



National 2
unit
specification



Unit specification

Science in the Environment: Keeping our Planet Healthy (Alternative Context) (National 2)

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|-------------|--------------------------------|
| Unit code: | J6SE 72 |
| SCQF: | level 2 (6 SCQF credit points) |
| Valid from: | session 2022–23 |

This Unit should only be used where a learner has already achieved the original Unit, which carries the same title but without the words “Alternative Context”. There should be at least one year between the delivery of the original Unit and the delivery of the “Alternative Context” version.

For this Unit, centres can use one of the Unit Assessment Support Packs provided with the original Unit, but adjust it to reflect the alternative context in which the Unit is delivered. The alternative context could relate to the delivery setting, the maturity of the learner or the activities the learner is asked to complete.

This document provides detailed information about the unit to ensure consistent and transparent assessment year on year.

This document is for teachers and lecturers and contains all the mandatory information required to deliver and assess the unit.



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Contents

| | |
|---|----------|
| Unit outline | 1 |
| Standards | 2 |
| Outcomes and assessment standards | 2 |
| Skills for learning, skills for life and skills for work | 3 |
| Equality and inclusion | 4 |
| Further information | 5 |
| Appendix: unit support notes | 6 |
| Introduction | 6 |
| Developing skills, knowledge and understanding | 6 |
| Approaches to learning and teaching | 6 |
| Approaches to assessment and gathering evidence | 10 |
| Developing skills for learning, skills for life and skills for work | 11 |

Unit outline

The aim of this unit is to provide learners with opportunities to explore issues concerning the environment and the impact humans have on our planet through the resources we use in everyday life. The unit raises learner's awareness of some of the harmful effects we cause on our environment and to participate in activities that help to reduce those harmful effects.

Learners who complete this unit will be able to:

- 1 investigate the harmful effect of our use of the planet's natural resources
- 2 participate in practical activities that help to save the planet's natural resources

This unit is an optional unit of the National 2 Science in the Environment course and is also available as a freestanding unit. Please read this unit specification in conjunction with the unit support notes, which provide advice and guidance on delivery, assessment approaches, and developing skills for learning, skills for life and skills for work.

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. Learners should have the skills, knowledge and understanding required by one or more of the following, or have equivalent qualifications and/or experience:

It may help if learners complete some units at SCQF levels 1 or 2 before they start this unit but this is not a requirement for entry.

Relevant experiences and outcomes may provide an appropriate basis for doing this unit.

Standards

Outcomes and assessment standards

Outcome 1

1 Investigate the harmful effect of our use of the planet's natural resources by:

- 1.1 identifying some of the harmful effects of using the planet's natural resources
- 1.2 describing ways we can reduce our use of the planet's natural resources

Outcome 2

2 Participate in practical activities that help to save the planet's natural resources by:

- 2.1 taking part in an activity that reduces our use of the planet's natural resources
- 2.2 taking part in an activity to investigate the effects of a renewable energy source
- 2.3 demonstrating appropriate health and safety during the activities

Evidence requirements for the unit

You should use your professional judgement, subject knowledge and experience, and understanding of your learners, to determine the most appropriate ways to generate evidence, and which conditions and contexts to use.

Evidence for this unit could include observation checklists, logs, short recorded oral responses, photographic evidence or equivalent. You should be confident that there is enough evidence to support your judgement that the assessment standards have been met:

- ◆ outcome 1: the learner must identify at least two harmful effects of natural resources used in everyday life and describe at least two ways to reduce the use of natural resources
- ◆ outcome 2: the learner must participate in a 'reduce, reuse or recycle' activity and an activity investigating a renewable energy source. Learners must also demonstrate safety and hygiene during their participation in the activities

Learners will normally receive a high degree of support to achieve the outcomes of the unit. It is your responsibility to ensure that the level of support is appropriate for the requirements of the unit.

Unit assessment support provides exemplification of assessment.

Skills for learning, skills for life and skills for work

This unit helps learners to develop broad, generic skills. These skills are based on [SQA's Skills Framework: Skills for Learning, Skills for Life and Skills for Work](#) and draw from the following main skills areas:

1 Literacy

1.3 Listening and talking

4 Employability, enterprise and citizenship

4.6 Citizenship

5 Thinking skills

5.4 Analysing and evaluating

You must build these skills into the unit at an appropriate level, where there are suitable opportunities.

Equality and inclusion

This unit is designed to be as fair and as accessible as possible with no unnecessary barriers to learning or assessment.

You should take into account the needs of individual learners when planning learning experiences, selecting assessment methods or considering alternative evidence. The unit support notes provide further information.

Guidance on assessment arrangements for disabled learners and/or those with additional support needs is available on the assessment arrangements web page:

www.sqa.org.uk/assessmentarrangements

Further information

The following links provide useful information and background:

- ◆ [National 2 web page](#)
- ◆ [Building the Curriculum 3 to 5](#)
- ◆ [Guide to Assessment](#)
- ◆ [SCQF Handbook: User Guide](#)
- ◆ [SQA Skills Framework: Skills for Learning, Skills for Life and Skills for Work](#)
- ◆ [Skills for Learning, Skills for Life and Skills for Work: Using the Curriculum Tool](#)
- ◆ [SQA e-assessment web page](#)

Appendix: unit support notes

Introduction

These support notes are not mandatory. They provide advice and guidance to teachers and lecturers on approaches to delivering the unit. Please read these unit support notes in conjunction with the unit specification, course specification, course support notes and appropriate assessment support materials.

Developing skills, knowledge and understanding

The course support notes provide information about skills, knowledge and understanding.

If this unit is being delivered on a freestanding basis, you are free to select the skills, knowledge, understanding and contexts that are most appropriate.

Approaches to learning and teaching

This section provides general advice and guidance on approaches to learning and teaching that you can use to deliver this unit.

At SCQF level 2, learners take part at different levels of participation and with varying degrees of support. Some learners may:

- ◆ require regular direction and prompting to enable them to take part
- ◆ take part independently or with limited support

You should give learners as much support as they need to engage with learning, teaching and assessment activities while maintaining the integrity of the outcomes and assessment standards.

The following table provides examples of approaches to learning and teaching. These may also provide naturally occurring evidence that you can use to assess learners against the assessment standards.

Science in the Environment: Keeping our Planet Healthy

Outcome 1: investigate the harmful effect of our use of the planet's natural resources

Outcome 2: participate in practical activities that help to save the planet's natural resources

| Assessment standards | Approaches for learning and teaching |
|--|---|
| <p>1.1 identifying some of the harmful effects of using the planet's natural resources</p> | <p>You should help learners identify some simple links between the use of resources and the harmful effects on the planet, for example:</p> <ul style="list-style-type: none"> ◆ oil drilled from underground → petrol in cars → harmful fumes and global warming ◆ oil drilled from underground → makes plastic bags → pollution in the sea and harmful effect on marine life ◆ coal from the ground → burned in power stations → contributes to global warming <p>Learners could make posters showing links between resources and harmful effects, or they could take part in a short project to explore the harm that is being done to our environment through our use of certain natural resources, for example:</p> <ul style="list-style-type: none"> ◆ what do we mean by global warming? ◆ use of fossil fuels (coal, oil and natural gas) and the greenhouse gases they produce, warming up the planet ◆ how can plastics harm wildlife in the sea or on land? Why do we care? Teach respect for the natural world and animal, as well as human, habitats ◆ extreme weather types, for example tornados, heavy rainfall, thunderstorms, hurricanes, and what causes them ◆ what problems are created by extreme weather? |
| <p>1.2 describing ways we can reduce our use of the planet's natural resources</p> | <p>You could introduce learners to the terms reduce, reuse, recycle and renew, for example:</p> <p>Reduce (produce less rubbish such as packaging)</p> <ul style="list-style-type: none"> ◆ collecting rainwater in water butts for watering plants ◆ using reusable containers for storage and packed lunches (not wrapping in, for example, plastic or foil) ◆ drinking tap, not bottled, water ◆ using refillable water bottles ◆ turning off lights, for example classroom or cupboard lights when leaving ◆ walking rather than using a car or bus ◆ powering down computers when not in use ◆ using only what you need, for example one paper napkin to dry your hands — don't grab a handful! |

| Assessment standards | Approaches for learning and teaching |
|----------------------|---|
| | <p>Reuse</p> <ul style="list-style-type: none"> ◆ rechargeable batteries ◆ paper, for example make into shopping lists or notepads ◆ reusable water bottles and cups ◆ plastic bags when shopping — take your own ◆ jars and pots — don't throw them away ◆ bubble wrap ◆ buying second hand — look in charity shops first ◆ mending clothes and shoes — don't just buy new ◆ don't throw things away — give to friends or charity shops <p>Recycle</p> <ul style="list-style-type: none"> ◆ what can be recycled? ◆ community recycling ◆ look at symbols — can you recognise a recycling symbol? ◆ can you find a recycling symbol on a range of food packaging items? ◆ separating waste before disposal, for example glass, tins, paper, plastics ◆ visiting a recycling centre ◆ what recycling activities are happening in your school? ◆ gift tags from old Christmas cards <p>Renewable energy</p> <ul style="list-style-type: none"> ◆ what do we mean by renewable energy? ◆ why does this energy source help keep our planet healthy — helps reduce global warming ◆ oil, gas and coal will run out ◆ why do we care? Less pollution means cleaner air and water for all ◆ wind power: wind turbines ◆ solar power: solar panels ◆ everyday solar powered toys or equipment, for example solar powered calculators ◆ hydro power: water dams — why are they built so high? ◆ how do waterwheels work? |

| Assessment standards | Approaches for learning and teaching |
|--|--|
| 2.1 taking part in an activity that reduces our use of the planet's natural resources | <p>Learning and teaching activities could include:</p> <ul style="list-style-type: none"> ◆ setting up a recycling area or areas within your school ◆ walking school bus ◆ setting up a swap shop, for example toys or clothing ◆ upcycling plastic cartons and bottles to make, for example, scoops, watering cans, pencil holders, snack containers, beach sand scoopers or piggy banks ◆ upcycling tin cans to make, for example, storage containers, wind chimes, mini drum set or tin can stilts |
| 2.2 taking part in an activity to investigate the effects of a renewable energy source | <p>Learning and teaching activities could include:</p> <p>Wind power</p> <ul style="list-style-type: none"> ◆ make windmills and place them in different places with some more exposed to wind than others. Count how many turns the windmill completes in 1 minute and compare results. Do trees or buildings block the wind? Why do we put wind turbines in exposed areas? ◆ blow football: use different widths of straws <p>Solar power</p> <ul style="list-style-type: none"> ◆ converting sunlight to heat by testing tiles: paint one tile black and one tile white. Which one becomes hotter when left out in sunlight for 1 hour? ◆ identifying different types of solar panels visibly used in the local community area <p>Hydro power</p> <ul style="list-style-type: none"> ◆ water-play with waterwheels: use different volumes and/or rates of pouring of water over a small waterwheel. How does this affect the number of turns in 1 minute? ◆ using balancing scales, demonstrate the significant effect the volume of water has on weight |
| 2.3 demonstrating appropriate health and safety during the activities | <p>Learning and teaching activities could include:</p> <ul style="list-style-type: none"> ◆ as a class, discuss and create a list of health and safety rules when working with recycling, for example: <ul style="list-style-type: none"> — wear protective gloves when sorting through items for recycling, rubbish or litter picking activities — items for recycling should be clean — always wash hands after any activity — do not eat or drink while working on any activity touching or sorting rubbish or recycling <p>Learners could produce a poster for display in key recycling collection or sorting areas.</p> |

Approaches to assessment and gathering evidence

There is no external assessment for National 2 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 achieve all the unit outcomes.

At SCQF level 2, most evidence for assessment is gathered on a naturally occurring, ongoing basis, rather than from more formal assessment methods. There are many contexts that you might use for gathering evidence, for example extra-curricular and/or outdoor learning.

Naturally occurring evidence is evidence that occurs in and as part of learning and teaching, which you can gather for assessment purposes in a variety of ways:

- ◆ 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 your detailed written notes as evidence)
- ◆ learning and teaching activities that generate physical evidence for assessment
- ◆ identifying opportunities to record evidence during out-of-centre activities

You should focus on small, well-defined steps in learning. In this way, the learner is more likely to achieve success in the units and in any subsequent learning.

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

Examples of evidence, and how you can gather evidence for each assessment standard in this unit:

- ◆ **Assessment standard 1.1:** you could ask learners to add arrows to pictures to show simple links, or they could produce a poster showing the harmful effects of using some natural resources.
- ◆ **Assessment standard 1.2:** you could ask learners to provide a few words to simply describe at least two methods of reducing the use of natural resources, or match the correct description to the correct method.
- ◆ **Assessment standard 2.1:** you can use any activity linked to 'reduce, reuse or recycle'.
- ◆ **Assessment standard 2.2:** you can use any simple activity that mimics the effect of renewable energy sources, as described above in the approaches to learning and teaching table.
- ◆ **Assessment standard 2.3:** learners should demonstrate simple health and safety measures during the activities in assessment standards 2.1 and 2.2, for example wearing protective clothing and washing hands.
- ◆ **Assessment standards 2.1, 2.2 and 2.3:** for the practical activities, you could record evidence on an observation checklist and/or take photographs of the activity.

Combining assessment within units

The assessment of the activities in this unit involving renewable energy could be combined with the assessment of the National 2 Science in the Environment: Forces unit.

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

This section highlights 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.

Some examples of potential opportunities to practise or improve these skills are provided in the following table.

| Skills for learning, skills for life and skills for work | Approaches for learning and teaching |
|--|---|
| <p>1 Literacy</p> <p>1.3 Listening and talking:</p> <ul style="list-style-type: none"> ◆ 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 | <p>Where appropriate, learners could use their normal communication method during learning and teaching activities to communicate, for example:</p> <ul style="list-style-type: none"> ◆ when identifying the harmful effects of our use of natural resources ◆ when describing ways we can reduce our use of natural resources |
| <p>4 Employability, enterprise and citizenship</p> <p>4.6 Citizenship:</p> <ul style="list-style-type: none"> ◆ having concern for the environment and for others ◆ being aware of rights and responsibilities ◆ being aware of the democratic society ◆ being outward looking towards society | <p>Where possible, you could emphasise to learners that the damage we do to the environment is everybody's problem and it is everybody's responsibility to try and reduce the damage.</p> <p>You could touch on the concept of citizenship but only in a very general sense at this level.</p> |

| Skills for learning, skills for life and skills for work | Approaches for learning and teaching |
|---|--|
| <ul style="list-style-type: none"> ◆ being able to recognise one's personal role in this context ◆ being aware of global issues, understanding one's responsibilities within these, and acting responsibly | |
| <p>5 Thinking skills</p> <p>5.4 Analysing and evaluating:</p> <ul style="list-style-type: none"> ◆ this covers the ability to identify and weigh-up the features of a situation or issue and to use your judgement of them in coming to a conclusion ◆ it includes reviewing and considering any potential solutions | <p>Learners could be able to evaluate the negative effect that using fossil fuels and other natural resources has on the planet.</p> |

Administrative information

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History of changes

| Version | Description of change | Date |
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