Higher National Project-based Graded Unit Specification

General information

This graded unit has been validated as part of the HND Environmental Resource Management. Centres are required to develop a project-based assessment in accordance with this validated specification.

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

Graded unit code: HW4R 35

Type of project: Investigation

Publication date: February 2018

Source: Scottish Qualifications Authority

Version: 02

Graded unit purpose

This graded unit is designed to provide evidence that the learner has achieved the following principal aims of the HND Environmental Resource Management to:

- increase learner's awareness and understanding of key environmental issues.
- ensure that learners have a sound understanding of the principles of sustainable development and environmental resource management.
- provide a sound understanding of the relevance of environmental science and resource management principles in addressing environmental issues.
- provide learners with a sound understanding of environmental impacts and ways of managing and minimising those impacts.
- facilitate progression to degree level education based on a firm foundation of understanding, technical expertise, Core Skills, and an understanding of the multidisciplinary nature of environmental management and managing environmental impacts.

Credit points and level

1 Higher National Unit credit at SCQF level 8: (8 SCQF credit points at SCQF level 8)

Higher National Project-based Graded Unit Specification: General information (cont)

Recommended entry to the graded unit

It is recommended that the learner should have completed or be in the process of completing the following units relating to the above principal aims prior to undertaking this graded unit:

F6D0 35	*Environmental Management Systems*
F5T6 35	*Monitoring and Analytical Methods for Environmental Science*
F55S 35	*Waste Management and Pollution Control*
F2X3 35	*Data Collection and Handling*
F6CY 35	*Resource Economics*
F435 35	*Freshwater Environments: Management and Protection*
HV9X 35	*Global Climate Systems*

Core Skills

Achievement of this Unit gives automatic certification of the following:

Complete Core Skill	Problem Solving at SCQF level 6
Core Skill component	None

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

Assessment support pack

The assessment support pack for this unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable instrument of assessment. Centres wishing to develop their own assessments should refer to the assessment support pack to ensure a comparable standard. Assessment support packs are available on SQA's secure website.

Equality and inclusion

This graded unit has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on SQA's website:
www.sqa.org.uk/assessmentarrangements

Higher National Project-based Graded Unit Specification: Designing the project and assessing learners

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

Assessment

This graded unit will be assessed by the use of a project-based *investigation* developed by centres. The project should provide the learner with the opportunity to produce evidence that demonstrates she/he has met the aims of this graded unit.

The project undertaken by the learner must be a complex task which involves:

- variables which are complex or unfamiliar
- relationships which need to be clarified
- a context which may be unfamiliar to the learner

The project must require the learner to:

- analyse the task and decide on a course of action for undertaking the project.
- plan and organise work and carry it through to completion.
- reflect on what has been done and draw conclusions for the future.
- produce evidence of meeting the aims which this Graded unit has been designed to cover.

The investigation may involve study of a land use type, organisation or enterprise, or specific geographical location, in relation to environmental resource use and management. Examples include different forms of land use in the countryside and urban areas, or business enterprises (including voluntary organisations and environmental organisations). This will involve a learner selecting, with guidance, an appropriate study area or organisation, and at the same time identifying which environmental issues are of concern or relevance in that situation. Learners will then have to obtain appropriate information to address the environmental issue(s) of interest. The data collected will then have to analysed in an appropriate manner, in order to address the question(s) of interest, and results presented that will further our understanding of the situation in question, and/or will provide guidance to improve the environmental management, and/or will provide guidance for environmental improvement.

Conditions of assessment

The learner should be given a date for completion of the project. However, the instructions for the project should be distributed to allow the learner sufficient time to assimilate the details and carry out the project. During the time between the distribution of the project instructions and the completion date, assessors may answer questions, provide clarification, guidance and reasonable assistance. The project should be marked as soon as possible after the completion date. The final grading given should reflect the quality of the learner's evidence at the time of the completion date.

The evidence for the project is generated over time and involves three distinct stages, where each stage has to be achieved before the next is undertaken. Thus any re-assessment of stages must be undertaken before proceeding to the next stage.

Higher National Project-based Graded Unit Specification: Designing the project and assessing learners (cont)

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

If a learner fails the project overall or wishes to upgrade, then this must be done using a *substantially different* project, ie all stages are undertaken using a new project, assignment, case study, etc. In this case, a learner's grade will be based on the achievement in the re-assessment, if this results in a higher grade.

Higher National Project-based Graded Unit Specification: Designing the project and assessing learners (cont)

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

Evidence requirements for this graded unit

The project undertaken by learners will consist of three stages: planning; developing; and evaluating. The following table specifies the minimum evidence required to pass each stage.

Project stage	Minimum evidence requirements	% Mark allocation
Stage 1 — Planning Plan of action	Plan of action which includes: ♦ the rationale for the investigation ♦ a set of aims and objectives for the investigation ♦ identification of the main issues for research and the techniques and sources to be used ♦ identification of the stages (milestones) involved in the project work and the timescales for completion of each stage (project plan) ♦ identification of appropriate Health and Safety procedures	20%
	*The learner **must** achieve all of the minimum evidence specified above in order to pass the Planning stage.*	
Stage 2 — Developing	♦ The learner conducts the investigation without seeking or requiring an excessive level of tutor support Preparation of an investigation report that includes: ♦ a contents page ♦ review of current up to date literature relevant to the investigation ♦ use of equipment for the practical tasks involved in the investigation ♦ identification, collection/collation of significant data ♦ manipulation and analysis of significant data ♦ presentation of appropriate data (figures, graphs, tables) ♦ discussion of data and the findings ♦ conclusions drawn from critical analysis of data ♦ reference listing of sources used in literature review	60%
	*The learner **must** achieve all of the minimum evidence specified above in order to pass the Developing stage.*	

Higher National Project-based Graded Unit Specification: Designing the project and assessing learners (cont)

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

Project stage	Minimum evidence requirements	% Mark allocation
Stage 3 — Evaluating	Evaluation Report which will: ♦ contain an abstract (outline of the investigation) ♦ summarise any unforeseen events and how they were handled ♦ identify knowledge and/or skills which have been gained or developed ♦ assess the strengths and weaknesses of the output of the investigation ♦ determine to what extent the investigation met the original brief ♦ suggest potential development themes for the investigation	20%
	*The learner **must** achieve all of the minimum evidence specified above in order to pass the Evaluating stage.*	

Higher National Project-based Graded Unit Specification: Designing the project and assessing learners (cont)

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

Assessing and grading learners

The overall project will be marked out of **100**. Only whole marks should be used.

The percentage of marks allocated to each stage of the project is outlined in the **evidence requirements**.

It is a requirement that learners must meet the minimum *evidence requirements* for the *Planning* stage *before progressing to the Developing stage before progressing to the Evaluating* stage. Learners may produce evidence over and above that specified in the minimum *evidence requirements* and deserve more than half the available marks for that stage. Assessors should use the Grade Related Criteria outlined below to judge learner performance.

Learners are required to work independently to meet the *evidence requirements* of the graded unit. At the same time, learners need appropriate support. SQA uses the term reasonable assistance to describe the balance between supporting learners in their project and not providing too much assistance.

At the end of *each* stage there should be opportunities for remediation and re-assessment of learners for that particular stage. This includes the final *Evaluation* stage. Any re-assessment should be carried out in line with the centre's own assessment policy.

Grade Related Criteria	
Grade A	**Grade C**
Is a seamless, coherent piece of work which: ♦ has comprehensive evidence for each of the three phases of the project and that is a coherent whole ♦ demonstrates high standards through presentation style, language, accuracy and technical content ♦ demonstrates an accurate and insightful analysis and interpretation of the project brief which relate to site issues ♦ demonstrates a systematic approach and a logical progression to the collection and analysis of data in relation to site	Is a co-ordinated piece of work which: ♦ provides evidence for each of the three phases of the project ♦ is clear in terms of presentation, language, accuracy and technical content ♦ contains analytical responses to the project brief which relate to countryside site issues ♦ contains data collection and analysis in relation to site

Higher National Project-based Graded Unit Specification: Designing the project and assessing learners (cont)

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

Grade Related Criteria (cont)	
Grade A	**Grade C**
♦ has sought and made good use of a wide range of supporting evidence	♦ contains relevant supporting evidence
♦ has provided evidence of innovation or dynamism in approach	♦ contains standard approaches to issue
♦ embodies highly effective integration of knowledge and skills	♦ presents evidence of integration of skills and knowledge
♦ recognises conflicts and potential drawbacks of ideas	♦ tends to consider ideas and proposals in isolation
♦ demonstrates independence of thought by successfully completing the stages of the project with infrequent and minimal tutor support	♦ seeks tutor intervention to keep the investigation on track

The marks allocated to each stage will then be aggregated to arrive at an overall mark for the project. Assessors will then assign an overall grade to the learner for this graded unit based on the following grade boundaries.

A = 70%–100%
B = 60%–69%
C = 50%–59%

These grade boundaries are fixed and should **not** be amended.

If a learner does not achieve a pass or wishes to upgrade, then this must be done using a substantially different project, ie all stages are undertaken using a new project (case study, investigation or practical assignment). In these circumstances, the highest grade achieved should be awarded.

More information on reasonable assistance, remediation and re-assessment may be found in the SQA publication *Guidance for the Implementation of Graded Units in Higher National Certificates and Diplomas* (SQA, 2008, Publication code: CA4405).

Higher National Project-based Graded Unit Support Notes

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

Guidance on approaches to delivery and assessment of this graded unit

This graded unit will be assessed by the use of an Investigation. The investigation, analysis and development of solutions for the project should provide the learner with the opportunity to produce evidence that demonstrates they have met the aims of the graded unit that it covers.

The investigation should involve the application of knowledge of environmental issues, human-environment interactions, sustainable development and resource use, and land use issues that have been developed during the units listed in this specification.

An example of a project for *HND Environmental Resource Management Graded Unit 2* might be an investigation of a specific site or industry location to determine the current impacts on the environment resulting from activities on that site, and how to manage that site to mitigate those impacts. There are many different types of site that may feature in such a investigation, and may include the following: an urban or rural area to look at waste and recycling; a nature reserve to look at carbon footprint or pollution from activities; a specific building to look at energy efficiency; a specific business to look at energy and carbon footprint; the sustainability of tourism in one area, or for a type of tourism (eg wildlife). The learner may need, with guidance, to determine the aims and objectives for their investigation, which may consist of looking at a specific pollutant or environmental impact (or a combination of two or more). This may, to some extent, then dictate the type of site chosen for the investigation. Alternatively, the initial choice of a site may dictate the possible focus of the investigation. Once aims and objectives have been set, the learner would then have to gather relevant information, including activities on site and the impacts on the environment. This would involve the learner in firstly finding *existing data* on the selected site/impact, and then visiting the site concerned to collect data appropriate to the aims of the investigation, and using an appropriate data collection strategy. Using the data acquired, and taking account of health and safety and general good practice the learner would be required to draw up realistic priorities for future action, focusing on applying Environmental Management System principles to reduce the impacts on the environment.

It is recommended that at the start of the year tutorials are held to introduce the project to the learners and provide initial direction. Thereafter it is suggested that regular scheduled meetings between the tutor and individual learners are held to review progress and to provide appropriate guidance. The guidance must not be such that it influences the final grading, but, for example, pointing out to the learner the consequences of significant deviation from their plan during the development phase would be legitimate.

Higher National Project-based Graded Unit Support Notes (cont)

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

It is desirable for notes of the meetings to be made for the purposes of clarity and to further simulate the working environment. The notes should be agreed upon by both parties. Learners should be encouraged to keep a notebook incorporating a diary of the progress and tasks completed. This would facilitate the reflective component and help to ensure that milestones are completed in a business-like manner.

It is desirable that most learners carry out individual investigations, however it is possible that more than one learner could use the same site or industry example as a basis for their investigation. This may be necessary because of availability of appropriate sites. However, in such a situation each learner would ideally be addressing different aspects of the site or environment, and in any case must produce their own evidence for all three stages of assessment of this unit.

Tutor questions may be used to ascertain the learners' understanding of the issues contained in the investigation report and to probe the validity of the conclusions.

Centres may wish to obtain a copy of the detailed marking schemes provided for the HND Science investigations and the associated Understanding Standards documentation and adapt this for use with this unit.

Opportunities for developing Core and other essential skills

This Unit has the Core Skill of Problem Solving embedded in it, so when learners achieve this Unit their Core Skills profile will be updated to show that they have achieved Problem Solving at SCQF level 6.

There are opportunities to develop the Core Skills of *Numeracy, Information and Communication Technology (ICT)* and *Communication* all at SCQF level 6 in this unit, although there is no automatic certification of these.

History of changes to graded unit

Version	Description of change	Date
02	Core Skill Problem Solving at SCQF level 6 embedded.	February 2018

General information for learners

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

This is a single credit graded unit at SCQF level 8: (8 SCQF credit points at SCQF level 8).

This graded unit is a project (investigation), to be completed towards the end of your course. It is designed to assess your ability to integrate and apply knowledge and understanding from the following defined units in order to meet the principal aims of the HND Environmental Resource Management award.

Unit code	Unit title
F6D0 35	*Environmental Management Systems*
F5T6 35	*Monitoring and Analytical Methods for Environmental Science*
F55S 35	*Waste Management and Pollution Control*
F2X3 35	*Data Collection and Handling*
F6CY 35	*Resource Economics*
F435 35	*Freshwater Environments: Management and Protection*
HV9X 35	*Global Climate Systems*

You will be asked to carry out an investigation to generate data that will be used to construct a report of that investigation. The details of your investigation will be discussed with your tutor, and may involve the gathering (from archival sources and from original surveys) and analysis of data on a given business or site. The investigation will require you to plan, develop and evaluate. You will be asked to provide an action planning document, an investigation report and a report to evaluate your management and effectiveness in conducting the investigation. You will be given a high degree of autonomy during all stages of the investigation, however your tutor is available for guidance and support at the start of each stage of the investigation. After the submission of your report, your tutor may interview you to probe your understanding of the issues contained in your report and the validity of your conclusions.

The project (investigation) will be assessed in three stages:

1 Planning 20% of marks
2 Developing 60% of marks
3 Evaluating 20% of marks

You will need to pass all three stage of your investigation by achieving at least 50% of the marks available and the minimum evidence requirements at each stage. You must pass each separate stage before progressing to the next stage.

The project will be marked out of 100%. Assessors will mark each stage of the investigation, taking into account the criteria outlined. The marks will then be aggregated to arrive at an overall mark for the project and an overall grade will be assigned to you for this graded unit based on the following grade boundaries.

A = 70% — 100%
B = 60% — 69%
C = 50% — 59%

General information for learners (cont)

Graded unit title: Environmental Resource Management: Graded Unit 2 (SCQF level 8)

This Unit has the Core Skill of Problem Solving embedded in it, so when you achieve this Unit your Core Skills profile will be updated to show that you have achieved Problem Solving at SCQF level 6.