

Unit 14: Maintain Turf in Parks and Gardens

Unit code:	M/600/9970
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

This unit aims to provide learners with an understanding of how to maintain turf in parks and gardens and how these can be applied in practice. This unit is primarily aimed at learners within a centre-based setting looking to progress into the sector or further education and training.

● Unit introduction

When people think of a garden most of the time it would include a section of turf. Recently in garden design the area taken up by grass has either been reduced significantly and manicured or increased and lengthened into a meadow style area that creates a haven for wildlife.

The range of turf management is vast, from a well-clipped golf course to a wildflower meadow that requires little maintenance. Career options within the sector are also varied. Many universities offer a degree in sports turf management and the Institute of Groundsmanship produces a regular magazine and has been accepting members for over 75 years.

This unit aims to highlight for learners the wide variety of tasks that turf maintenance can include as well as preparing them to work in the industry. Learners will develop skills in maintaining a section of turf, renovating an area and being able to care for a wide range of grassed areas. By the end of this unit learners should realise the impact that turf and grasses can have on the visual aspect of a design and that the presentation of an area of turf can often lead the garden user to make an instant first impression.

This unit also gives learners an opportunity to access a work placement at a sports club. On a number of degree level courses this would form a large part of the course, so it is sensible for learners to experience this at Level 3 to learn the maintenance requirements needed in this area.

● Learning outcomes

On completion of this unit a learner should:

- 1 Know the factors affecting the maintenance of established fine and coarse turf
- 2 Be able to maintain grassed areas
- 3 Be able to repair and renovate grassed areas
- 4 Be able to prepare an annual maintenance programme for a high quality turf area
- 5 Understand wildflower meadows and low maintenance swards.

Unit content

1 Know the factors affecting the maintenance of established fine and coarse turf

Factors: uses of turf; site conditions; soil type; climate; pH; drainage; irrigation; feed; slope and aspect; macroclimate; microclimate; usage; pests and diseases that affect turf; weeds and other undesirable species; controls (chemical, physical, biological, timings); machinery and equipment (use, maintenance)

Grass and mixes: fine and coarse species; suitable grass mixes

2 Be able to maintain grassed areas

Maintenance operations: mowing; aeration; fertiliser application; brushing; health and safety; edging; weed, pest and disease control; top dressing; switching/brushing; scarifying/verticutting; irrigation; rolling; personal protective equipment (PPE); relative benefits of maintenance operations

3 Be able to repair and renovate grassed areas

Techniques: identification of areas to be improved; selection of technique; considerations of timing for operations eg which operations should be carried out in spring and which in autumn; extent of required repair eg turf replacement, over-seeding, patching, repairing edges; turf levelling; renovation eg preparation of area, top dressing, over-seeding; health and safety; risk assessment

4 Be able to prepare an annual maintenance programme for a high quality turf area

Maintenance tasks: autumn or spring maintenance eg purpose, techniques, differences; sowing; aeration; weeding; cultivation; irrigation; use of fertilisers; annual costs of equipment and materials; statutory requirements; health and safety

5 Understand wildflower meadows and low maintenance swards

Establishing: converting an existing lawn; site preparation; timing considerations; over-seeding; recognition of local species; competition with vegetation

Maintenance: mowing regimes; annual maintenance; how tasks mimic nature; removal of material; care of native species; benefit to wildlife

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 explain the soil and environmental factors affecting maintenance operations on amenity turf [IE]	M1 explain which species are most suitable for a range of turf soil conditions	D1 produce a site report evaluating a section of turf
P2 explain how maintenance operations and their frequency and timing affect the growth and development of the sward	M2 describe the damage that pests or disease can do to an area of turf and how it can be treated/dealt with	
P3 identify grass species and mixes that are appropriate or detrimental to a range of amenity turf situations		
P4 identify weeds and weed grasses of fine and coarse turf and appropriate means to control them		
P5 carry out maintenance operations on fine and coarse amenity turf safely, including mowing, scarification, aeration	M3 explain the benefits of maintenance in the short and long term	D2 evaluate the risk involved in different maintenance tasks and describe how to reduce the risk
P6 identify pests and diseases of turf and select suitable control measures	M4 explain the benefits and safety issues for a range of top dressings and fertilisers	
P7 select an appropriate fertiliser application rate and calibrate a fertiliser distributor		
P8 assess the condition of worn areas of turf and select appropriate measures to renovate them		D3 evaluate selected renovation and repair techniques and recommend uses for each.
P9 carry out repairs safely by patching and over-seeding [TW, SM, EP]	M5 describe the benefits of turf renovation for sports pitches	

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P10 specify and describe the maintenance operations required, machinery settings and timing of use	M6 explain why certain tasks are restricted by the time of year	
P11 estimate the costs and resources required, including labour, equipment, materials and specific expertise [CT]		
P12 summarise the legislative and environmental considerations of maintenance operations		
P13 specify the establishment and maintenance of wildflower meadows for: <ul style="list-style-type: none"> ◇ Spring meadows ◇ Summer meadows 	M7 describe the use of native species in establishing a meadow.	
P14 evaluate the benefits of low maintenance swards. [RL]		

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers CT – creative thinkers	RL – reflective learners TW – team workers	SM – self-managers EP – effective participators
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Essential guidance for tutors

Delivery

Delivery of this unit will involve practical assessments, written assessment, visits to suitable collections and link with work experience placements.

This unit can be delivered using a number of different techniques but the key principle to ensure is that all tasks are carried out with health and safety in mind. Tasks should have risk assessments carried out before learners attempt them. A good way for learners to gain experience in turf management is to manage, or help to manage, and maintain these areas at first hand. A work placement would be ideal but if this is not possible then site visits, guest speakers, residential visits and on site tasks can motivate learners. Any work placement settings should be visited before learners begin their placement, have health and safety checks and tutors should ensure that all relevant insurance documentation is completed before learners work on a placement. It is also worth advising staff at the placement of what learners must cover.

Learning outcome 1 requires learners to know the factors that can affect turf. This could be carried out through internet research, practical investigation, formal lectures, discussion, site visits or guest specialist speakers.

Learning outcome 2 will be delivered mainly as a series of practical sessions with formal lectures and demonstrations to support learners carrying out new tasks and using machinery and new equipment to maintain turf, including health and safety. Again, a site visit or work placement could be used to meet this learning outcome.

Learning outcome 3 can be linked to learning outcomes 1 and 2 and taught as part of a work placement or through demonstrations, site visits or lectures. The time of year should be a consideration here when planning delivery for certain methods of renovation.

Learning outcome 4 requires learners to carry out research, so access to facilities is key whether it is a well-stocked library or the internet. Formal lectures and guest speakers can also be used to deliver guidance on annual maintenance regimes. If learners are completing this unit as part of a work placement then interviewing employees and managers may also be a useful source of information.

Learning outcome 5 could again be taught through a series of lectures or by using practical demonstrations. It may be possible, space allowing, to go through the stages of establishing an area using an existing piece of lawn which can be carried out on a small scale. Site visits to existing meadows at key times of the year may also be of use.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value**.

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment

Introduction and overview of the unit.

Assignment 1: Factors Affecting Turf Maintenance (P1, P2, P3, P4, M1, M2, D1).

Introduction to assignment.

Demonstrations and supervised practical work introducing how turf can be affected.

Assignment 2: Day-to day Maintenance (P5, P6, P7, M3, M4, D2)

Introduction to assignment.

Supervised practical work, demonstrations or alternatively a work placement can be used.

Assignment 3: Running Repairs (P8, P9, P10, M5, M6, D3).

Introduction to assignment.

Internet research, lectures and practical sessions.

Assignment 4: Covering the Office for a While (P11, P12).

Introduction to the assignment.

Supervised practical, demonstrations and lectures.

Assignment 5: Becoming Wildlife Friendly (P13, P14, M7).

Introduction to the assignment.

Supervised practical work, demonstrations, lectures.

Unit review.

Assessment

For P1, learners must describe the soil and environmental factors that affect turf. Evidence can be provided from a range of activities listed in the Delivery section. A work diary, witness statements or observation records can form the basis of the evidence. Guidance on the use of observation records and witness statements is provided on the Edexcel website. The research could also be presented as a presentation, mock interview, leaflet, web page, or blog.

P2 requires learners to describe the timing and frequency of maintenance when establishing swards. This can be assessed as a leaflet, booklet, blog, planned presentation linked to P1 or as part of a work placement diary which could be supported by observation records.

P3 requires learners to identify grass species. Learners could be quizzed by holding a series of game show style question rounds to encourage identification. A series of fact cards could be produced or learners could attempt to construct a classification key that could be given to other learners in the future to help with identification.

P4 involves learners in identifying weed grasses and how to control them. This could take the form of a web page which would appeal to new gardeners, a leaflet, a clip from Gardeners' World, an interview or presentation.

P5 will mostly be assessed through the production of learner diaries, photographic evidence with supporting witness and observation records or as part of a work placement. Learners must take account of health and safety when carrying out maintenance that requires the use of power or hand tools.

P6 requires learners to identify pests and diseases of turf and learners may benefit from going out and attempting to find pests in turf. Pooters can be used to collect samples. Drawings can be made and a leaflet, presentation or key can be produced based on learners' findings. Tutors must ensure that any animals are returned after observation.

P7 requires learners to understand fertiliser application. Learners could complete this as part of a work placement or by producing a guide for fellow learners or small holders looking for advice. This could also take the form of a leaflet, fact card or presentation.

For P8, learners could assess an existing piece of turf and write a report assessing the condition of turf followed by a list of recommendations. P9 can be linked to this through completing a diary with photographs/diagrams of the repairs carried out on the site. Learners could also complete this section on a work placement, producing a diary with supporting observation records.

P10 requires learners to specify the maintenance and timings of maintenance for an area of turf. This could take the form of an instructional leaflet, a web page, or learners being quizzed/interviewed by the tutor.

P11 requires learners to look at the costs involved with maintenance. This could be a series of mock accounts showing what is needed each year with a list of approximate costs for tasks, a mock quote for a potential large house requiring a team of gardeners or other suitable sets of accounts.

P12 can be linked to P8-P11. Learners should present internet research on the legislative requirements of maintenance. This could be a guidance leaflet for small businesses, a leaflet, annotated poster or something similar.

P13 requires learners to explain how they would establish a wildflower meadow. This can be presented as an instructional leaflet, PowerPoint presentation or annotated poster.

P14 requires learners to evaluate the benefits of a low maintenance sward and could be an assessment of an existing piece of land written up as a report. If land is not available then learners could carry out internet research from which they can produce a booklet, annotated poster or presentation.

For M1, learners should explain which species are suitable for a range of soil conditions. This could take the form of a written piece for a gardening magazine, a leaflet, an instructional video or blog.

M2 requires learners to describe the pests and diseases that affect turf as well as how to treat them. This could be completed as a gardeners' question time, a question and answer session, a gardeners' problem page with a series of responses, annotated poster or leaflet.

M3 can be linked to a work placement where learners have seen the benefits of maintenance first hand. This can take the form of notes and photographs in a diary, a leaflet, newspaper article, or annotated poster.

M4 should allow learners to investigate the safety involved in using fertilisers and top dressings. Learners could look into the chemicals and write a COSHH style report. Learners could also write an instructional leaflet for a new user guide from the fertiliser manufacturer.

M5 can be linked to a site visit or guest speaker and can be assessed as a series of written notes, a diary, internet research written up as a presentation, annotated poster, or magazine article.

M6 requires learners to explain why certain tasks are carried out at different points in the year. This could again be a magazine article, gardeners' question time, role play, a clip from Gardeners' World or leaflet.

M7 requires learners to describe the use of native species. This could be a presentation, PowerPoint presentation, newspaper article, leaflet or annotated poster.

D1 requires learners to evaluate a piece of turf in detail and write a report which could be passed on to a number of different people, for example a garden designer, a house builder, a surveyor, a wildlife or ecological organisation. This should be either a written report, presentation or PowerPoint presentation.

D2 requires learners to assess the risk involved with maintenance. This should include how risk can be reduced and what employers can do to keep their employees safe. This could be a written report, safety leaflet, annotated poster or booklet.

D3 requires learners to evaluate the various techniques used to renovate and repair turf. This could be as an instructional blog, web page, magazine article or a report for a company.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, P4, M1, M2, D1	Factors Affecting Turf Maintenance	The learner has been employed as a groundsperson and has been given an area of the formal and non-formal gardens to maintain. You have noticed some pests and diseases on the formal turf and that some species of grass have crept into the wrong areas.	Diary. Observation records. Report or presentation. Classification key.
P5, P6, P7, M3, M4, D2	Day-to-day Maintenance	Now that you have worked at the gardens for a little while you are asked to maintain the section for yourself and to learn how to complete all maintenance tasks.	Practical observations. Diary. Written notes. Presentation.
P8, P9, P10, M5, M6, D3	Running Repairs	The gardens are open to the public over summer and the visitors' feet have taken their toll on the turf. You must now repair and renovate the turf.	Practical observations. Witness statements. Diary. PowerPoint with photographs.
P11, P12	Covering the Office for a While	The head gardener needs an assistant to help in the office for a couple of weeks to help with paperwork.	Report. Accounts document. Leaflet.
P13, P14, M7	Becoming Wildlife Friendly	The owner has decided to turn part of the formal garden into a meadow to encourage and support local wildlife.	Diary. Witness statements. Booklet. Presentation

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Land-based sector suite. This unit has particular links with:

Level 2	Level 3
Understand the Principles of Sports and Amenity Turf Maintenance	L20 Plan the maintenance of sports turf areas L22 Manage planted areas for their amenity value
	Maintain Turf in Parks and Gardens
	Manage Winter and Summer Sports Turf Surfaces
	Manage Amenity Turf

Essential resources

Learners will need access to an area of fine and coarse turf which can be either amenity or sports turf. A range of machinery should be available to maintain this area and must include pedestrian mowers, aerators and scarifiers. Tractor mounted versions would be an advantage. If they are not available, learners must have access to a site where the use of modern, up-to-date equipment can be demonstrated. Hand tools and equipment should be available to carry out the range of operations listed in the unit content.

Learners must have access to a range of sites to be able to compare the effects of different techniques and equipment and have the chance to question managers on the programmes of work they implement.

Employer engagement and vocational contexts

Learners would benefit from a wide range of guest speakers in the field of turf management. Developing good links with businesses in the local area is key to gaining access to facilities that centres do not have. Experiencing the professional environment is also very important for learners.

Indicative reading for learners

Textbooks

Brickell C – *The RHS Encyclopaedia of Gardening* (Dorling Kindersley, 2007) ISBN 978-1405322270

Brown S – *Sports Turf and Amenity Grassland Management* (The Crowood Press, 2005)
ISBN 978-1861267900

Hope F – *Turf Culture: A Complete Manual for the Groundsman* (Cassell Illustrated, 1990)
ISBN 978-0304318544

Hubbard C E – *Grasses: v. 1: A Guide to Their Structure, Identification, Uses and Distribution 3rd ed*
(Penguin Books, 1992) ISBN 978-0140132274

Websites

www.aab.org.uk/images/Robinson.pdf

The Association of Applied Biologists

www.bigga.org.uk/index.php

The British and International Golf Greenkeepers Association

www.farmura.com/

Farmura Ltd - manufacturers of organic turf management products

www.iog.org/

The Institute of Groundsmanship

www.stri.co.uk

The Sports Turf Research Institute

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	carrying out internet and library research
Creative thinkers	suggesting improvements for an area of turf
Reflective learners	evaluating methods used
Team workers	completing maintenance tasks on time
Self-managers	meeting targets and producing written work
Effective participators	participating in group tasks, applying techniques to new situations.

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	investigating different ways of carrying out a task
Creative thinkers	adapting to new conditions on a task
Reflective learners	continually improving when carrying out a task
Team workers	completing tasks that require more than one person
Self-managers	meeting deadlines
Effective participators	training/teaching others how to complete tasks.

● Functional Skills — Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	carrying out internet research
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	researching and comparing current techniques
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	researching methods of maintenance and establishing sites
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	carrying out the accounts task to cost maintenance section producing tables or PowerPoint presentations
Present information in ways that are fit for purpose and audience	producing presentations, Excel files and Word documents
Mathematics	
Draw conclusions and provide mathematical justifications	calculating maintenance costs
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	participating in work placement and discussions communicating in a team
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	following safety information and instruction sheets
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	producing written evidence.