



Basic / key skills test

Adult numeracy / application of number

Level 2

Test specification

Introduction

- 1 The application of number key skill qualification will be awarded to candidates who are able to demonstrate that their attainment meets national standards in application of number in both their portfolio of evidence and an external assessment (hereafter referred to as a test). The adult numeracy qualification will be awarded to candidates who are successful in the national adult numeracy test.
- 2 The test provides external assessment for each level. The test is externally set and marked. The purpose of the test is to assess the candidate's skill in a range of contexts.
- 3 For key skills, performance in the test is used to complement and support performance in the internal assessment component, the portfolio of evidence of the key skills. The portfolio must contain evidence of the candidate's purposeful and effective application of the specified skills, knowledge and understanding, which meets the full requirements of part B of the key skill standards. The portfolio evidence is internally set, internally assessed and externally moderated/verified. A candidate must satisfy the requirements of both components to be awarded the key skill. There is no portfolio requirement for the adult numeracy qualification.
- 4 The purpose of this specification is to inform the development of tests for adult numeracy and application of number key skill at level 2 by clarifying those aspects of the standards which may be tested.
- 5 This specification is intended to provide writers, editors and reviewers, and also teachers and candidates, with detailed information about the acceptable content, coverage and demand for questions, together with the range of suitable contexts for questions at level 2.
- 6 This test specification is also intended to support the development of tests and items which may be re-used, as required, for live assessment, on demand.
- 7 This specification should be read in conjunction with:
 - *Application of number level 2 qualification* (QCA, CCEA, ACCAC, 2004)
 - *Guidance on the key skills* (QCA, CCEA, ACCAC, 2004)
 - *Adult numeracy standards, level 2* (DfEE, 2000)
 - *Adult numeracy curriculum, level 2* (DfEE, 2000).
- 8 This specification has been designed to support the development and production of tests in English, Welsh and Gaelige.

Design of tests

Principles

- 9 In creating tests, writers must take the following into account:
- the test will last for 1 hour and 15 minutes
 - the test will consist of 40 multiple-choice questions, each worth 1 mark
 - candidates will be supervised while taking the test
 - candidates may use writing, drawing and measuring equipment
 - candidates may not use calculators.
- 10 The specification is complemented by awarding body instructions to centres on the conduct of tests and guidance on arrangements for candidates with special requirements.

Scope and demand of tests

- 11 The test must match the identified requirements of the application of number standard at level 2. This means that the test will focus on specific aspects of part A of the key skill, entitled 'You need to know how to', as well as drawing on part B, 'You must'. For the purpose of this specification, the requirements are organised into skill areas (see below).
- 12 The application of number key skills have been aligned with the national curriculum order for mathematics for England, Wales and Northern Ireland. At level 2 this means that information on expectations may be drawn from the national curriculum level descriptions for level 6 and associated programmes of study. The national standards for adult numeracy are also aligned with the key skills.

Pass mark

- 13 The test will be designed to have a predetermined pass mark range of 19–21 out of 40. Responsibility for setting the pass mark for each paper resides with the awarding bodies acting jointly.

Form of questions

- 14 The test consists of multiple-choice questions. The terms and phrases used to describe the possible demands of questions (for example 'identify') are based upon this form of test. The use of multiple-choice questions necessarily restricts the test to those aspects of the standards that are suitable for testing in this way. Skills, such as making judgements about the quality of information and decisions about when and how to apply numbers to good effect, are assessed more effectively by means of the portfolio, which must provide evidence covering part B of the qualification.
- 15 Each question is in multiple-choice form with four potential answers, of which one is correct (the key) and three are wrong (the distractors). Each distractor must be plausible but incorrect in some significant respect, which is evident to a candidate appropriately prepared for the test. The requirement of each question must be clear and unambiguous.
- 16 Each question should encourage the candidate to reason correctly and work things out carefully. Questions should be designed to discourage guessing by ensuring that the four alternative answers offered are sufficiently plausible to ensure that candidates must undertake the necessary working in order to find or check the correct answer.
- 17 There will be no 'follow-through' between questions. Finding the correct answer to a question will not depend on having answered the previous question correctly.
- 18 All questions must avoid making demands on candidates beyond the scope of the application of number skills being assessed. In particular, all language used in the questions and source material should be simple and direct. Only information relevant to the questions should be included. Expectations of knowledge or familiarity with specialist

contexts, concepts and terms beyond those associated with the application of number skills being assessed must be avoided.

Structure of tests

- 19 Tests will be made up of groups of questions based on a range of source material. Each group will include questions from more than one skill area (see below). There may also be some free-standing questions, which may draw from any skill area. Source material should immediately precede the group of questions that refer to it. The layout of source material and associated groups of questions should be such that candidates are not required to turn pages to refer back or forward to related material.
- 20 As far as possible questions should be arranged in increasing order of difficulty.

Context

- 21 The application of number key skill is concerned with interpreting information involving numbers, carrying out calculations, interpreting results and presenting findings. Examples of contexts which provide opportunities to develop suitable questions include:

- travel, for example journeys by car or public transport, holidays away from home
- leisure activities, for example hobbies, sports, clubs, TV, cinema, music, theatre
- employment, for example job roles, organisations, pay rates, income
- domestic activities, everyday life, for example cooking, shopping, DIY
- personal items, for example health, social security, social activities
- goods, for example food, clothing, toys, furniture, audio-video equipment, cars
- climate and weather, for example rainfall, hours of sun, temperatures, forecasts
- public records, for example library catalogues, electoral registers, census data, DVLA records
- standard documents, for example invoices, order forms, bank statements
- social issues.

For adult numeracy the skills tested are those concerned with:

- understanding and using mathematical information
- calculating and manipulating mathematical information
- interpreting results and communicating mathematical information.

Additional examples which provide opportunities to develop suitable questions include:

- citizen and community
- economic activity including paid and unpaid work
- education and training
- using ICT in social roles.

Level-specific examples for each of these areas of activity are published with the national standards for adult numeracy. Sample activities are given in the adult numeracy curriculum. Exemplification material, referencing the standards, will be published by QCA in spring, 2001. All of this exemplification is given as specification; it should not be viewed as a definitive or prescriptive listing of contexts to form the basis of test questions.

- 22 Some candidates will be familiar with a particular context and others may not have this advantage. Some candidates may not have been on an overseas holiday; young candidates may have limited experience of financial documentation; older candidates may be less familiar with some sports or hobbies. This does not mean that such contexts should always be avoided but sufficient descriptions and/or images may be necessary to ensure that they are understood by all concerned. A range of contexts will be used in each test to minimise potential disadvantage. In all source material it is essential to be brief, to use simple language and to avoid jargon.

- 23 The basic skills dimension of this test means that particular care should be taken in this respect. The adult numeracy tests are likely to be accessed by a broader age group than those taking key skills tests. A particular consideration is that candidates for the adult numeracy tests may have no recent experience of education / training.
- 24 Every effort must be made to ensure that source material is free of any form of bias (for example gender, ethnic, age) which might favour or disadvantage any candidate or group of candidates.

Skill areas and mark allocations

Mark allocations

The table shows mark allocation against the skill area headings

Skill area 1	Interpret mathematical information	15 marks
Skill area 2	Calculate, check and generate results	22 marks
Skill area 3	Interpret and present results	3 marks
Total		40 marks

Marks should be allocated to the skills below in such a way that an appropriate approximately even balance of marks results.

Tests should continue to apply the emphases that have been used in previous tests.

Skill area 1 – Interpret mathematical information

The skill area covers the following skills from part A of the level 2 application of number qualification specification and relates to N2.1 in part B. Related adult numeracy standards for *understanding and using mathematical information* are given in the right-hand column.

Key skills specifications	Adult numeracy standards
<ul style="list-style-type: none"> get relevant information from different sources (<i>eg from written and graphical material, first-hand by measuring and or observing</i>) read and understand tables, charts, graphs and diagrams make accurate observations (<i>eg count the number of customers per hour</i>) 	<ul style="list-style-type: none"> use discrete and continuous data from tables, charts, diagrams and line graphs use data and statistical measures to extract discrete and continuous data from tables, charts, diagrams and line graphs use numbers, fractions, decimals and percentages in the context of measures, estimating amounts and proportions, and make accurate observations collect and record discrete and continuous data in tests and observations
<ul style="list-style-type: none"> read and understand numbers used in different ways, including negative numbers (<i>eg for losses in trading, low temperatures</i>) 	<ul style="list-style-type: none"> use numbers, fractions, decimals and percentages in the context of measures, estimating amounts and proportions, and make accurate observations use whole numbers to read, write, order and compare positive and negative numbers of any size in a practical context (<i>eg area of a room from $l \times w$</i>)
<ul style="list-style-type: none"> estimate amounts and proportions 	<ul style="list-style-type: none"> use numbers, fractions, decimals, percentages in the context of measures estimating amounts and proportions, and make accurate observations
<ul style="list-style-type: none"> read scales on a range of equipment to given levels of accuracy (<i>eg to the nearest 10mm or nearest inch</i>) 	<ul style="list-style-type: none"> use measures to estimate, measure and compare length, weight, capacity and temperature using metric, and where appropriate, imperial units (<i>eg scales to given levels of accuracy, including reading between divisions</i>)
<ul style="list-style-type: none"> select appropriate methods to get the results you need, including grouping data when this is appropriate (<i>eg heights, salary bands</i>) 	<ul style="list-style-type: none"> select and use appropriate mathematical tests, skills or concepts

Skill area 2 – Calculate, check and generate results

The skill area covers the following skills from part A of the level 2 application of number qualification specification and relates to N2.2 in part B. Related adult numeracy standards for *calculating and manipulating mathematical information* are given in the right-hand column.

Key skills specifications	Adult numeracy standards
<ul style="list-style-type: none"> show clearly methods of carrying out calculations and give the level of accuracy of your results 	<ul style="list-style-type: none"> generate results to an appropriate level of accuracy using methods, measures and checking procedures appropriate to the specified purpose
<ul style="list-style-type: none"> carry out calculations involving two or more steps, with numbers of any size 	<ul style="list-style-type: none"> no equivalent statement: implicit throughout the level two numeracy standards
<ul style="list-style-type: none"> convert between fractions, decimals and percentages 	<ul style="list-style-type: none"> use fractions to identify equivalencies with decimals and percentages use percentages to order and compare percentages and understand percentage increase and decrease (<i>eg VAT or 20% reduction in a sale</i>) to evaluate one number as a percentage of another
<ul style="list-style-type: none"> convert measurements between systems (<i>eg from pounds to kilograms, between currencies</i>) 	<ul style="list-style-type: none"> use measures to calculate with units between systems using conversion tables and scales, and approximate conversion factors (<i>eg 1kg = 2.2lbs, 1in = 2.54cm</i>)
<ul style="list-style-type: none"> work out areas and volumes (<i>eg area of an L-shaped room, number of containers to fill a given space</i>) 	<ul style="list-style-type: none"> use measures to understand and use given formulae for finding: <ul style="list-style-type: none"> - areas of composite shapes (<i>eg non-rectangular rooms or plots of land</i>) - volumes of regular shapes (<i>eg cuboid or cylinder</i>)
<ul style="list-style-type: none"> work out dimensions from scale drawings (<i>eg using a 1:20 scale</i>) 	<ul style="list-style-type: none"> use measures to work out dimensions from scale drawings (<i>eg 1:20</i>)
<ul style="list-style-type: none"> use proportion and calculate using ratios where appropriate 	<ul style="list-style-type: none"> use whole numbers to calculate ratio and direct proportion (<i>eg 3:2</i>) probability
<ul style="list-style-type: none"> compare sets of data of an appropriate size such as 20 items each (<i>eg using percentages, using mean, median, mode</i>) 	<ul style="list-style-type: none"> use data and statistical measures to find the mean, median and mode, and use them as appropriate to compare two sets of data
<ul style="list-style-type: none"> use range to describe the spread within sets of data 	<ul style="list-style-type: none"> use data and statistical measures to find the range and use it to describe the spread within sets of data
<ul style="list-style-type: none"> understand and use given formulae (<i>eg for calculating volumes, areas such as circles, insurance premiums, $V=IR$ for electricity</i>) 	<ul style="list-style-type: none"> use measures to understand and use given formulae for finding: <ul style="list-style-type: none"> - perimeters and areas of regular shapes (<i>eg rectangular and circular surfaces</i>) - areas of composite shapes (<i>eg non-rectangular rooms or plots of land</i>) - volumes of regular shapes (<i>eg cuboid or cylinder</i>) use whole numbers to evaluate expressions and make substitutions in given formulae in words and symbols to produce results (<i>eg area of a room from $l \times w$</i>)

Skill area 3 – Interpret and present results

The skill area covers the following skills from part A of the level 2 application of number qualification specification and relates to N2.3 in part B. Related adult numeracy standards for *interpreting results and communicating mathematical information* are given in the right-hand column.

Key skills specifications	Adult numeracy standards
<ul style="list-style-type: none"> select effective ways to present findings 	<ul style="list-style-type: none"> select and use appropriate methods and forms to present findings
<ul style="list-style-type: none"> construct and use tables, charts and graphs, and label with titles, scales, axes and keys (<i>eg appropriate scales and axes</i>) 	<ul style="list-style-type: none"> use tables, charts, diagrams and line graphs to draw conclusions and present results, eg for amounts, sizes, scales and statistics and diagrams
<ul style="list-style-type: none"> highlight the main points of findings and describe your methods 	<ul style="list-style-type: none"> select and use appropriate methods and forms to present and explain outcomes