

Next Generation Higher National Unit Specification

Maintaining Gardens and Greenspace (SCQF level 7)

Unit code: J6F1 47

SCQF level: 7 (24 SCQF credit points)

Valid from: session 2022–23

Prototype unit specification for use in pilot delivery only (version 4.0) August 2023

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

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

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Unit purpose

This SCQF level 7 unit is suitable for learners studying Higher National Certificate (HNC) Horticulture. It provides learners with knowledge and skills for the maintenance of gardens and greenspaces, and introduces them to seasonal tasks, equipment, protection and maintenance of plants, planted areas, and hard landscape features. The unit also contains a meta-skills outcome where learners will have the opportunity to develop and demonstrate a range of meta-skills in a horticultural context.

While learners would benefit from previous horticultural knowledge or experience, they do not need prior knowledge to take the unit. If they are studying this as part of the HNC Horticulture group award, they can progress to Higher National Diploma (HND) Horticulture once they have completed it.

Unit outcomes

Learners who complete this unit can:

- 1 describe maintenance operations for a range of garden and greenspace components
- 2 maintain a range of components in a garden and greenspace
- 3 explain the principles of selecting, operating, and safely using a range of garden and greenspace maintenance equipment and machinery
- 4 describe a range of plant-protection issues in garden and greenspace maintenance, and select appropriate control measures
- 5 develop meta-skills in a vocational context

Evidence requirements

For all outcomes, your coverage of the selection and range of hard and soft landscape elements should reflect common and important garden and greenspace components, and be relevant to the delivery centre and the learner's area of interest.

Outcome 1

Learners must provide evidence to show they can:

- describe the maintenance requirements for a range of hard and soft landscape elements
- ♦ develop a programme of maintenance that covers an appropriate period of time
- justify maintenance operations
- identify plants using botanical nomenclature and botanical terminology

Learners develop a programme of maintenance that describes the operations required to suitably maintain a range of garden and greenspace components. Your programme should cover an appropriate period of time relevant to the components described and must include requirements on:

- plant cultivation
- plant health
- pests and disease
- weed control
- ♦ labour
- ♦ materials
- ♦ equipment
- machinery
- waste management and sustainability

Learners must justify the maintenance operations they describe.

Learners must be able to identify a range of established plants relevant to the programme, use their botanical names and be able to describe identifying characteristics, which could

include leaf, flower and stem shape and arrangement and plant form, using botanical terminology.

Learners can present their maintenance programme in the form of a maintenance plan, case study or project, giving consideration to maintenance options in different contexts. They can expand on the programme of maintenance they prepare for outcomes 3 and 4 in their presentation.

Outcome 2

Learners must provide evidence that they can:

- select and operate maintenance equipment and machinery
- maintain plants and plantings
- maintain hard landscape features
- manage garden waste

Learners select and safely use the appropriate tools, equipment and machinery for a range of different horticultural maintenance tasks. To do this effectively, learners need access to a variety of suitable tools, equipment and machinery. These include (but are not limited to) general gardening tools, mowers, strimmers and hedge cutters.

Learners must select and wear the appropriate personal protective clothing for their tasks.

Learners can provide appropriate, practical seasonal care, maintenance and cultivation to individual plants and groups of plantings. They can undertake a range of horticultural maintenance tasks, including (but not limited to):

- at least three methods of removing unwanted plant growth, which could include pruning, hedge-cutting, mowing, deadheading, edging, scarifying
- ♦ at least three methods of plant protection, which could include providing support, weeding, hoeing, flaming, staking, pest and disease control
- at least three methods of amelioration, which could include mulching, applying fertiliser, spiking, irrigating

Learners carry out these tasks on a range of soft landscape components, which should include elements from the following:

- ♦ trees, shrubs, climbers and other woody plants: wall shrubs, hedges, fruit trees, roses
- annuals, perennials and other non-woody plants: hardy annuals, seasonal bedding, bulbs, grasses, herbaceous plants
- turf, grass and lawns: fine turf, sports turf, amenity grass, species-rich grassland

Learners can provide appropriate, practical seasonal care and maintenance to a range of relevant hard landscape features, including at least two of the following:

- paved surfaces
- ♦ loose and bound aggregate surfaces

- artificial turf surfaces
- walls and stone features
- ♦ timber structures
- metal structures and features

Learners' focus should be on maintenance and minor remedial work, and not construction tasks.

Learners identify and select suitable and sustainable methods of minimising and disposing of general garden waste; and choose the appropriate material for composting.

We expect the selection and range of practical maintenance work to reflect common and important garden and greenspace components, while still being relevant to the delivery centre and the learner's area of interest. Learners can present evidence for outcome 2 by practical diary or portfolio, containing written and visual descriptions of the work they do, which they collate over the course of the unit. You can use observation checklists to record practical work and learners' competence in using equipment or machinery.

Outcome 3

Learners must provide evidence to demonstrate that they can:

- describe the relative advantages and disadvantages of common power-supply systems for horticultural equipment, and the principles of their operation
- apply health and safety requirements relevant to horticultural equipment and machinery
- maintain a range of horticultural maintenance equipment and machinery
- justify the selection of horticultural maintenance equipment and machinery

Learners should be able to safely demonstrate how a range of horticultural machinery operates and the basic servicing requirements, including:

- safe operation of two- and four-stroke and battery-operated machines
- basic servicing (for example lubrication, oil change, spark plug replacement, air and fuel filter replacement) of two- and four-stroke and battery-operated machines

Equipment and machinery can include:

- tractors and ride-on machinery
- four-stroke petrol pedestrian-operated machinery
- two-stroke petrol hand-held machinery
- battery-operated horticultural equipment or machinery (including robotic mowers)

Learners must apply basic health and safety management requirements and procedures to the use of appropriate equipment and machinery in a garden or greenspace setting. They must appraise risk assessments, safety checklists and maintenance schedules for a

minimum of two items of machinery; and refer to current relevant health and safety legislation.

Learners show they can maintain a range of hand tools. Specifically, they should maintain general gardening tools and equipment, such as spades and secateurs.

Learners select a range of appropriate equipment and machinery for garden and greenspace maintenance and explain their selection. They must consider the following in their justifications:

- ♦ sustainability
- appropriateness for intended use
- purchase and running costs
- safety and ease of use

Outcome 4

Learners must provide evidence that they can:

- identify a range of plant-protection issues
- describe the effects of a range of plant-protection issues
- select sustainable methods of control for a range of plant-protection issues

Learners identify common plant-protection issues, including relevant weeds, pests, diseases and disorders. The selection and range of plant-protection issues should reflect the maintenance of gardens and greenspaces and be relevant to the delivery centre and the learner's chosen area of interest. Learners must identify the following plant-protection issues:

- weeds: annuals and perennials, including invasive species
- pests: invertebrates and vertebrates
- ♦ diseases: fungal, bacterial and viral
- disorders: abiotic factors

Learners describe the general typical impacts on plants of common plant-protection issues including at least one example from each of the following groups:

- ♦ weeds
- invertebrates: bite and chew
- invertebrates: pierce and suck
- fungal diseases
- abiotic disorders

Learners select appropriate control measures and explain their impact. For each of three named plant-protection issues, learners must identify a range of potential control options and justify their selection of one approach. They must take sustainability into account in their

selection of a control option. They must select one plant-protection issue from each of the following:

- weed
- pest
- disease

Learners can include their selected plant-protection issues as part of their practical diary or portfolio.

This outcome can be a stand-alone case study, but we expect learners to have enough opportunity to obtain the evidence from their programme of maintenance (outcome 1) or their practical work (outcome 2).

Outcome 5

In this unit, you assess a learner's meta-skills development as an outcome, following the evidence requirements set out below.

Evidence

Learners must produce evidence that shows they have:

- ♦ self-assessed their meta-skills baseline
- created a plan for their own meta-skills development
- carried out activities to develop and demonstrate their meta-skills
- used reflective practice to monitor and assess the meta-skills they have improved and developed

Skills 4.0, a skills model to drive Scotland's future outlines three categories of meta-skills:

- ♦ self-management
- ♦ social intelligence
- ♦ innovation

Each of these comprises four meta-skills and a number of sub-skills.

There are many interrelationships and dependencies between these skills and, at SCQF level 7 and 8, learners should focus on holistic development relevant to their vocational or academic context.

See the Educator Guide for more information.

Knowledge and skills

The following table shows the knowledge and skills covered by the unit outcomes:

Knowledge	Skills	
Outcome 1	Outcome 1	
Learners should understand:	Learners can:	
 the maintenance, work, tools, equipment and labour needed to maintain elements in a garden or greenspace the effect of seasonality on plants, tasks and workloads how to maintain a range of different plants that there are different maintenance techniques and options a range of identifying characteristics of plants 	 sequence a range of cultivation tasks to ensure the proper maintenance of elements in a garden or greenspace plan and select maintenance regimes for elements in a garden or greenspace identify plants at different seasonal periods in the year identify the most appropriate time of year to conduct tasks identify a range of plants and describe the identifying characteristics using botanical terminology 	
Outcome 2	Outcome 2	
Learners should understand:	Learners can:	
 the cultivation techniques and plant husbandry necessary for plants and plantings the maintenance needed for important hard landscape features how to use tools and equipment safely how to manage garden waste sustainably when best to apply a range of soil ameliorants 	 cultivate a range of plants and apply practical maintenance techniques use a range of tools and equipment safely and effectively for the purpose of garden maintenance look after hard landscape features sort waste for composting apply soil ameliorants as required 	

Knowledge	Skills
Outcome 3 Learners should understand: • how common horticultural machines operate • the health and safety legislation regarding machinery use and how to apply it • how to maintain common garden machinery • the factors to consider when selecting machinery for maintenance tasks	Outcome 3 Learners can: • maintain a range of common garden machines and equipment • apply health and safety legislation • select machinery for a range of situations
Outcome 4 Learners should understand: • how to identify common plant-protection issues • the effect on plants of common plant-protection issues • the options for controlling plant-protection issues and how to do this sustainably	Outcome 4 Learners can: • identify plant-protection issues relevant to garden and greenspace maintenance and the effects these have on plants • tell the difference between garden friend and foe, and know when to act on issues • know a range of control options for weeds, pests and diseases

Knowledge	Skills
Cutcome 5 Learners should understand:	Outcome 5 Learners can: • plan a strategy for meta-skills development • implement and review plans for their meta-skills development • assess their meta-skills development
— goal setting and action planning — reflective practice: principles of reflective practice; tools and approaches for effective reflective practice	

Meta-skills

Throughout the unit, learners develop meta-skills to enhance their employability in the horticulture sector.

Self-management

This meta-skill includes:

- ♦ focusing
- ♦ integrity
- adapting
- ♦ initiative

Learners develop these meta-skills when they work in teams on maintenance projects and develop new practical skills. Learners research, create and employ novel maintenance techniques and reflect on their performance, demonstrating independent thinking. During the unit, learners filter and sequence their maintenance operations, and sort waste material. They show resilience and adaptability when working outside in challenging conditions or when undertaking new practical tasks. Developing or reviewing safe systems of work requires responsibility.

Social intelligence

This meta-skill includes:

- collaborating
- ♦ communication
- ♦ feeling
- ♦ leading

Learners develop these meta-skills in their work with others.

Innovation

This meta-skill includes:

- ♦ curiosity
- creativity
- sense-making
- critical thinking

Learners develop these meta-skills as they find new ways of approaching and solving problems during the unit.

Literacies

Learners develop core skills in the following literacies:

Numeracy

Learners develop numeracy skills as they calculate lawn areas and necessary fertiliser quantities; fuel-mixing ratios; tool, equipment and spares specifications; machinery values; and pesticide application rates.

Communication

Learners develop communication skills as they convey their maintenance plans to others, and work in groups on practical tasks and project work. They give and receive simple and complex instructions about tasks, plants and equipment, and share in the development and dissemination of key health and safety information.

Digital

Learners develop digital skills and computer literacy when they develop their portfolio; research, evaluate and integrate information from online sources; and use digital media to communicate and disseminate their ideas to others.

Delivery of unit

Ideally, you should deliver this unit throughout the year, to ensure that learners experience a broad range of seasonal maintenance operations and engage with plants, pests and diseases at different times of the year. This unit is an ideal vehicle for learners to apply knowledge and understanding they have gained from the Ecology and Environment for Horticulture at SCQF level 7 unit. You can deliver outcome 5, on developing meta-skills, throughout HNC Horticulture.

Additional guidance

The guidance in this section is not mandatory.

Content and context for this unit

Describe maintenance operations for a range of garden and greenspace components (outcome 1)

The programme of maintenance for outcome 1 can take a range of forms. Learners consider the maintenance of plants and other features over a period of time to understand the seasonality of horticultural work, the factors that influence maintenance decisions, and the maintenance options available.

The programme of maintenance can be a maintenance plan, case study or project, and can consider the options for maintenance in different contexts; for example, commercial, environmental or historical. You should encourage learners to consider context, compare operations and place sustainability at the heart of all their decision-making. You can expand the programme of maintenance and use it to evidence the requirements of outcomes 3 and 4.

Learners have the flexibility to choose garden and greenspace components for their programme to suit their own interests and the practicalities of the delivering centre. Nonetheless, their programme should contain common landscape elements that learners are likely to encounter in general horticultural maintenance operations, including:

- trees, shrubs, climbers and other woody plants, which could include wall shrubs, hedges, fruit trees, roses
- ♦ annuals, perennials and other non-woody plants, which could include hardy annuals, seasonal bedding, bulbs, grasses, herbaceous plants
- turf, grass and lawns, which could include fine turf, sports turf, amenity grass, species-rich grassland
- specialist plantings, which could include alpine, aquatic, conservatory, indoor, food crops
- hard landscape features, which could include paved surfaces, artificial turf, walls and timber structures

Learners should take into account the specific maintenance of a range of plants. They identify the plants they are studying, and do so at different times of year — this is particularly important if plants change significantly over the course of a growing season. They can demonstrate their plant-identification knowledge and understanding in the information they give in their programme of maintenance.

The programme of maintenance can include factors linking it with other mandatory units in the HNC structure such as the Ecology and Environment for Horticulture at SCQF level 7 unit.

Maintain a range of components in a garden and greenspace (outcome 2)

This is a practical outcome in which learners gain hands-on experience working on a range of different hard and soft landscape elements. Learners must experience the factors that influence maintenance decisions.

Learners have the flexibility to choose garden and greenspace components for their programme that suit their own interests and the practicalities of the delivering centre. Nonetheless, learners should work on some common landscape elements that they would come across in the industry. Learners' chosen components for outcome 2 need not be the same as those in outcome 1, but there are clear benefits of linking the two.

Learners should experience a broad range of tasks that include the opportunity to use machinery, including both two- and four-stroke engine machines and battery-operated machines.

Learners should experience a working composting system and contribute to its maintenance. Encourage them to work sustainably at all times.

Learners can present their evidence requirements for outcome 2 in the form of a practical diary or portfolio, in which they have collated written and visual descriptions of their work over the course of the unit. You can use observation checklists to record practical work and learners' competency in using equipment or machinery.

Explain the principles of selecting, operating, and safely using a range of garden and greenspace maintenance equipment and machinery (outcome 3)

Learners must understand the basic operating principles of a range of two-and four-stroke and battery-operated machinery so that they can make informed judgements when they select machinery. They could also look at other operating factors, such as powertrains (belt-and-chain drives, gears, clutches), lubrication methods, machinery controls and operator adjustments. Encourage discussion about the sustainability of different power sources, as well as new advances in technology (such as robotic mowers).

Learners have the flexibility to choose machinery that suits their interests and the practicalities of the delivering centre. They will find it helpful, however, to base work on outcome 3 on their practical experiences from outcome 2.

We expect learners to be familiar with relevant health and safety legislation. They must comply with appropriate regulations, including risk assessments and familiarity with operator manuals, to ensure machinery is maintained and safe to use, and the recording and monitoring of vibration and noise exposure. Learners must be aware of the need for certification for some types of machinery and how to obtain this. They could contribute to existing health and safety records, and evidence could be gathered as part of group work.

We expect learners to maintain some equipment (for example, dismantle and sharpen a pair of secateurs, or clean and oil wooden hand tools) and three different types of machinery. While this maintenance need not be extensive, it must be necessary and contribute to the safe and efficient operation of the machine. Because the work is practical, evidence for maintenance can form part of the learner's practical diary or portfolio.

Maintenance can include (but need not be limited to):

- ♦ oil check and change
- ♦ refuelling
- ♦ sharpening
- filter check and change
- spark plug check and change
- battery charging
- ♦ tyre pressure check
- drive belt check and adjust
- ♦ lubrication

Learners can tie in their selection and maintenance of machinery with their programme of maintenance in outcome 1, where they can consider how machinery might impact operations. Encourage learners to look at different types of machines, different specifications and price points, and to consider the sustainability, appropriateness for intended use, running costs, safety and ease of use of each.

Learners can incorporate their evidence for outcome 3 into their programme of maintenance produced for outcome 1, and they can focus on the practical situations they come across in outcome 2. The evidence can be in the form of a report containing written and graphical information. Learners can incorporate evidence for the practical elements of machinery maintenance into their portfolio or practical diary from outcome 2.

Describe a range of plant-protection issues in garden and greenspace maintenance, and select appropriate control measures (outcome 4)

In this outcome, learners look at common plant-protection issues, relevant to the maintenance of gardens and greenspaces. You can cover plant-protection issues, including non-native, invasive species, where appropriate.

Learners should consider the full range of control options available including, but not limited to, cultural, biological, chemical, organic, biodynamic and integrated strategies. They should ensure sustainability is a significant factor when they select control strategies.

You can help learners by covering specific legislation on the application of pesticides when you deliver this unit. You can choose whether you cover legislation relating to plant-protection issues more generally.

While you can gather evidence for this outcome as a stand-alone case study, we would expect there to be sufficient, applicable evidence from the programme of maintenance (outcome 1) or the practical work (outcome 2). Learners can provide evidence of their plant-protection issue knowledge in their practical diary or portfolio

Develop meta-skills in a vocational context (outcome 5)

Skills 4.0: a skills model to drive Scotland's future outlines three categories of self-management, social intelligence and innovation, each with four meta-skills and a number of sub-skills. Learners are not expected to develop or reference all of these, and none are in themselves mandatory. There are many interrelationships and dependencies between these skills and the focus should be on holistic development within the vocational context. Learners should be able to reflect in depth on the meta-skills they are developing and the relationships between them, and include references to course projects, outputs and experiences that contribute to that development.

It is the depth of reflection that is important, not the number of meta-skills referenced.

Approaches to delivery

We recommend that learners have the opportunity to see, use and look after general and common horticultural tools, equipment and machinery. It is beneficial for learners to experience as broad a range of equipment as possible, but they need not use or experience everything. The contexts of gardens and greenspaces are fundamental to this unit, and we recommend that centres have access to a broad range of garden and greenspace elements with the appropriate capacity to enable learners to individually experience the maintenance operations required. Learners may require access to health and safety information, such as risk assessments or user manuals for machinery. You should ensure they have access to the appropriate personal protective equipment.

Approaches to assessment

While it is possible to assess this unit's outcomes through four individual pieces of work, we recommend that centres consolidate the evidence into one holistic and connected assignment, with the evidence of one outcome contributing to that of others.

Outcome 1

You can assess this outcome through the production of a project, portfolio or case study, which may contain written information, images and graphical evidence covering tasks, comparisons and examples of maintenance methods. The development of a programme of maintenance can be linked to the garden and greenspace elements maintained for outcome 2.

Outcome 2

You can assess this outcome through the production of a project, portfolio or practical diary, which records details of tasks, notes, images, drawings and other key information about the practical work undertaken throughout the year. The practical work can be based on the garden and greenspace elements under consideration in outcome 1. Plant identification could have a practical nature here, while learners evidence their plant knowledge by the maintenance programme from outcome 1.

Outcome 3

You can assess this outcome on practical machinery maintenance in the learner's own portfolio from outcome 2, or through the use of observation checklists. You can assess their understanding of health and safety legislation in the selection of machinery through a case study that is incorporated into outcome 1.

Outcome 4

You can assess this outcome from the production of a stand-alone case study or written into the maintenance programme from outcome 1. You can link and gather evidence of learners' ability to identify plant-protection issues from their practical experiences recorded from outcome 2.

Outcome 5

You should base your assessment of outcome 5 on the learner's meta-skills development across the breadth of the HNC, and not limited to meta-skills they develop in this unit alone.

You can find detailed guidance on opportunities for learners to demonstrate meta-skills development across all units in the Educator Guide.

Opportunities for e-assessment

There may be opportunities for e-assessment through the production of an e-portfolio covering all four outcomes.

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.

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.

Information for learners

Maintaining Gardens and Greenspace (SCQF level 7)

This information explains:

- what the unit is about
- what you should know or be able to do before you start
- what you need to do during the unit
- opportunities for further learning and employment

Unit information

This unit provides you with the knowledge and skills required for the maintenance of gardens and greenspaces. It introduces you to seasonal tasks, protecting and maintaining plants, and developing planted areas and hard landscape features.

On completion of this unit you can:

- 1 describe maintenance operations for a range of garden and greenspace components
- 2 maintain a range of components in a garden and greenspace
- 3 explain the principles of selecting, operating, and safely using a range of garden and greenspace maintenance equipment and machinery
- 4 describe a range of plant-protection issues in garden and greenspace maintenance, and select appropriate control measures
- 5 develop meta-skills in a vocational context

While some previous horticultural knowledge or experience is beneficial, you do not need prior knowledge to study this unit. If you study this unit as part of the Higher National Certificate (HNC) Horticulture group award, then you may be able to progress to Higher National Diploma (HND) Horticulture once you have completed the HNC.

Administrative information

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Superclass: SE

History of changes

Version	Description of change	Date
2.0	 Unit titles amended to better reflect unit content, specifically: Garden and Greenspace Maintenance is now Maintaining Gardens and Greenspace. Environmental Horticulture is now Ecology and Environment for Horticulture. 	November 2022
3.0	Outcome 5: meta-skills outcome added to unit	May 2023
4.0	Amendments to evidence requirements for outcomes 1 to 4.	August 2023

Note: please check <u>SQA's website</u> to ensure you are using the most up-to-date version of this document.

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