National Unit Specification: general information

UNIT Numeracy (Intermediate 1)

NUMBER D01C 10

COURSE

SUMMARY
This Unit seeks to develop skills of interpretation and communication of straightforward graphical information and application of basic numerical skills in everyday contexts.

OUTCOMES
1. Read and use a straightforward scale.
2. Use tables, charts, graphs and diagrams.
3. Communicate straightforward graphical information.
4. Apply a range of basic numerical skills in everyday contexts.

RECOMMENDED ENTRY
While entry is at the discretion of the centre, candidates would normally be expected to have attained Numeracy (Access 3).

CREDIT VALUE
1 Credit at Intermediate 1 (6 SCQF credit points at SCQF level 4*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Administrative Information

Superclass: RB

Publication date: March 2004

Source: Scottish Qualifications Authority

Version: 02

National Unit Specification: general information (cont)

CORE SKILLS

Information on the automatic certification of any core skills in this Unit is published in *Automatic Certification of Core Skills in National Qualifications* (SQA, publication code BA0906).

The attainment of this Unit will lead to the automatic award of:

- Numeracy at Intermediate 1

National Unit Specification: statement of standards

UNIT Numeracy (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
Read and use a straightforward scale.

Performance criteria
a) Use the scale on a familiar measuring instrument to measure to the nearest marked division.

Evidence requirements
Oral and/or written and/or performance evidence that the candidate can make four correct measurements.

OUTCOME 2
Use tables, charts, graphs and diagrams.

Performance criteria
a) Extract information.
b) Interpret information.
c) Process information from tables, charts, graphs and diagrams.

Note on range for the outcome
Straightforward graphical forms:

Table: eg a table with three or four categories of information.

Graph: eg a graph with a simple scale (where the main divisions are numbered and the minor divisions are marked).

Chart: eg. a straightforward bar or pie chart.

Diagram: eg simple circuit diagram; food web; 2D representation of 3D shapes; net of 3D shapes; map.

Evidence requirements
Oral, written and/or performance evidence that the candidate can correctly interpret, extract and process information from three of tables, graphs, charts and diagrams, or that the candidate can achieve at least 75% in a paper covering all of the above.

National Unit Specification: statement of standards (cont)

UNIT Numeracy (Intermediate 1)

OUTCOME 3
Communicate straightforward graphical information.

Performance criteria
a) Construct tables, graphs, charts and/or diagrams to communicate information.

Evidence requirements
Evidence that the candidate can communicate graphical information in three of tables, graphs, charts and/or diagrams or that the candidate can achieve at least 75% in a paper covering all of the above. The form of communication will be specified for the candidate.

OUTCOME 4
Apply a range of basic numerical skills in everyday contexts.

Performance criteria
a) Use whole numbers, decimals and fractions.
b) Divide quantities into given unitary ratios.
c) Evaluation of simple formulae expressed in symbols.

Note on range for the outcome
Recognise and use notations for whole numbers, decimals, percentages, fractions and ratios.

Evidence requirements
Oral and/or written and/or performance evidence that the candidate can carry out six different calculations in context singly and in combination involving all of the above or that the candidate can achieve at least 70% in an extended paper containing eight questions of the same standard.

At least half the calculations should involve three operations.

National Unit Specification: support notes

UNIT Numeracy (Intermediate 1)

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

While the exact 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

The content and context for this core skills Unit should be appropriate to the personal and/or vocational needs of the candidate.

Core skills Units are stated at five levels of attainment, with activities becoming progressively more demanding in breadth and depth, and in the extent of individual autonomy required. The appendix to this Unit shows the relationship between the levels in Numeracy.

This Unit is designed to develop numeracy skills at a level which is the minimum required for junior posts in business, administration, care and technician occupations.

Outcome 1

At this level, scales on measuring instruments and graphs should be clearly marked with every main division numbered. Unnumbered sub-divisions should be clear and easily interpreted. Candidates should read scales to the nearest marked division. For measuring instruments, rulers, measuring tapes, metre sticks could be numbered in cm and marked in cm and mm and read to the nearest mm; bathroom scales could be numbered in 10kg and marked in 10kg and kg and read to the nearest kg, and thermometers could be numbered in °C and marked in 0.5°C and read to the nearest 0.5°C. Suitable activities could be personal measurement of height, weight or temperature. Household measurements such as measurement for carpets or curtains, or measurement of volume or weight for recipes could also be used.

Outcome 2

At this level, information should be clearly presented and set in everyday contexts. Each table should have three or four categories of information. Examples of suitable tables could be tariffs for different vehicles on a ferry crossing at different seasons, or holiday costs for hotels in different seasons. Graphs could include height against weight charts. Pie charts could incorporate percentage or fraction calculations. Monthly temperature bar charts from holiday brochures could be used to extract and interpret information. From science, a biology food web or a simple switching circuit could be used for extracting and interpreting information. At this level and above, the candidate should be familiar with tables, line graphs, bar charts, pie charts and diagrams commonly used in the area of study, but evidence of all forms is not required. The candidate is only required to demonstrate competence in three of tables, graphs, charts and diagrams. However, at this level, the candidate would be expected to extract, process and interpret information and explain the implications of the information extracted.

Outcome 3

At this level and above, the candidate should be familiar with tables, line graphs, bar or pie chart and diagrams commonly used in everyday situations. A suitable table would have three or four categories of information. The teacher/lecturer should give the information and specify the form of communication. The candidate would state headings, scales, etc and communicate the information in three of tables, graphs, charts and diagrams.

National Unit Specification: support notes (cont)

UNIT Numeracy (Intermediate 1)

Outcome 4
At this level and above, the candidate should be able to:

- add and subtract
- multiply and divide
- use whole numbers and decimals
- work with percentages, fractions and ratios.

However, evidence of each of these is not required.

At Intermediate 1, the candidate should be able to work with simple ratios, eg recipes with ratio of fat to flour of 1:2, or alloys with 1:4 ratios (one of the ratios should always be 1). The context will depend on the area of study. The candidate should also be able to work with simple formulae in symbols such as V=IR, d=st, F=ma. Solutions to real problems should be carefully considered – rejecting answers which are mathematically correct but invalid in context. Calculations should be checked against estimates or by using the inverse algorithm. Evidence of checking procedures is not required. Answers should be expressed to an appropriate level of accuracy particularly when interpreting calculator displays.

The use of calculators
The sensible use of numeric calculators should be encouraged. Due account should be taken of estimating and rounding errors introduced into calculations.

GUIDANCE ON LEARNING AND TEACHING APPROACHES FOR THIS UNIT

The learning and teaching approaches should encourage candidates to identify evidence of their attainment and to transfer the skills acquired to other contexts.

Where appropriate, numeracy topics should be taught and skills developed in real-life contexts. Candidates should be encouraged throughout the Unit to make use of skills in mental and written calculations, to make efficient use of calculators and to apply the strategy of checking. The outcomes should be demonstrated in situations which the candidate may reasonably be expected to encounter everyday.

Where the Numeracy Unit is being combined with another Unit to create an enhanced learning and teaching programme, care must be taken to ensure that all aspects of each Unit are covered and adequate time must be allowed for the coverage of both Units. Such a programme would create opportunities to consolidate the skills gained in this Unit.

GUIDANCE ON APPROACHES TO ASSESSMENT FOR THIS UNIT

The statement of satisfactory performance for each outcome indicates the minimum required for the purpose of summative assessment. However, the number of activities undertaken by the candidate in the course of the Unit should not be limited to those specified for assessment purposes. In awarding the candidate *Numeracy* at Intermediate 1 the teacher/lecturer must be confident that the candidate will be able to demonstrate these skills in any appropriate context and set of circumstances.

National Unit Specification: support notes (cont)

UNIT Numeracy (Intermediate 1)

Teachers/lecturers must remember to distinguish between their differing roles in formative and summative assessment. In the former, as much help and support as is required by the candidate may legitimately be given by the teacher/lecturer. Tasks which are used to provide evidence for summative assessment must be completed by the candidate unaided.

Evidence of attainment should be gathered, wherever possible, from integrated activities whether this Unit is being studied as a stand alone Unit or in combination with other Units in the candidate's programme. Where an integrated approach to assessment is adopted, teachers/lecturers should provide a matrix of evidence which shows clearly where each PC is covered. This will be necessary for internal and external verification.

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 special alternative outcomes for Units. For information on these, please refer to the SQA document *Guidance on Special Assessment Arrangements* (SQA, publication code AA0645).