National 5 Mathematics Course Specification (C747 75)

Valid from August 2013

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Please refer to the note of changes at the end of this Course Specification for details of changes from previous version (where applicable).

Course outline

Course title: National 5 Mathematics

SCQF: level 5 (24 SCQF credit points)

Course code: C747 75

Mandatory Units

H22F 75	**Mathematics: Expressions and Formulae (National 5)**	**6 SCQF credit points**
H22G 75	**Mathematics: Relationships (National 5)**	**6 SCQF credit points**
H22J 75	**Mathematics: Applications (National 5)**	**6 SCQF credit points**

Course assessment   **6 SCQF credit points**

This Course includes six SCQF credit points to allow additional time for preparation for Course assessment. The Course assessment covers the added value of the Course. Further information on the Course assessment is provided in the Assessment section.

Recommended entry

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

♦ National 4 Mathematics Course or relevant component Units

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

Core Skills

Achievement of this Course gives automatic certification of the following:

Complete Core Skill   Numeracy at SCQF level 5

Progression

This Course or its Units may provide progression to:

♦ other qualifications in Mathematics or related areas
♦ further study, employment or training

Further details are provided in the Rationale section.

Equality and inclusion

This Course 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 *Course Support Notes.*

Rationale

All new and revised National Courses reflect Curriculum for Excellence values, purposes and principles. They offer flexibility, provide more time for learning, more focus on skills and applying learning, and scope for personalisation and choice.

In this Course, and its component Units, there will be an emphasis on skills development and the application of those skills. Assessment approaches will be proportionate, fit for purpose and will promote best practice, enabling learners to achieve the highest standards they can.

This Course provides learners with opportunities to continue to acquire and develop the attributes and capabilities of the four capacities, as well as skills for learning, skills for life and skills for work.

All Courses provide opportunities for learners to develop breadth, challenge and application, but the focus and balance of the assessment will be appropriate for the subject area.

Relationship between the Course and Curriculum for Excellence values, purposes and principles

The National 5 Mathematics Course builds on the principles and practice and experiences and outcomes of mathematics and numeracy.

Mathematics is rich and stimulating. It engages and fascinates learners of all ages, interests and abilities. Learning mathematics develops logical reasoning, analysis, problem-solving skills, creativity, and the ability to think in abstract ways. It uses a universal language of numbers and symbols, which allows us to communicate ideas in a concise, unambiguous and rigorous way.

Mathematics equips us with many of the skills required for life, learning and work. Understanding the part that mathematics plays in almost all aspects of life is crucial. This reinforces the need for mathematics to play an integral part in lifelong learning and be appreciated for the richness it brings.

This Course allows learners to acquire and develop the attributes and capabilities of the four capacities. For example: success in mathematical learning and activity leads to increased confidence as an individual; being able to think logically helps towards being a responsible citizen; and being able to understand, use and communicate mathematical ideas will help in becoming an effective contributor.

Purpose and aims of the Course

Mathematics is important in everyday life, allowing us to make sense of the world around us and to manage our lives.

Using mathematics enables us to model real-life situations and make connections and informed predictions. It equips us with the skills we need to interpret and analyse information, simplify and solve problems, assess risk and make informed decisions. The Course aims to:

- ♦ motivate and challenge learners by enabling them to select and apply mathematical techniques in a variety of mathematical and real-life situations
- ♦ develop confidence in the subject and a positive attitude towards further study in mathematics
- ♦ develop skills in manipulation of abstract terms in order to solve problems and to generalise
- ♦ allow learners to interpret, communicate and manage information in mathematical form; skills which are vital to scientific and technological research and development
- ♦ develop the learner's skills in using mathematical language and to explore mathematical ideas
- ♦ develop skills relevant to learning, life and work in an engaging and enjoyable way

Information about typical learners who might do the Course

This would be a suitable Course for all learners who have experienced breadth and depth of learning across Mathematics experiences and outcomes, or who have attained the National 4 Mathematics Course, or who have equivalent qualification or experience. It would be suitable for learners who can respond to challenging situations and who can apply what they have learned in new and unfamiliar situations.

On successful completion of this Course, the learner could progress to:

- ♦ Higher Mathematics

Elements of this Course can contribute to the Numeracy Unit available at SCQF level 5.

Mathematics has applications in many subject areas, and skills developed in this Course support progression in this and other curriculum areas. These skills can also support progression into Skills for Work Courses, National Progression Awards, National Certificate Group Awards, and employment.

Course structure and conditions of award

Course structure

Learners will acquire and apply operational skills necessary for developing mathematical ideas through symbolic representation and diagrams. They will select and apply mathematical techniques and will develop their understanding of the interdependencies within mathematics. Learners will develop mathematical reasoning skills and will gain experience in making informed decisions.

Units are statements of standards for assessment and not programmes of learning and teaching. They can be delivered in a number of ways.

Units may be delivered in parallel or in sequence. For further advice on delivery, please refer to the *Course Support Notes*.

Mathematics: Expressions and Formulae (National 5)
The general aim of this Unit is to develop skills linked to mathematical expressions and formulae. These include the manipulation of abstract terms, the simplification of expressions and the evaluation of formulae. The Outcomes cover aspects of number, algebra, geometry and reasoning.

Mathematics: Relationships (National 5)
The general aim of this Unit is to develop skills linked to mathematical relationships. These include solving and manipulating equations, working with graphs and carrying out calculations on the lengths and angles of shapes. The Outcomes cover aspects of algebra, geometry, trigonometry and reasoning.

Mathematics: Applications (National 5)
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.

Conditions of award

To gain the award of the Course, the learner must pass all of the Units as well as the Course assessment. The required Units are shown in the Course outline section. Course assessment will provide the basis for grading attainment in the Course award.

Skills and knowledge

Further information on the assessment of the skills, knowledge and understanding for the Course is given in the *Course Assessment Specification*. A broad overview of the mandatory subject skills, knowledge and understanding that will be assessed in the Course is given in this section.

This Course will develop learners' ability to:

♦ understand and use mathematical concepts and relationships
♦ select and apply operational skills in algebra, geometry, trigonometry and statistics within mathematical contexts
♦ select and apply skills in numeracy
♦ use mathematical models
♦ use mathematical reasoning skills to interpret information, to select a strategy to solve a problem, and to communicate solutions

Skills, knowledge and understanding to be included in the Course will be appropriate to the SCQF level of the Course. The SCQF level descriptors give further information on characteristics and expected performance at each SCQF level (www.sqa.org.uk/scqf).

Assessment

Information about assessment for the Course is included in the *Course Assessment Specification*, which provides full details including advice on how a learner's overall attainment for the Course will be determined.

Unit assessment

All Units are internally assessed against the requirements shown in the *Unit Specification*.

They can be assessed on an individual Unit basis or by using other approaches which combine the assessment for more than one Unit.

They will be assessed on a pass/fail basis within centres. SQA will provide rigorous external quality assurance, including external verification, to ensure assessment judgements are consistent and meet national standards.

The assessment of the Units in this Course will be as follows.

Mathematics: Expressions and Formulae (National 5)
Learners who complete this Unit will be able to:

♦   use mathematical operational skills linked to expressions and formulae
♦   use mathematical reasoning skills linked to expressions and formulae

Mathematics: Relationships (National 5)
Learners who complete this Unit will be able to:

♦   use mathematical operational skills linked to relationships
♦   use mathematical reasoning skills linked to relationships

Mathematics: Applications (National 5)
Learners who complete this Unit will be able to:

♦   use mathematical operational skills linked to applications
♦   use mathematical reasoning skills linked to applications

Course assessment

Courses from National 4 to Advanced Higher include assessment of added value[1]. At National 5, Higher and Advanced Higher, the added value will be assessed in the Course assessment. The added value for the Course must address the key purposes and aims of the Course, as defined in the Course rationale. It will do this by addressing one or more of breadth, challenge or application.

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[1] Definitions can be found here: http://www.sqa.org.uk/sqa/58409.html

In this Course, added value will focus on:

♦ breadth
♦ challenge
♦ application

The learner will draw on and apply the skills they have learned during the Course. This will be assessed within a [question paper](#)[2], requiring application of the breadth of knowledge and skills acquired from across the Units of the Course, sometimes in integrated ways. As an aid to meeting these aims, skills in using a calculator will be developed and a calculator will be permitted in part of the question paper.

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[2] Definitions can be found here: http://www.sqa.org.uk/sqa/58409.html

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

It is expected that learners will develop broad, generic skills through this Course. The skills that learners will be expected to improve on and develop through the Course 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 Course 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 skills is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills will be appropriate to the level of the Course. Further information on building in skills for learning, skills for life and skills for work for the Course is given in the *Course Support Notes*.

Numeracy skills shown in this National Course provide automatic certification of the Core Skill: Numeracy at SCQF level 5.

Administrative information

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History of changes to National Course Specification

Course details	Version	Description of change	Authorised by	Date
	1.1	Core skills information added	Qualifications Development Manager	June 2013

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