

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 Interpret straightforward graphical information.
- 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.

CORE SKILLS

Information on the automatic certification of core skills is published in *Automatic Certification of Core Skills in National Qualifications* (SQA, 1999).

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

- Numeracy at Intermediate 1

Administrative Information

Superclass: RB

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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.
- b) Use the scale on a graph to determine quantities to the nearest marked division.

Note on the range for the outcome

Simple scale: scale where the main divisions are numbered and the minor divisions are marked.

Evidence Requirements

Oral, written and/or performance evidence that the candidate can make two correct measurements and determine two correct quantities.

OUTCOME 2

Interpret straightforward graphical information.

Performance Criteria

- a) Extract information correctly from straightforward graphical forms.
- b) Explain extracted information appropriately in terms of the context.

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 and explain graphical information from three of tables, graphs, charts and diagrams.

National unit specification: statement of standards (cont)

UNIT Numeracy (Intermediate 1)

OUTCOME 3

Communicate straightforward graphical information.

Performance Criteria

- a) Use the specified form of communication to present information clearly.

Evidence Requirements

Evidence that the candidate can communicate graphical information in three of tables, graphs, charts and diagrams. 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) Work with basic numerical notation.
- b) Decide the operations to be carried out.
- c) Carry out calculations.

Evidence Requirements

Oral, written and/or performance evidence that the candidate can:

- recognise and use notations for all of whole numbers, decimals, percentages, fractions and ratios
- carry out six different calculations involving singly and in combination:
 - calculations involving basic operations on whole numbers and decimals
 - calculations involving basic operations for at least two of percentages, fractions, unitary ratios, use of simple formulae in symbols.

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. None of the sections of the support notes is mandatory.

GUIDANCE ON CONTENT AND CONTEXT

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. The graphs should be simple line graphs. Currency or temperature conversion graphs could be used. They should have clear sub-divisions, be numbered to the nearest division and read to the nearest sub-division.

Outcome 2

At this level, information should be clearly presented and set in everyday contexts. Each table should have 3 or 4 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 % 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 3 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.

National unit specification: support notes (cont)

UNIT Numeracy (Intermediate 1)

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 3 or 4 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 3 of tables, graphs, charts and diagrams.

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. Tables, graphs, charts and diagrams should not be drawn using IT tools at this level.

GUIDANCE ON TEACHING AND LEARNING APPROACHES

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.

National unit specification: support notes (cont)

UNIT Numeracy (Intermediate 1)

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

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.

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 alternative outcomes for units. For information on these, please refer to the SQA document *Guidance on Special Assessment and Certification Arrangements* (SQA, 1998).

**Numeracy core skills units
Progression chart**

Appendix

Skill	Access 2	Access 3	Intermediate 1	Intermediate 2	Higher
Use graphical information	<p>Read and use a basic scale.</p> <p>Identify basic graphical information.</p> <p>Communicate basic graphical information with teacher/lecturer support.</p>	<p>Read and use a simple scale.</p> <p>Extract simple graphical information.</p> <p>Communicate simple graphical information.</p>	<p>Read and use a straightforward scale.</p> <p>Interpret straightforward graphical information.</p> <p>Communicate straightforward graphical information.</p>	<p>Interpret graphical information when presented as a number of related but straightforward forms or in a complex form.</p> <p>Select and use appropriate forms of table, graph, chart or diagram to communicate information.</p>	<p>Analyse and interpret graphical information.</p> <p>Select and use appropriate graphical forms to communicate information.</p>
Apply numerical skills	<p>Apply a range of basic numerical skills in familiar everyday contexts.</p>	<p>Apply a range of basic numerical skills in everyday contexts.</p>	<p>Apply a range of basic numerical skills in everyday contexts.</p>	<p>Apply a wide range of numerical skills.</p>	<p>Apply in combination a wide range of numerical and statistical skills.</p>