



Physics Assignment (National 4)

SCQF: level 4 (6 SCQF credit points)

Unit code: H25C 74

Unit outline

This is the Added Value Unit in the National 4 Physics Course. The general aim of this Unit is to enable the learner to provide evidence of added value for the National 4 Physics Course through the successful completion of an assignment which will allow the learner to demonstrate breadth, challenge and/or application.

Learners will have the opportunity to demonstrate challenge and application in skills of scientific inquiry, investigation, analytical thinking and knowledge and understanding.

Learners will investigate a topical physics issue using knowledge and skills selected from *Electricity and Energy/Waves and Radiation/Dynamics and Space* key areas.

Learners will use a variety of approaches and consider applications of physics on our lives and the impact on society/the environment. They will communicate information related to the method used or record of process and findings, which will allow demonstration of scientific literacy skills.

Learners who complete this Unit will be able to:

- 1 Apply skills and knowledge to investigate a topical issue in physics and its impact on society/the environment

This Unit is a mandatory Unit of the National 4 Physics Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Course Support Notes*, which provide advice and guidance on delivery and assessment approaches. Exemplification of the standards in this Unit is given in *Unit Assessment Support*.

Recommended entry

Entry to this Unit is at the discretion of the centre. It is recommended that the learner should be in the process of completing, or have completed, the following Units in the National 4 Physics Course:

Physics: Electricity and Energy (National 4)

Physics: Dynamics and Space (National 4)

Physics: Waves and Radiation (National 4)

Equality and inclusion

This Unit Specification 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. For further information, please refer to the *Course Support Notes*.

Standards

Outcomes and assessment standards

Outcome 1

The learner will:

- 1 Apply skills and knowledge to investigate a topical issue in physics and its impact on society/the environment by:**
 - 1.1 Choosing, with justification, a relevant issue in physics
 - 1.2 Researching the issue
 - 1.3 Presenting appropriate information/data
 - 1.4 Explaining the impact, in terms of the physics involved
 - 1.5 Communicating the findings of the investigation

Evidence Requirements for the Unit

This Unit will be assessed through controlled assessment which meets the Evidence Requirements below.

The assessment method for this Unit will be an assignment in which the learner will draw on and apply the skills and knowledge they have learned during the Course. The assignment offers challenge by requiring skills, knowledge and understanding to be applied in a context that is one or more of the following:

- ◆ unfamiliar
- ◆ familiar but investigated in greater depth
- ◆ integrates a number of familiar contexts

The assignment involves research of a topical issue and communication of the findings. These may be carried out in two stages, Stage 1: a research stage and Stage 2: a communication stage, which may be carried out sequentially or concurrently. The assignment is:

- ◆ set by centres within the SQA guidelines described below
- ◆ conducted under some supervision and control

Evidence will be internally marked by centre staff in line with SQA guidelines.

All assessment is subject to quality assurance by SQA.

Setting the assessment

The assignment will be set by centres within the following guidelines:

- ◆ Learners will select and investigate a topical issue from a key area of this Course.
- ◆ The topical issue could have either a positive or negative impact on society/the environment.
- ◆ The assignment topic will be agreed between the learner and the teacher/lecturer.

Conducting the assessment

The assignment will be conducted under some supervision and control, as follows:

- ◆ It is recommended that learners will gather information over several weeks and that no more than 8 hours should be spent on the whole assignment.
- ◆ During Stage 1: the research stage, learners may have access to a wide range of resources
- ◆ During Stage 2: the communication stage, learners should have access to the material they have generated in Stage 1: the research stage.
- ◆ The teacher/lecturer will provide overall guidelines for the assignment, which will lead the learner through the assignment in clear stages.
- ◆ The teacher/lecturer may also give learners support and guidance to help them progress through each stage of the assignment.

Judging the evidence

Evidence will be internally marked and verified by centre staff in line with SQA guidelines.

All assessment is subject to quality assurance by SQA.

Evidence can be drawn from a variety of sources and presented in a variety of formats. The table below describes the evidence for the Assessment Standards which require exemplification.

Assessment Standard	Evidence Required
Choosing, with justification, a relevant issue in physics.	A clear statement of the issue being investigated. A brief statement on why the issue is relevant to the environment/society
Researching the issue.	Select/collect appropriate information/data from at least two relevant recorded sources.
Presenting appropriate information/data.	Present gathered information/data in at least one format from: table, graph, chart, key, diagram, flow chart or other appropriate format.
Explaining the impact in terms of the physics involved.	A description which includes the physics of the issue and an explanation of its impact on society/the environment.
Communicating the findings of the investigation.	The communication must be clear, concise, relevant and appropriately structured.

Re-assessment

In relation to Unit assessment, SQA's guidance on re-assessment for Units applies.

Further information is provided in the exemplification of assessment in *Unit Assessment Support*. Advice and guidance on possible approaches to assessment is provided in the *Course Support Notes*.

Development of skills for learning, skills for life and skills for work

Please refer to the *Course Specification* for information about skills for learning, skills for life and skills for work.

Further mandatory information on Course coverage for the National 4 Physics Course

The following gives details of mandatory skills, knowledge and understanding for the National 4 Physics Course. Assessment of this Added Value Unit will involve selecting appropriate skills, knowledge and understanding from those listed below, in line with the Evidence Requirements above. This list of skills, knowledge and understanding also provides the basis for the assessment of all the Units in the Course.

The following gives details of the skills:

- ◆ demonstrating knowledge and understanding of physics by making statements, describing information and providing explanations
- ◆ applying knowledge of physics to familiar situations, interpreting information and solving problems
- ◆ planning and safely carrying out experiments/practical investigations to illustrate effects
- ◆ using information handling skills by selecting, presenting and processing information
- ◆ making predictions based on evidence/information
- ◆ drawing valid conclusions and giving explanations supported by evidence
- ◆ suggesting improvements to experiments/practical investigations
- ◆ communicating findings/information

These skills will be assessed, across the Course, in the context of the key areas

The following list provides further detail of the key areas for the National 4 Physics Course.

Physics: Electricity and Energy

Generation of electricity
Electrical power
Electromagnetism
Practical electrical and electronic circuits
Gas laws and the kinetic model

Physics: Waves and Radiation

Wave characteristics
Sound
Electromagnetic spectrum
Nuclear radiation

Physics: Dynamics and Space

Speed and acceleration
Relationships between forces, motion and energy
Satellites
Cosmology

Administrative information

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Superclass: RC

History of changes

Version	Description of change	Authorised by	Date
1.1	Evidence Requirements section: wording added to clarify assessment conditions; Further mandatory information section: amendment to wording to clarify skills list	Qualification Development Manager	June 2013

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