

Unit 4: Undertake an Investigative Project in the Land-based Sector

Unit code:	M/601/0021
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

This unit aims to provide learners with an understanding of the principles of undertaking an investigative project and how this can be put into practice. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or to further education and training.

● Unit introduction

Research projects are often undertaken within the environmental and land-based industries in order to create or improve a product, service or process. The ability to undertake or assist in such a project requires important skills that will influence the project's success. This unit gives learners the opportunity to develop project management skills by investigating a chosen topic area through a project of their choice. The knowledge and skills developed in this unit will link to and enhance most of the other units learners take as part of their programme of study.

Learners will explore the topic areas that interest them and are relevant to their career aspirations. They will reduce these to one topic area that will form the cornerstone of their investigative project. Learners will plan for their investigative project study by researching a chosen topic area and produce a breakdown of resources and a project action plan. Health and safety will be considered throughout and learners will carry out a risk assessment before starting their project.

Learners will implement, carry out and complete their investigative project. They will work towards deadlines and monitor the project performance. Learners will prepare an evaluative report that will look at how the project performed, if the schedule plan met the project aims and objectives, and how improvements could be made in the future.

● Learning outcomes

On completion of this unit a learner should:

- 1 Be able to identify and research a suitable topic for an investigative project in the environmental and land-based sector
- 2 Be able to plan for an investigative project in the environmental and land-based sector
- 3 Be able to carry out an investigative project in the environmental and land-based sector
- 4 Be able to report on an investigative project in the environmental and land-based sector.

Unit content

1 Be able to identify and research a suitable topic for an investigative project in the environmental and land-based sector

Topic: aims; objectives; reason for project; suitability (career aspirations); potential difficulties; legitimacy; comparison of relevant topics

Research project: information gathering eg internet, library, discussion, media

2 Be able to plan for an investigative project in the environmental and land-based sector

Work breakdown: resources eg people, time, buildings, equipment, materials, media (internet, trade magazine), IT applications, budget

Schedule plan: aims; objectives; start date; completion date; operations (tasks); timings (resource availability); contingency planning; disrupting factors eg resource limitation, external influences; remedial actions eg extra resources, schedule revision

3 Be able to carry out an investigative project in the environmental and land-based sector

Project: implementation (set-up, start); operations (tasks, duties); monitoring of performance against schedule plan eg daily progress, weekly progress, monthly progress, budget, other appropriate measures, for each resource and/or task; deadlines; completion; health and safety; communication

4 Be able to report on an investigative project in the environmental and land-based sector

Report: aims; objectives; schedule plan; summary of work; unforeseen circumstances; results; evaluation (strengths, weaknesses); bibliography, referencing; presentation of report (written, verbal)

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
<p>P1 list information sources relevant to the topic to be researched [IE]</p>	<p>M1 explain the reasons for choosing a selected investigative project in the environmental and land-based sector</p>	
<p>P2 carry out research into potential topics [CT]</p>		
<p>P3 select and describe a relevant investigative project topic in the environmental and land-based sector [IE, CT]</p>		
<p>P4 prepare a proposal for an investigative project [SM]</p>		
<p>P5 plan operations and resources required to carry out a selected investigative project in the environmental and land-based sector [SM]</p>	<p>M2 explain why identified resources are appropriate to a specified schedule of operations</p>	
<p>P6 explain the reasons for resources selected [CT]</p>		

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
<p>P7 carry out a selected investigative project in the environmental and land-based sector [CT, SM]</p>	<p>M3 explain the importance of regularly monitoring performance against a selected investigative project's schedule of operations</p>	
<p>P8 monitor progress, working to deadlines [SM]</p>		
<p>P9 discuss the health and safety implications of the investigative project [SM]</p>		
<p>P10 report on a selected investigative project in the environmental and land-based sector [IE, RL]</p>	<p>M4 prepare a report that indicates planning, schedule of operations, monitoring and completion for a selected investigative project in the environmental and land-based sector.</p>	<p>D1 present a full report detailing planning, schedule of operations, monitoring and completion for a selected investigative project in the environmental and land-based sector.</p>
<p>P11 evaluate achievements and areas for improvement of a selected investigative project. [IE, RL]</p>		

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Delivery of this unit will involve practical and written assessments and could link to industrial experience placements.

The learning outcomes cover the identification, planning, carrying out and evaluation of what will usually be one investigative project for the purposes of delivery and assessment. The project should be linked to learners' programmes of study and/or career aspirations in the environmental and land-based sector.

For learning outcome 1 learners must identify and research a topic for an investigative project. Delivery will include formal input, including some input on research methods and sources of information. Learners will be required to select three different topics in the environmental and land-based sector that are suitable for an investigative project. Learners need to undertake independent research and, in consultation with the tutor, select one topic for the project.

Learning outcome 2 covers the planning for the project. Learners need to identify the resources required to complete their project and create a plan of operations that identifies all the tasks and timings from the beginning of the project to the end. This could be delivered using lectures, planning seminars, practical sessions and/or independent research.

For learning outcome 3, learners will carry out their investigative project. Learners could keep a project diary that records the tasks necessary and when the actual tasks were completed. Monitoring worksheets could also be used to record the progress of the project against the plan of operations. Delivery is likely to include practical sessions, independent learner work and/or seminars.

Learning outcome 4 covers the reporting of the investigative project. Lectures and/or seminars are good ways to cover the requirements of report writing and evaluation. Independent learner work will be required for the actual write-up together with opportunities for learners to discuss any issues they encounter.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value**.

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment
Introduction to the unit, structure and programme of assignments
Assignment 1: Project Planning (P1, P2, P3, P4, P5, P6, M1, M2)
Tutor introduces the assignment
Formal input and learner research identifying potential topics
Formal input: sources of information and action planning
Learner research: viability of potential projects
Visits and visiting speakers (according to learner need)

Topic and suggested assignments/activities and/assessment
Preparation of materials for assignment
Assignment 2: Implementation (P7, P8, P9, M3)
Tutor introduces the assignment
Formal input and discussion
Health & safety – carry out risk assessments
Devise a work log/diary/monitoring system
Carry out the research project
Preparation of materials for assignment
Assignment 2: Report and Evaluation (P10, P11, M4, D1)
Tutor introduces the assignment
Formal input and discussion – report writing
Formal input: analysis of data collected
Preparation of written report
Preparation of PowerPoint presentation
Delivery of PowerPoint presentation
Unit review

Assessment

P1, P2, P3, P4, P5 and P6 could be assessed together. Learners are required to list information sources relevant to a project in the environmental and land-based sector. Learners should select and carry out some research into three different topics that are suitable for a research project. Learners should then choose one of the three for their research project. This should be in consultation with the tutor, to ensure that it is a viable project. Learners need to describe their chosen project and prepare a proposal for it. They need to prepare a plan of operations and explain the reasons for the resources selected. Learners should detail how each resource is relevant to the schedule of operations developed for an investigative project in the environmental and land-based sector. For M1, learners need to explain why they have chosen their project and, for M2, explain why the identified resources are appropriate to their planned schedule of operations. These criteria are all clearly linked and evidence could be in the form of written notes, a presentation or a project report.

For P7, P8 and P9 learners must carry out the research project in the environmental and land-based sector. Assessment could include a diary and/or work log which records the work undertaken along with any product or artefact that may have been produced. These criteria may also be assessed directly by the tutor during practical activities. If this format is used, then suitable evidence from guided activities would be observation records completed by the tutor and accompanied by appropriate work logs or other relevant learner notes. If assessed during a placement, witness statements should be provided by a suitable representative and verified by the tutor. Learners will be required to produce a risk assessment for the project and discuss the health and safety implications associated with carrying out an investigative project in the environmental and land-based sector. For M3, learners must explain the importance of regularly monitoring performance against the project's schedule of operations. Learners should include in their evidence problems that may occur with a project if regular monitoring of performance does not occur. P7, P8, P9 and M3 could be assessed together and the evidence generated is likely to include witness statements, log books/diary of work carried out and written evidence.

P10, P11, M4 and D1 require learners to prepare a report on the investigative project in the environmental and land-based sector. This could be assessed through one assignment. For P10 learners need to produce a report on the project and, for P11, evaluate the achievements and areas for improvement of their selected project. For M4, the report must detail the project in terms of planning, schedule of operations, monitoring and its completion. This should be a written report, following standard report writing conventions. For D1, learners must present the detailed report. This could be in the form of a PowerPoint presentation.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, P4, P5, P6, M1, M2	Project Planning	<p>You work for the research department of a large environmental and land-based organisation. Within the next few months you have the opportunity of promotion and as part of the selection process you have been asked to undertake a research project. Research the different information sources relevant to the environmental and land-based sector. Produce a list of potential sources of information. Research three potential topics and produce a written summary of each one. Choose one topic and provide a written description of it. Prepare a proposal for an investigation of your chosen topic.</p> <p>As part of your proposal, produce a plan of operations and a list of resources needed to carry out the project. Provide a written explanation of why each resource has been chosen.</p>	<p>Research</p> <p>Plan presentation</p>

Criteria covered	Assignment title	Scenario	Assessment method
P7, P8, P9, M3	Implementation	<p>Produce a risk assessment for the project and produce a written description of the health and safety implications of the project.</p> <p>Carry out the research project, keeping a record of your progress. This could be in the form of a work log or diary, which shows how you met deadlines set for yourself.</p> <p>Produce a summary which explains the importance of regularly monitoring performance against the project's schedule of operations.</p>	<p>Research</p> <p>Report</p> <p>Witness statements</p>
PI0, P11, M4, DI	Report and Evaluation	<p>Produce a written report on the project using an appropriate format. Include details of the planning, schedule of operations, monitoring and completion of the report. Provide an evaluation of the achievements of the project and areas for improvement.</p> <p>Finally present a full report (using PowerPoint) to your supervisor.</p>	<p>Report</p> <p>Presentation</p>

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC land-based sector suite. This unit has particular links with:

Level 2	Level 3
Undertake Work Related Experience in the Land-based Industries	Undertake and Review Work Related Experience in the Land-based Industries
Presentation and service for retailing in the Land-based Sector	Undertake Retail Merchandising for the Land-based Sector

Essential resources

Learners will need access to suitable resources that they have identified for completion of their project. Resource requirements must be agreed with the tutor before the project starts.

Employer engagement and vocational contexts

Visits to animal establishments and visiting speakers from animal establishments, wildlife and welfare organisations along with relevant work experience placements will help learners to achieve the learning outcomes.

Indicative reading for learners

Textbooks

Applegarth M and Posner K – *Project Management Pocketbook* (Management Pocketbooks, 2008) ISBN 9781903776872

Barker S and Cole R – *Brilliant Project Management: What the Best Project Managers Know, Do and Say* (Prentice Hall, 2009) ISBN 9780273722328

Fleming I – *Time Management Pocketbook* (Management Pocketbooks, 2003) ISBN 9781903776087

Lock D – *Project Management* (Gower Publishing, 2007) ISBN 9780566087721

Nokes S and Kelly S – *The Definitive Guide to Project Management: The Fast Track to Getting the Job Done on Time and on Budget* (Financial Times Series, 2007) ISBN 9780273710974

Portny S E – *Project Management for Dummies* (J Wiley & Sons, 2006) ISBN 9780470049235

Journal

Project Manager Today

Websites

www.apm.org.uk

The Association for Project Management has over 35 years combining its members' extensive experience in developing the science and art of project management

www.pmi.org.uk

The Project Management Institute is the global professional association for project, programme or portfolio managers and PMO officers

www.pmtoday.co.uk

Project Manager Today is published 10 times a year and is available online and as a paper-based package on subscription and internationally

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	researching information sources, selecting and describing a topic, carrying out a research project and reporting on and evaluating a research project
Creative thinkers	researching information sources, explaining the reasons for topic selected, carrying out a research project
Reflective learners	reporting on and evaluating their research project
Self-managers	carrying out their research project, working towards deadlines and monitoring their progress

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	carrying out research for the assignments and project
Creative thinkers	identifying topics for potential research projects
Reflective learners	evaluating the progress of the research project
Team workers	working with others on the research project
Self-managers	managing their own time and monitoring the progress of the project
Effective participators	taking part in class discussions to identify potential research projects

● Functional skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	researching information for potential research projects
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	action planning and monitoring work that needs to be completed
Manage information storage to enable efficient retrieval	saving information into files and folders
Follow and understand the need for safety and security practices	safely using ICT systems – sitting correctly at the computer, keeping food and drink away from computer equipment
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	carrying out the research project
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	planning which information to select and use for the PowerPoint presentation
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records. 	writing up the research project
Bring together information to suit content and purpose	writing up the research project
Present information in ways that are fit for purpose and audience	writing up the research project producing a PowerPoint presentation
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	contacting others by email for information
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	carrying out statistical analysis of data collected during the research project
Identify the situation or problem and the mathematical methods needed to tackle it	identifying an appropriate statistical technique to analyse data collected during the research project
Select and apply a range of skills to find solutions	carrying out statistical analysis of data collected during the research project

Skill	When learners are ...
Use appropriate checking procedures and evaluate their effectiveness at each stage	carrying out statistical analysis of data collected during the research project
Draw conclusions and provide mathematical justifications	reporting on their research project
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	taking part in class discussions about potential research projects
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	reading documents which relate to their research project
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	writing documents which relate to their research project