusion
- References and bibliography.

The different sections should all follow each other in a logical manner.

The introduction will include an explanation of the question or hypothesis and a rationale for the choice of this question, eg why it is important or interesting to the learner.

The literature review should describe previous studies that are relevant to the question (see also learning outcome 2 above).

The methods section will describe what was done and summaries of the data or findings obtained (see also learning outcome 2 above).

The results and discussion section is where the results are analysed and interpreted and links made to previous work. For quantitative studies, learners should analyse their data, searching for patterns and trends within it. Suitable calculations (eg statistical tests) should be carried out where appropriate. Learners should make a case for a particular interpretation.

There should also be a conclusion, summarising what has been found in relation to the original question or hypothesis. There should also be recommendations, eg how their results can be used by others, wider implications, suggestions for further work, etc.

Learners should be encouraged to plan and draft their work before producing the finished piece of writing.

Care should be paid to the presentation of the writing, with appropriate use made of headings, paragraphing, page numbering, labelling of diagrams, and font size and style. Learners should also take care to use language accurately and appropriately, eg spelling, grammar, punctuation, technical language, and an appropriately neutral or formal style.

For more information about the referencing and bibliography, see learning outcome 2, above.

Summary of evidence required from learner

- The write-up of the investigation/field study.

4 Be able to present findings, conclusions and an evaluation to an audience

The evaluation

Learners must produce an evaluation of the project. Some or all of it could be included within the write up of the field study/investigation itself, or it could be a separate piece of work.

The evaluation should aim to address the following areas:

- The extent to which they achieved what they set out to achieve
- Possible weaknesses in, and limitations of, their methodology and interpretations
- How well they performed at different stages of the project
- What they would do differently next time and why
- What they have learned about process of conducting research and writing a field study/investigation, and how useful this has been to them
- What they have learned about their own strengths and weaknesses and how they could make use of this in the future.

The presentation

The findings should be presented to an audience. This should summarise what the field study/investigation is about, what was done, the findings, and conclusions that can be drawn from it.

It must be appropriate to the selected audience, in terms of length, language used, room selected and conditions, and also any handouts and ICT used.

The presentation must demonstrate the use of appropriate communication skills and the learner should be able to respond to questioning from the audience in a capable manner.

Further information about the presentation is given on pages 53-54.

Summary of evidence required from learner

- The evaluation
- The presentation and any supporting material.

Mark grid for Investigation/field study

Investigation/field study -AO1 - Manage

Band 1	Band 2	Band 3
<p>The question or hypothesis is identified and developed with a lot of guidance, support and assistance from the teacher-assessor.</p> <p>The project plan gives objectives for the project and a brief rationale. Most of the main tasks to be completed are provided in an appropriate order. The learner chooses an effective methodology and data collection techniques with a lot of guidance from the teacher-assessor. Some potential problems and risks are identified and there are basic ideas for how to overcome them.</p> <p>The learner shows limited organisational ability and time management skills when managing the project. The learner maintains cursory records of activities undertaken during the project. There is some monitoring of own progress.</p>	<p>The question or hypothesis is identified and developed with some guidance, support and assistance from the teacher-assessor and is then finalised and refined by the learner.</p> <p>The project plan gives clear objectives for the project and a clear rationale. All of the main tasks to be completed are provided in an appropriate order and described. The plan includes information on how learners will organise their time in order to meet the project objectives. The learner chooses an effective methodology and data collection techniques some guidance from the teacher-assessor. Potential problems and risks are described and there are realistic and convincing ideas for to overcome them.</p> <p>The learner shows reasonable organisational ability and time management skills when managing the project. The learner maintains clear records of activities undertaken during the project, including problems encountered and steps taken to overcome them. Progress is monitored against the original plan.</p>	<p>The question or hypothesis is identified and developed with limited guidance, support and assistance from the teacher-assessor but is then finalised and refined independently by the learner.</p> <p>The project plan is clear and concise, with clear and detailed objectives and rationale. All of the main tasks to be completed are provided in an appropriate order and described in detail. The plan includes detailed and realistic information on how the learners will organise their time in order to meet the project objectives, with an appropriate time span allocated for each task. The learner chooses an effective methodology and data collection techniques some limited guidance from the teacher-assessor. Potential problems and risks are described in detail and listed in order of likelihood and seriousness and there are realistic and convincing ideas for to overcome them.</p> <p>The learner shows a high level of organisational ability and time management skills when managing the project. The learner maintains clear and detailed records of activities undertaken during the project, including problems encountered and steps taken to overcome them. Progress is monitored against the original plan and adjustments made to the plan where necessary.</p>
1-3 marks	4-6 marks	7-9 marks

See pages 51-52 for guidance on how to allocate marks

Investigation/field study- A02 - Use resources

Band 1	Band 2	Band 3
<p>Some resources have been used and investigated.</p> <p>Data collection techniques are used with some success but with some guidance from the teacher-assessor. Information and resources have been selected and some of this is directly relevant to the research question. Information has been collated in reference to the research question posed.</p> <p>There are attempts to establish links and connections between the information used, but some of these may be tenuous. Some understanding of the less complex areas of the research topic has been shown.</p> <p>There is some referencing of sources and a bibliography is included, listing most of the sources.</p> <p>1-4 marks</p>	<p>A range of different types of resources have been used and investigated.</p> <p>Data collection techniques are used successfully with limited guidance from the teacher-assessor. Information and resources relevant to the research question has been selected. Information has been analysed in reference to the research question posed</p> <p>The learner has established clear links and connections between the information used. A reasonable understanding of the complexities of the research area in general, and the research question in particular, has been shown.</p> <p>Sources are referenced appropriately and a bibliography is included, listing the sources in an appropriate format.</p> <p>5-8 marks</p>	<p>A wide range of different types of resources have been used and thoroughly investigated.</p> <p>Data collection techniques are successfully and independently used by the learner. Information and resources relevant to the research question has been carefully selected. Information has been analysed and synthesised in reference to the research question posed.</p> <p>Clear, concise and detailed links have been established between the information used. A thorough understanding of the complexities of the research question has been shown. Learners have placed the research question into a wider context of the research area.</p> <p>Sources are referenced appropriately and consistently and a bibliography is included, listing the sources in an appropriate and consistent format.</p> <p>9-12 marks</p>

See pages 51-52 for guidance on how to allocate marks

Investigation/field study- AO3 - Develop and realise

Band 1	Band 2	Band 3
<p>An attempt has been made to structure the investigation/field study, using sections.</p> <p>Information is generally presented in a logical order although some of this may not be wholly relevant. Some use is made of techniques that aid clarity, eg numbering, headings, paragraphing, labelling. Language errors (eg grammar, syntax, vocabulary) may sometimes be intrusive but they generally do not interfere with communication. Some technical terms are used.</p> <p>The content shows some understanding of the topic and an attempt to answer the agreed hypothesis or question. Some trends or patterns in the data are identified. There is a brief conclusion that summarises the findings</p>	<p>The investigation/field study is structured in sections and there is some evidence of the ability to link them together coherently.</p> <p>Information is presented in a logical order and is generally clear and relevant. Generally effective use is made of techniques that aid clarity, eg numbering, headings, paragraphing, labelling. There are few language errors (eg grammar, syntax, vocabulary), which are generally not intrusive and do not interfere with communication. Technical terms are generally used appropriately.</p> <p>The content shows good understanding of the topic area and findings that relate directly to the agreed hypothesis or question. The main trends or patterns in the data are identified and analysed. Where appropriate, some mathematical calculations are performed. There is a clear conclusion that summarises the findings. There are some suggestions for further work.</p>	<p>The investigation/field study is well structured, with appropriate sections that are linked together coherently throughout.</p> <p>Information is presented in a logical order and it is consistently clear and relevant. Effective and consistent use is made of techniques that aid clarity, eg numbering, headings, paragraphing, labelling. There are few language errors (eg grammar, syntax, vocabulary) which are not intrusive and they do not interfere with communication. Technical terms are used consistently and effectively.</p> <p>The content shows a thorough and perceptive understanding of the topic area and a clearly argued and well-thought out interpretation that answers the agreed hypothesis or question and is supported by several lines of argument. Trends or patterns in the data are identified and analysed perceptively using relevant models and theories. Where appropriate, mathematical calculations are performed. There is a clear and well developed conclusion that proficiently summarises the findings. There are well-thought out suggestions for further work and an awareness of any wider implications.</p>
1-8 marks	9-16 marks	17-24 marks

See pages 51 -52 for guidance on how to allocate marks

Investigation/Field study-AO4 - Review

Band 1	Band 2	Band 3
<p>Overall the learner shows some self-awareness when evaluating the project and the extent to which they have achieved their aims. The learner attempts to identify both their own strengths and weaknesses in general and also more specifically the limitations of their project's methodology and interpretations. However these may not always correspond with other evidence seen by the teacher-assessor as part of the project. The learner identifies some basic ideas for what they could do differently next time. They have drawn basic conclusions about the process of researching and writing an investigation/field study that could help them in future.</p> <p>The presentation is structured so that the audience can see that there has been some attempt to organise it logically. If an oral presentation is given, it is generally audible, although it is likely that the learner relies heavily on supporting materials, eg notes or cue cards. Where visual aids are used, these attempt to support the presentation, although they may not be clearly visible to the audience and may contain too much information.</p> <p>Some questions are answered and the learner shows reasonable subject knowledge.</p>	<p>Overall the learner shows good insight and self-awareness in evaluating the project and the extent to which they have achieved their aims. The learner is generally successful at identifying and explaining both their own strengths and weaknesses in general and also more specifically the limitations of their project's methodology and interpretations. These generally correspond with other evidence seen by the teacher-assessor as part of the project. The learner describes ideas for what they could do differently next time. They have drawn clear conclusions about the process of researching and writing an investigation/field study that could help them in future.</p> <p>The presentation is structured so that it is reasonably clear to the audience how it is organised and how the different parts link together. If an oral presentation is given, it is audible, although it is likely that the learner relies on supporting materials, eg notes or cue cards, but there are parts of the presentation that are not simply read aloud. Where visual aids are used, these are relevant and are reasonably effective at supporting the presentation. They show reasonable clarity and design.</p> <p>Questions are answered reasonably clearly and effectively and the learner shows reasonable subject knowledge.</p>	<p>Overall the learner shows a high level of insight and self-awareness in evaluating the project and the extent to which they have achieved their aims. The learner is highly adept at identifying and analysing in detail both their own strengths and weaknesses in general and also more specifically the limitations of their project's methodology and interpretations. These correspond well with other evidence seen by the teacher-assessor as part of the project. The learner explains and justifies ideas for what they could do differently next time. They have drawn clear and perceptive conclusions about the process of researching and writing an investigation/field study that could help them in future.</p> <p>The presentation is clearly and logically structured so that it is completely clear to the audience how the different parts link together. If an oral presentation is given, it is clearly audible throughout. The learner may make some use of supporting materials, eg notes of cue cards, but the presentation is not simply read aloud. Where visual aids are used, these are relevant and are consistently effective at supporting the presentation. They are clearly visible to the audience, are well designed and do not contain too much information.</p> <p>The learner handles questions calmly and confidently. Questions are answered clearly and insightfully and the learner shows good subject knowledge.</p>
1-3 marks	4-6 marks	7-9 marks

See pages 51-52 for guidance on how to allocate marks

Total marks out of 54.