Unit Support Notes

H708 71 Science in the Environment: Energy (National 1)

Please refer to the note of changes at the end of this document for details of changes from previous version (where applicable)

Contents

Introduction

These support notes are not mandatory. They provide advice and guidance on approaches to delivering and assessing the *Science in the Environment: Energy* Unit. They are intended for teachers and lecturers who are delivering this Unit. They should be read in conjunction with:

- the *Unit Specification*
- the *Unit Assessment Support* pack

General guidance on the Unit

Aims

The aim of this Unit is to provide learners with opportunities to find out about energy through a range of practical activities.

The Unit also provides a framework for learners to develop knowledge and skills for learning, skills for life and skills for work.

Progression into this Unit

Entry to this Unit is at the discretion of the centre.

This Unit has been designed to draw on and build on Curriculum for Excellence experiences and outcomes.

This Unit would be suitable for learners who have successfully completed qualifications in related areas at SCQF level 1. Relevant experiences and outcomes may also provide an appropriate basis for doing this Unit.

Skills, knowledge and understanding covered in this Unit

If this Unit is being delivered on a free-standing basis, teachers and lecturers are free to select the skills, knowledge, understanding and contexts which are most appropriate for delivery in their centres.

Learners who complete this Unit will be able to participate in practical activities to explore energy.

Progression from this Unit

This Unit may provide progression to:

- other Units in Science in the Environment at SCQF level 1
- Units of the Science in the Environment Course at SCQF level 2
- further study, employment and/or training

Further details about these Units can be found on SQA's website.

Learners may progress to other Units at the same level or Units and Courses at higher levels. The nature of this progression will depend on the individual needs of the learner.

Approaches to learning, teaching and assessment

The purpose of this section is to provide general advice and guidance on approaches to learning, teaching and assessment which can be used for the delivery of this Unit.

Learners undertaking qualifications at SCQF level 1 will take part in the Unit at different levels of participation and with varying degrees of support, all of which meet the Assessment Standards. Some learners may take part at an experiential or sensory level requiring full support. Some may require frequent direction and support to enable them to take part, while others may take part independently or with intermittent support.

Learners should be given as much support as they need to engage with learning, teaching and assessment activities whilst maintaining the integrity of the Outcome and Assessment Standards.

The level of support required, and any support framework used, is at the discretion of individual centres.

The skills-based focus of the Unit lends itself to the use of a variety of learning and teaching approaches, reflecting the values and principles of the curriculum. Effective learning and teaching will draw on a variety of approaches to enrich the experience of learners. In particular, a mix of approaches which provide opportunities for personalisation and choice will help to motivate and challenge the learners.

Learning should be relevant to the learner's everyday life, their overall learning programme, and/or work and leisure. Teachers/lecturers could also consider interdisciplinary and cross-curricular approaches to learning and teaching and explore how extra-curricular activities or the personal interests of learners could be included and recognised.

Learners should be given the opportunity to use their normal mode of communication and have access to the appropriate resources for support where they would normally be available in real-life situations in which the activity is being carried out.

Examples of learning and teaching approaches and ways of recording evidence are provided in the table on the next page.

Science in the Environment: Energy (National 1)	
Outcome 1 With the appropriate level of support and resources, the learner will participate in practical activities to explore energy by:	
Assessment Standards	**Guidance and suggested learning and teaching approaches**
1.1 Making everyday objects work 1.2 Sorting everyday objects into sets by type/source of energy used	This Unit provides learners with opportunities to find out about energy through practical activities. Types/sources of energy could include: chemical, electrical, kinetic, mechanical, the sun, coal, the wind, electricity, gas, oil. Learners should explore different types/sources of energy by making everyday objects (including appliances) work. Learners could also explore what happens when the energy source is not available to make the objects work (eg need to switch on, lack of wind, lack of light). Teachers/lecturers could provide a list of objects in oral, pictorial or physical form and ask learners to pick from this list. Alternatively, teachers/lecturers could help learners choose appropriate everyday objects. The range of everyday objects could include: ♦ Battery-operated — eg watches, clocks, mobile phones, laptop/tablet computers, MP3 players ♦ Electrically-powered (including recognising electrical connections, eg plugs and switches) — eg cooker, kettle, television, hairdryer, digital alarm clock ♦ Wind-up — eg torch, radio, toys ♦ Physical effort — eg bicycles, scooters, playground equipment (swings) ♦ Wind-powered — eg paper windmills, kites, flags, washing on a clothes line ♦ Solar-powered — eg garden lights, calculators, desk toys (dancing flowers) Learners should also sort everyday objects into sets based on the type/source of energy used. Learners are not required to name the energy type/source.

	Learners should also sort everyday objects into sets by the type/source of energy used. Examples could include: ♦ objects which use batteries: mobile phone, torch, digital camera ♦ objects which use natural light (ie solar-powered): calculator, desk toy (eg dancing flower), garden light ♦ objects which need to be plugged in (ie electrical): DVD player, kettle, hairdryer This Unit could be linked with activities in other Science in the Environment (National 1) Units.

Assessment
There is no external assessment for National 1 Units. All Units are internally assessed against the requirements outlined and described in the *Unit Specification* and the Unit assessment support pack.

To achieve the Unit, learners must pass the Unit Outcome.

At SCQF level 1, it is anticipated that most evidence for assessment purposes will be gathered on a naturally occurring, ongoing basis, rather than from more formal assessment methods. There are many contexts that might be used for gathering evidence. These might include, for example, extra-curricular and/or outdoor learning.

Naturally occurring evidence is evidence which occurs within and as part of the learning and teaching, and can be gathered for assessment purposes in a variety of ways. Examples of how this evidence might be gathered include:

- observation of evidence demonstrated during an activity (using an observation checklist, visual recording, photography or equivalent)
- oral questioning before, during and on completion of an activity (recorded using an audio-visual or audio recording or using detailed written assessor notes as evidence)
- learning and teaching activities which generate physical evidence for assessment
- identifying opportunities to record evidence within out-of-centre activities

Centres are encouraged to develop criteria for success which focus on small, well-defined steps in learning. In this way the learner is more likely to achieve success in the Unit and in any subsequent learning.

Learners will benefit from receiving accurate and regular feedback regarding their learning. This helps to ensure they are actively involved in the assessment process. It is also important that different approaches to assessment are adopted to suit the varying needs of learners.

Authentication
For guidance on authentication of evidence that is gathered outwith the direct supervision of the teacher/lecturer responsible for the learner, eg outside the school or classroom, refer to SQA's *Guide to Assessment*.

It is important that teachers/lecturers track and keep accurate records of their assessments in order to:

- inform learners of their progress
- identify where further consolidation is required
- retain and store appropriately evidence of work in progress and completed work for verification purposes

It is anticipated that learners will need a high degree of teacher/lecturer assistance. More details about the type of support are provided within the 'Equality and inclusion' section.

Developing skills for learning, skills for life and skills for work

The *Unit Specification* lists the skills for learning, skills for life and skills for work that learners should develop in this Unit. These are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and should be built into the Unit where there are appropriate opportunities. The level of these skills will be appropriate to the level of the Unit.

Skills for learning, skills for life and skills for work	**Examples of learning and teaching approaches**
1 Literacy	
1.3 Listening and talking Listening means the ability to understand and interpret ideas, opinions and information presented orally for a purpose and within a context, drawing on non-verbal communication as appropriate. Talking means the ability to communicate orally ideas, opinions and information for a purpose and within a context.	Where appropriate, learners could use their normal mode of communication during learning and teaching activities to: ♦ communicate, eg information by sorting everyday objects by energy type/source ♦ respond, eg to a question about how to make an everyday object work

It is important that learners have opportunities to develop these broad general skills as an integral part of their learning experience.

There will be opportunities for the development of additional skills for learning, skills for life and skills for work throughout this Unit. These will vary from centre to centre depending on the approaches being used to deliver the Unit.

Equality and inclusion

The additional support needs of learners should be taken into account when planning learning experiences or when considering any reasonable adjustments that may be required. Assessment methods should offer all learners an equal opportunity to demonstrate their achievement. This should be reflected in the language used, the use of different assessment presentation methods and the use of appropriate illustrative materials that reflect an inclusive view.

Learners undertaking qualifications at SCQF level 1 are likely to require more support with their learning than at other levels, and learners should be given as much support as they need to engage with learning, teaching and assessment activities whilst maintaining the integrity of the Outcome and Assessment Standards.

Examples of support might include:

- allowing extra time to complete activities
- support ranging from prompting to full support from a responsible person
- the use of specialised and adapted equipment
- the use of ICT and other assistive technologies
- visual prompts

It is recognised that centres have their own duties under equality and other legislation and policy initiatives. The guidance given in these *Unit Support Notes* is designed to sit alongside these duties but is specific to the delivery and assessment of the Unit.

Alternative approaches to Unit assessment to take account of the specific needs of learners can be used. However, the centre must be satisfied that the integrity of the assessment is maintained and how the alternative approach to assessment will, in fact, generate the necessary evidence of achievement.

Appendix 1: Reference documents

The following reference documents will provide useful information and background.

- Assessment Arrangements (for disabled candidates and/or those with additional support needs) — various publications on SQA's website (www.sqa.org.uk)
- Building the Curriculum 4: Skills for learning, skills for life and skills for work (www.educationscotland.gov.uk)
- Building the Curriculum 5: A framework for assessment (www.educationscotland.gov.uk)
- Design Principles for National Courses (www.sqa.org.uk)
- *Guide to Assessment* June 2008 (www.sqa.org.uk)
- Overview of Qualification Reports (www.sqa.org.uk)
- *Principles and practice papers for curriculum areas*
- *Research Report 4 — Less is More: Good Practice in Reducing Assessment Time*
- *Coursework Authenticity — a Guide for Teachers and Lecturers*
- *SCQF Handbook: User Guide,* published 2009 (www.scqf.org.uk) and SCQF level descriptors (www.sqa.org.uk)
- *SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work* (www.sqa.org.uk)
- *Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool* (www.sqa.org.uk)
- SQA Guidelines on e-assessment for Schools (www.sqa.org.uk)
- SQA Guidelines on Online Assessment for Further Education (www.sqa.org.uk)
- SQA e-assessment web page (www.sqa.org.uk)

Administrative information

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History of changes to Unit Support Notes

Unit details	Version	Description of change	Authorised by	Date