SCOTTISH
QUALIFICATIONS
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# National Unit Specification: general information

**UNIT**        Mathematics 2 (Intermediate 1)

**NUMBER**        D322 10

**COURSE**        Mathematics (Intermediate 1)

## SUMMARY

This unit seeks to provide the opportunity to study further aspects of mathematics and to be introduced to elementary statistics. It is a mandatory unit of the Mathematics Intermediate 1 course.

## OUTCOMES

1        Use integers.
2        Use speed, distance and time.
3        Use the Theorem of Pythagoras.
4        Use simple graphs, charts and tables.
5        Use simple statistics.

## RECOMMENDED ENTRY

While entry is at the discretion of the centre, candidates will normally be expected to have attained one of the following:

*   *Mathematics 1 (Int 1)*
*   equivalent

## CREDIT VALUE

1 credit at Intermediate 1.

# National Unit Specification: general information (cont)

**UNIT**      Mathematics 2 (Intermediate 1)

## CORE SKILLS

This unit gives automatic certification of the following:

**Complete core skills for the unit**                         None

**Core skills components for the unit**              Using Graphical Information      Int 1

Additional information about core skills is published in *Automatic Certification of Core Skills in National Qualifications* (SQA, 1999).

# National Unit Specification: statement of standards

## UNIT Mathematics 2 (Intermediate 1)

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 the Scottish Qualifications Authority.

## OUTCOME 1

Use integers.

**Performance criteria**
(a)    Plot and read coordinates.
(b)    Add and subtract positive and negative integers.

## OUTCOME 2

Use speed, distance and time.

**Performance criteria**
(a)    Interpret a distance-time graph.
(b)    Solve problems involving speed, distance and time.

## OUTCOME 3

Use the Theorem of Pythagoras.

**Performance criterion**
(a)    Solve a problem in a right-angled triangle using the Theorem of Pythagoras.

## OUTCOME 4

Use simple graphs, charts and tables.

**Performance criteria**
(a)    Construct and interpret a frequency table and a stem-and-leaf diagram.
(b)    Interpret a piechart.
(c)    Construct a scattergraph, draw (by eye) a best-fitting straight line and use it to estimate.

# National Unit Specification: statement of standards (cont)

**UNIT**    Mathematics 2 (Intermediate 1)

### OUTCOME 5

Use simple statistics.

**Performance criteria**

(a)    Find the mean, median, mode and range from a data set.
(b)    State the probability of a simple outcome.

**Evidence requirements**

Although there are various ways of demonstrating achievement of the outcomes, evidence would normally be presented in the form of a closed book test under controlled conditions. Examples of such tests are contained in the National Assessment Bank.

In assessments, candidates are required to show their working in carrying out algorithms and processes.

# National Unit Specification: support notes

## UNIT    Mathematics 2 (Intermediate 1)

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

While the 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

Each mathematics unit at Intermediate 1 level aims to build upon and extend candidates' mathematical knowledge and skills. In this unit, Outcome 1 introduces negative integers within the context of Cartesian coordinates, and addition and subtraction are extended to include negative integers. Outcome 2 is concerned with the inter-relationship between speed, distance and time, and work here should focus on real-life contexts as should the work on the Theorem of Pythagoras within Outcome 3. Outcomes 4 and 5 extend the range of common statistical graphs to include stem-and-leaf diagrams, with a more formal treatment of the interpretation of graphs, and introduce the calculation of simple statistical measures.

The recommended content for this unit can be found in the course specification. The *detailed content* section provides illustrative examples to indicate the depth of treatment required to achieve a unit pass and advice on teaching approaches.

## GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

Candidates should be encouraged to make use of their skills of mental calculation, to make efficient use of calculators and to apply the strategy of checking. Numerical checking or checking a result against the context in which it is set is an integral part of every mathematical process. In many instances, the checking can be done mentally, but on occasions, to stress its importance, there should be evidence of a checking procedure within the calculation. There are various checking procedures which could be used:

- relating to a context - 'How sensible is my answer?'
- estimate followed by a repeated calculation
- calculation in a different order

Further advice on learning and teaching approaches is contained within the Subject Guide for Mathematics.

# National Unit Specification: support notes (cont)

**UNIT**      Mathematics 2 (Intermediate 1)

## GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

The assessment for this unit will normally be in the form of a closed book test. Such tests should be carried out under supervision and it is recommended that candidates attempt an assessment designed to assess all the outcomes within the unit. Successful achievement of the unit is demonstrated by candidates achieving the thresholds of attainment specified for all the outcomes in the unit. Candidates who fail to achieve the threshold(s) of attainment need only be retested on the outcome(s) where the outcome threshold score has not been attained. Further advice on assessment and retesting is contained within the National Assessment Bank.

It is expected that candidates will be able to achieve the numerical and statistical performance criteria in the unit without the use of computer software or sophisticated calculators.

In assessment, candidates are required to show their working in carrying out algorithms and processes.

## SPECIAL NEEDS

This unit specification is intended to ensure that there are no artificial barriers to learning or assessment. Special needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments or considering alternative outcomes for units. For information on these, please refer to the SQA document *Guidance on Special Assessment and Certification Arrangements for Candidates with Special Needs/Candidates whose First Language is not English* (SQA, 1998).