



National Unit specification: general information

Unit title: Landbased: Setting out Skills (SCQF level 4)

Unit code: H1TS 10

Superclass: RG

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Summary

This Unit is designed to provide candidates with an understanding of the principles of basic surveying and setting out techniques and how these skills can be put into practice in a greenkeeping context.

The candidate will describe the 3:4:5 principles, present information in graphical format, set lines and shapes from given graphical information, establish gradients and allow for the transfer of levels. The Unit is aimed at candidates of all ages, with little or no knowledge of the Greenkeeping industry. This Unit is part of the National Certificate in Greenkeeping at SCQF level 4 but can also be taken as a freestanding Unit.

Outcomes

- 1 Set out angles on site.
- 2 Set out simple geometric shapes.
- 3 Transfer levels using a range of techniques.

Recommended entry

While entry is at the discretion of the centre, candidates would normally be expected to have attained the following, or equivalent:

Numeracy and communication at SCQF level 3 or above.

General information (cont)

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Credit points and level

1 National Unit credit at SCQF level 4: (6 SCQF credit points at SCQF level 4*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Core Skills

Achievement of this Unit gives automatic certification of the following Core Skills component:

Complete Core Skill	None
Core Skill component	Critical Thinking at SCQF level 4 Using Number at SCQF level 4

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit specification.

National Unit specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

All practical activities must be carried out in compliance with current health and safety legislation including wearing PPE when necessary.

Outcome 1

Set out angles on site.

Performance Criteria

- (a) Describe the 3:4:5 principles for setting out a right angle.
- (b) Identify tools and equipment required for setting out a right angle.
- (c) Set out angles.
- (d) Prepare, use and clean all tools and equipment safely and according to instructions.
- (e) Report on the activity carried out.

Outcome 2

Set out simple geometric shapes.

Performance Criteria

- (a) Describe methods for setting out geometrical shapes.
- (b) Identify tools and equipment required for the activity.
- (c) Set out geometric shapes.
- (d) Prepare, use and clean all tools and equipment safely and according to instructions.
- (e) Report on the activity carried out.

Outcome 3

Transfer levels using a range of techniques.

Performance Criteria

- (a) Use a spirit level and straight edge to transfer levels correctly.
- (b) Use boning rods safely to establish a level line.
- (c) Use an automatic level, in conjunction with pegs, to transfer a known height correctly.
- (d) Provide a technically accurate report on the activities carried out.

National Unit specification: statement of standards (cont)

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Evidence Requirements for this Unit

Candidates must be made aware of Health and Safety requirements for the activities, at all stages of the delivery of this Unit and the required PPE must be worn when carrying out practical activities.

Outcome 1

Closed-book written/oral/recorded and practical activity evidence which includes:

- ◆ an accurate description of the use of the 3:4:5 principles for setting out a right angle
- ◆ the identification of tools and equipment required for setting out a right angle — this will include the following items:
 - tapes
 - wooden pegs
 - ranging poles
 - hammers
- ◆ setting out angles accurately — the angles must include a 90, 45 and 135 degree using the 3:4:5 technique
- ◆ the preparation and safe use of appropriate tools and equipment for the tasks
- ◆ cleaning and storing tools and equipment according to manufacturer's and tutor instructions
- ◆ the observation and compliance with Health and Safety legislation at all times
- ◆ a report which accurately outlines the tasks carried out — the report to include the process and tools and equipment used to carry out the tasks

Outcome 2

Open-book supervised written/oral/recorded and practical evidence which includes:

- ◆ a description of suitable methods and tools for setting out geometrical shapes — suitable methods, including the tools and equipment, would include — the use of wooden pegs, tape measures, hammers and any other suitable tools and equipment which would allow the task to be carried out
- ◆ setting out **two** geometric shapes to the given tolerance shown below — tasks involved in this activity will include:
 - marking out dimensions in the field using a suitable method and will include:
 - (i) rectangle +/-50mm
 - (ii) circle +/-50mm
- ◆ the correct identification, preparation and safe use of tools and equipment required for the tasks, in compliance with Health and Safety legislation and manufacturers' instructions
- ◆ cleaning and storing tools effectively after use in accordance with health and safety and manufacturers' guidelines
- ◆ a report on each of the shapes, detailing the method, tools and equipment used and health and safety issues involved — the report will include sketches

National Unit specification: statement of standards (cont)

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Outcome 3

Open-book supervised written/oral/recorded, graphical and practical evidence which includes:

- ◆ the correct use of a spirit level and straight edge to transfer a known height to a new work area accurately — +/-50mm
- ◆ the safe and correct use of a set of boning rods to establish a level line 15 metres in length — +/-50mm
- ◆ the correct use of an automatic level to transfer a known height to a new work area — +/-50mm
- ◆ all pegs to be level with an established datum point — +/-10mm
- ◆ a report, to include sketches, on each of the above tasks, detailing the method and calculations, the tools and equipment used and the health and safety issues identified

Candidates must be assessed individually and all submitted evidence must be their own work.

National Unit specification: support notes

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This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This Unit is designed to provide candidates with an understanding of the principles of basic surveying and setting out techniques and how these skills can be put into practice.

The candidate will develop the skills and knowledge to gather information, present this information in graphical format, set lines and shapes from given graphical information, establish gradients and allow for the transfer of levels.

Guidance on learning and teaching approaches for this Unit

The candidates should be allowed to develop their range of practical skills throughout this Unit and will be encouraged to use all given techniques and equipment provided. The integration of tasks will allow candidates to gain more practical expertise and candidates should be encouraged to participate in group work, while developing knowledge and skills. Candidates will be advised however that assessments will be carried out on an individual basis.

The integration of activities throughout the Unit should also enable the development of skills such as graphical techniques and researching information from a variety of sources including internet research.

Candidates will be introduced to a range of tools and equipment, ie abney levels, engineering levels, compass, tapes, ranging poles, sight rails, boning rods, etc and allowed to develop the skills necessary to use the equipment provided in accordance with all relevant health and safety which covers the subject area. Further experience in this subject area will be enhanced by the use of internet searches to reinforce and extend knowledge and with the possible use of guest speakers from within relevant disciplines. The VLE may also be of use in certain circumstances and could provide candidates with access to extension materials if appropriate.

Essential skills

There will be opportunities to develop knowledge regarding sustainability issues in terms of working on the land and ensuring that natural resources are cared for, which may also contribute towards improved citizenship.

Candidates will learn skills and knowledge which may enhance their employment prospects in the area of greenkeeping.

National Unit specification: support notes (cont)

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Guidance on approaches to assessment for this Unit

Assessment for this Unit may take the form of one integrated practical assessment including all the required tasks. The candidate should be given a brief if this is the chosen approach.

Questions could be used to test the candidate's knowledge of the 3:4:5 principles. Illustrations/pictures of tools and equipment may be shown to the candidate along with a brief for a task or tasks and the candidate should then identify correctly the items for each activity to be carried out.

A report template could be given to each candidate with headings which cover the criteria required so that the candidate is clear about what is to be included in each report.

If an integrated assessment is used, care must be taken to ensure that all the criteria have been covered and referenced.

Opportunities for the use of e-assessment

This is a Unit designed to develop mainly practical skills.

There may be opportunities to deliver some of the theoretical knowledge using a virtual learning environment (VLE).

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Opportunities for developing Core Skills

The uses of trigonometry ratios and % error will develop *Numeracy* skills.

The production of reports will encourage a candidate's *Communication* skills.

The production of the reports and research activity carried out by the candidate may also enhance *Information and Communication Technology* skills.

This Unit has the Critical Thinking component of Problem Solving and the Using Number component of Numeracy embedded in it. This means that when candidates achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 4 and Using Number at SCQF level 4.

National Unit specification: support notes (cont)

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Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

History of changes to Unit

Version	Description of change	Date
02	Core Skills Components Critical Thinking and Using Number at SCQF level 4 embedded.	09/10/2012

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