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## Applications of Mathematics: Geometry and Measures

**SCQF:** level 5 (6 SCQF credit points)

**Unit code:** HV7W 75

### Unit outline

The general aim of this Unit is to develop skills that focus on the use of mathematical ideas and valid strategies that can be applied to geometry and measurement in real-life contexts which may be new to the learner. This includes skills in analysing and using geometry and measures to determine and justify solutions to real-life problems. The Outcomes cover aspects of geometry and measurement in real-life situations requiring reasoning.

Learners who complete this Unit will be able to:

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

This Unit is 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*.

## **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 4 Applications of Mathematics Course or its component Units

## **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 real-life contexts by:**

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

### Outcome 2

The learner will:

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

- 2.1 Analysing a situation involving geometry and identifying a valid strategy
- 2.2 Using appropriate mathematical processes and/or calculations to determine a solution
- 2.3 Justifying 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 that 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 the 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 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 real-life contexts by drawing on the following: calculating a quantity based on two related pieces of information; constructing a scale drawing, including choosing a scale; planning a navigation course; carrying out efficient container packing; using precedence tables to plan tasks; solving a problem involving time management; considering the effects of tolerance.

**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: investigating a situation involving gradient; solving a problem involving a composite shape which includes part of a circle; solving a problem involving the volume of a composite solid; using Pythagoras' theorem within a two-stage calculation.

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

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**Published:** November 2017 (version 1.0)

**Superclass:** RB

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## History of changes to National Unit Specification

Version	Description of change	Authorised by	Date

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

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