SCQF level 5
Unit Specification

Mathematics: Applications

SCQF: level 5 (6 SCQF credit points)

Unit code: H22J 75

Unit outline

The general aim of this Unit is to develop skills linked to applications of mathematics. These include using trigonometry, geometry, number processes and statistics within real life contexts. The Outcomes cover aspects of these skills and also skills in reasoning.

Learners who complete this Unit will be able to:

1 Use mathematical operational skills linked to applications
2 Use mathematical reasoning skills linked to applications

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 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 mathematical operational skills linked to applications by:

1.1 Applying trigonometric skills to triangles which do not have a right angle
1.2 Applying geometric skills to vectors
1.3 Applying numerical skills to fractions and percentages
1.4 Applying statistical skills to analysing data

Outcome 2

The learner will:

2 Use mathematical reasoning skills linked to applications by:

2.1 Interpreting a situation where mathematics can be used and identifying a valid strategy
2.2 Explaining a solution and/or relating it to 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 trigonometric, geometric, numerical, statistical and reasoning skills from the Outcomes and Assessment Standards to allow a judgement to be made that the learners has achieved the Unit.

Assessors should use their professional judgement when giving 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 trigonometric, geometric and statistical processes involved.

Evidence may be presented for individual Outcomes or it may be gathered for the Unit as a whole through integrating assessment in a single 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 for each of the Assessment Standards linked to applications by drawing on the following sub-skills:

Trigonometric skills — calculating the area of a triangle using trigonometry; using the sine and cosine rules to find a side or angle; using bearings with trigonometry

Geometric skills — adding or subtracting two-dimensional vectors using directed line segments; determining coordinates of a point from a diagram representing a 3D object; adding or subtracting two- or three-dimensional vectors using components; calculating the magnitude of a vector

Numerical skills — working with reverse percentages; working with appreciation/depreciation; combination of operations on fractions including mixed numbers

Statistical skills — comparing data sets using statistics including a measure of spread; forming a linear model from a given set of data

For Outcome 2: Evidence of reasoning skills can be collected separately or combined with evidence for Outcome 1.

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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Superclass: RB

History of changes to National Unit Specification

Version	Description of change	Authorised by	Date