



Applications of Mathematics: Geometry and Measures (National 4)

SCQF: level 4 (6 SCQF credit points)

Unit code: HV7W 74

Unit outline

The general aim of this Unit is to develop skills that focus on the use of mathematical ideas and strategies that can be applied to geometry and measurement in straightforward real-life contexts. This includes using skills in interpreting and in using shape, space and measures to determine and explain solutions. The Outcomes cover aspects of geometry and measurement in real-life situations requiring mathematical reasoning.

Learners who complete this Unit will be able to:

- 1 Use reasoning skills and measurement skills linked to straightforward real-life contexts
- 2 Use reasoning skills and geometric skills linked to straightforward real-life contexts

This Unit is a mandatory Unit of the National 4 Applications of Mathematics Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provide advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given *in Unit Assessment Support*.

The *Added Value Unit Specification* for the National 4 Applications of Mathematics Course gives further mandatory information on Course coverage for learners taking this Unit as part of the National 4 Applications of Mathematics Course.

Recommended entry

Entry to this Unit is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

- ◆ National 3 Applications of Mathematics Course or its component Units

In terms of prior learning and experience, relevant experiences and outcomes may also provide an appropriate basis for doing this Unit.

Equality and inclusion

This Unit Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. For further information, please refer to the *Unit Support Notes*.

Standards

Outcomes and assessment standards

Outcome 1

The learner will:

1 Use reasoning skills and measurement skills linked to straightforward real-life contexts by:

- 1.1 Interpreting a situation involving measurement and identifying an appropriate strategy
- 1.2 Using appropriate mathematical processes and/or calculations to determine a solution
- 1.3 Explaining a solution in relation to the context

Outcome 2

The learner will:

2 Use reasoning skills and geometric skills linked to straightforward real-life contexts by:

- 2.1 Interpreting a situation involving geometry and identifying an appropriate strategy
- 2.2 Using appropriate mathematical processes and/or calculations to determine a solution
- 2.3 Explaining a solution in relation to the context

Evidence Requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used. They should ensure there is sufficient evidence of competence in measurement, geometric and reasoning skills from the Outcomes and Assessment Standards to allow a judgement to be made that a learner has achieved the Unit.

Assessors should use their professional judgement to give learners credit for an appropriate degree of accuracy. This may mean giving credit for incomplete solutions or numerically incorrect solutions which show correct methodology, therefore demonstrating required knowledge and understanding of the geometric and measurement processes involved.

Evidence may be presented for individual Outcomes or it may be gathered for the Unit as a whole through integrating assessment in one activity. If the latter approach is used, it must be clear how the evidence covers each Outcome.

A calculator or equivalent technologies may be used.

For this Unit, learners will be required to produce evidence as follows.

For Outcome 1 learners will be required to provide evidence of using reasoning and measurement skills linked to straightforward real-life contexts by drawing on the following: solving a basic problem involving time management; calculating a quantity based on a related measurement; constructing a scale drawing with a given scale; planning a basic navigation course; carrying out container packing using first-fit algorithm; investigating the need for tolerance in a measurement.

For Outcome 2 learners will be required to provide evidence of using reasoning and geometric skills linked to real-life contexts by drawing on the following: determining the gradient of a slope; investigating a situation involving perimeter; investigating a situation involving area; investigating a situation involving volume; solving a problem involving the use of Pythagoras' theorem; using a scale factor on the dimensions of a shape.

Exemplification of assessment is provided in *Unit Assessment Support*. Advice and guidance on possible approaches to assessment is provided in the *Unit Support Notes*.

Development of skills for learning, skills for life and skills for work

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through the Unit are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Unit where there are appropriate opportunities.

2 Numeracy

- 2.1 Number processes
- 2.2 Money, time and measurement
- 2.3 Information handling

5 Thinking skills

- 5.3 Applying
- 5.4 Analysing and Evaluating

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills should be at the same SCQF level as the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes*.

Administrative information

Published: October 2017 (version 2.0)

Superclass: RB

History of changes to National Unit Specification

Version	Description of change	Authorised by	Date
2.0	Lifeskills Mathematics changed to Applications of Mathematics	Qualifications Manager	October 2017

This specification may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if it is reproduced in part, the source is acknowledged. Additional copies of this Unit can be downloaded from SQA's website at **www.sqa.org.uk**.

Note: readers are advised to check SQA's website: www.sqa.org.uk to ensure they are using the most up-to-date version of the Unit Specification.

© Scottish Qualifications Authority 2017