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Qualification Specification

Highfield Functional Skills Qualification in Mathematics at Level 1

and

Highfield Functional Skills Qualification in Mathematics at Level 2

Qualification Number (Level 1): 603/4996/7
Qualification Number (Level 2): 603/4992/X

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Highfield Functional Skills Qualifications in Mathematics at Level 1 and Level 2

Introduction

This qualification specification is designed to outline all you need to know to offer Highfield Functional Skills Qualification in Mathematics at Level 1 and/or Highfield Functional Skills Qualification in Mathematics at Level 2 qualification at your centre. It relates to the reformed qualifications that must be taken by learners registered on Highfield's functional skills qualifications from 1 September 2019.

If you have any further questions, please contact your account manager.

Qualification regulation and support

The Highfield functional skills qualifications in mathematics at level 1 and level 2 are regulated by the regulators of England (Ofqual).

Key facts

	Level 1	Level 2
Qualification Number	603/4996/7	603/4992/X
Guided Learning Hours	55	55
Total Qualification Time	60	60

Qualification overview and objective

The Department for Education (DFE) state the purpose of each of the qualifications to be:

'A qualification for work, life and study. Achievement of the qualification demonstrates a sound grasp of mathematical skills at the appropriate level and the ability to apply mathematical thinking effectively to solve problems successfully in the workplace and in other real life situations'. [1]

Furthermore, the DFE outlines the aims of the qualifications, stating that Functional Skills mathematics qualifications at levels 1 and 2 should:

- indicate that learners can demonstrate their ability in mathematical skills and their ability to apply these, through appropriate reasoning and decision making, to solve realistic problems of increasing complexity;
- introduce learners to new areas of life and work so that they are exposed to concepts and problems which, while not of immediate concern, may be of value in later life; and
- enable learners to develop an appreciation of the role played by mathematics in the work of work and in life generally.

[1] Appendix 1, Functional Skills Mathematics Conditions and Requirements, Ofqual, July 2018

Each qualification consists of ONE mandatory component and is assessed by an externally set examination (paper-based or on-screen) that consists of two parts:

1. the Calculator Test
2. the Non-calculator Test

Marks from the two parts are combined and the result (pass/fail) will be released using the **combined mark** from both parts of the examination.

Each part of the examination requires learners to demonstrate underpinning knowledge skills and problem-solving techniques in realistic settings as determined by a set of subject content.

The qualifications support progression to further study (e.g. GCSE) and are suitable for delivery in a wide range of learning environments either as stand-alone qualifications or as part of a larger programme of study (e.g. an apprenticeship).

See also Appendix 1: Qualification Structure

Entry requirements

There are no formal entry requirements for learners wishing to take these qualifications.

Centres are however advised to assess a learner's ICT skills prior to registering them for on screen assessment. Paper-based assessment should be used for learners with limited ICT skills.

Geographical coverage

These qualifications are suitable for delivery in England.

Delivery/assessment ratios

To effectively deliver these qualifications, centres are recommended not to exceed the ratio of 1 qualified tutor/assessor to 20 learners in any one instance.

Centre requirements

Approved centres are required to have a suitable delivery environment in line with *the Highfield Qualifications' Centre Approval Guidelines* and an assessment environment that complies with the *Highfield Qualifications' Examination & Invigilation Regulations (Functional Skills).*

Guidance on delivery

The total qualification time for these qualifications is 50 hours for level 1 and 55 hours for level 2 and of these 45 hours are recommended as guided learning hours at each level.

TQT is an estimate of the total number of hours it would take an average learner to achieve and demonstrate the necessary level of attainment to be awarded with a qualification, both under direct supervision (forming guided learning hours) and without supervision (all other time). TQT and GLH values are advisory and assigned to a qualification as guidance.

Highfield functional skills qualifications in mathematics lend themselves to several different modes of delivery, examples of which are:

- classroom delivery: a learner attends taught sessions with further work given as homework (self-study);
- distance learning (self-study): a learner uses resources (paper-based or e-learning) and completes tasks independently with remote tutor/assessor support;
- embedded learning: functional skills in Mathematics can be embedded within other taught programmes; or
- blended learning: a mixture of 2 or more of the above modes.

The course must be developed in accordance with the subject content prescribed in this specification and allow learners to apply and transfer skills in real-life scenarios.

Highfield recommends that all learners undertake an **initial assessment*** prior to commencing the qualification. Learners who undertake an initial assessment should work towards achieving the qualification at least one level above that at which they are initially assessed in order to progress their skills.

It is also recommended that, after the completion of an initial assessment, learners undertake a **diagnostic assessment*** at the start of the qualification. The outcome of the diagnostic assessment should be used to inform the programme of delivery.

Wherever possible, the programme of delivery should be adapted in accordance with learners' needs and/or local circumstances.

* Highfield is pleased to offer its approved functional skills centres complimentary access to **ForSkills**, an online teaching and learning platform for English and Maths. Please contact your account manager for details.

See **Appendix 2: Qualification Content**

Guidance on assessment

This section provides guidance relating to the external assessment of the qualifications and should be read in conjunction with the *Highfield Qualifications' Functional Skills Qualifications Handbook*.

Level 1: Learners must successfully complete **1 external assessment.**
Level 2: Learners must successfully complete **1 external assessment**.

Each external assessment consists of two parts:

- A '**Calculator Test**'
- A '**Non-calculator Test**'

As the names suggest, learners may use a calculator during the Calculator Test, however calculators **MUST NOT** be used during the Non-calculator Test.

Calculators must be available to learners during the Calculator Test. Learners are NOT permitted to use the calculator application on their mobile phone; mobile phones are prohibited during all functional skills examinations. Only calculators with basic functions are permitted (addition, subtraction, multiplication and division), learners are not permitted to use scientific or advanced calculators.

Centres must also ensure that learners have access to the following equipment during each assessment:

- blue or black pen
- pencil
- ruler
- protractor
- eraser

Highfield Qualifications' on-demand paper-based and on-screen assessments for functional skills allow centres the flexibility to set a date of assessment at a time convenient to both the centre and the learner.

Centres are responsible for scheduling functional skills assessments. Centres can schedule assessments back-to-back and hold several sittings on the same day. See the *Highfield Qualifications' Functional Skills Qualifications Handbook* for full instructions relating to on-screen and paper-based assessments.

All externally set assessments must be invigilated in line with *Highfield Qualifications' Examination & Invigilation Regulations (Functional Skills)*. **A Functional Skills subject tutor must not be involved in the invigilation of that subject, even if they have not taught those candidates** (i.e. a Functional Skills Maths tutor must not invigilate any Functional Skills Maths exam). Assessments may be subject to quality assurance visits from Highfield.

Centres must take all reasonable steps to avoid any part of the assessment of a learner (including invigilation) being undertaken by any person who has a personal interest in the result of the assessment.

See also **Appendix 1: Qualification Structure** and **Appendix 3: Sample Assessment Material**

On screen Assessment

On screen assessments are scheduled via Highfield Central.

Centres should refer to the *Highfield Functional Skills Qualifications Handbook* for specific information relating to on screen assessment.

Paper-based assessment

Paper-based assessments are scheduled via Highfield Central.

Papers are sent to centres upon registering a learner on the qualification and can be requested with as little as 3 working days' notice. Papers will be dispatched to centres by secure post. All paper-based assessments must be stored securely within the centre as per the *Highfield Qualifications' Dispatch of Examinations & Assessment Materials Policy.*

Each paper is individually wrapped and must only be opened by the learner when instructed to do so by the invigilator at the start of the assessment. The learner must sign the declaration on the front of the assessment paper to confirm they removed the secure-wrapping themselves.

Once an assessment has been completed, centres must return assessment papers to Highfield within 2 working days of the assessment taking place.

Guidance on results notification and certification

To achieve the Highfield Functional Skills Qualification in Mathematics at Level 1 and the Highfield Functional Skills Qualification in Mathematics at Level 2 learners must successfully pass the **1** mandatory assessment. The result (pass/fail) will be released using the **combined mark** from both parts of the assessment (i.e. the Calculator Test and the Non-calculator Test).

Highfield Qualifications has designed its marking schedule to ensure that centres can be assured of a reliable service with the focus on minimising the wait for results. Highfield will inform centres of the results via Highfield Central.

After successfully completing the assessment, a certificate will be issued.

If unsuccessful, learners may re-sit the assessment. Learners opting to re-sit must complete both parts of the assessment (the Calculator Test and the Non-calculator Test). Centres must select the re-sit option when scheduling a re-sit. Please note that there is a charge for each additional assessment taken[2]. There is no limit to the number of attempts a learner may take, but centres should provide appropriate support to prepare learners for the assessment.

Tutor requirements

Highfield Qualifications recommends nominated tutors for these qualifications to meet the following:

- hold a relevant subject area qualification, which could include any of the following:
    - Level 2 Functional Skills Qualification in Mathematics
    - GCSE Maths (grade C or above)
    - A-Level Maths, or above
- hold [or be working towards] a recognised teaching qualification [or experience], which could include any of the following:
    - Level 3 PTLLS, or above
    - Level 3 Award in Education and Training, or above
    - Diploma or Certificate in Education
    - Bachelors or Masters Degree in Education
    - City and Guilds Teachers Certificate or equivalent
    - Level 3 or 4 NVQ in training and/or development
    - proof of at least 30 hours of training in any subject
- maintain appropriate continued professional development for the subject area

[2] Note that the Calculator Test and the Non-calculator Test count as one assessment

Reasonable adjustments and special considerations

Highfield Qualifications has measures in place for learners who require additional support. Please refer to Highfield Qualifications' Reasonable Adjustments Policy for further information/guidance: https://centres.highfieldqualifications.com/Assets/Files/Highfield_Reasonable_Adjustments_Policy.pdf

ID requirements

It is the responsibility of the centre to have systems in place to ensure that the person taking an assessment is indeed the person they are claiming to be. All centres are therefore required to ensure that each learner's identification is checked before they undertake the assessment. Highfield Qualifications recommends the following as proof of a learner's identity:

- a valid passport (any nationality)
- a signed UK photocard driving license
- a valid warrant card issued by HM forces or the police
- another photographic ID card, e.g. employee ID card, student ID card, travel card etc.

If a learner is unable to produce any of the forms of photographic identification listed above, a centre may accept another form of identification containing a signature, for example, a credit card. Identification by a third-party representative, such as a line manager, human resources manager or invigilator, will also be accepted.

For more information on learner ID requirements, please refer to ***Highfield Qualifications' Core Manual.***

Progression opportunities

After successfully completing the Highfield Functional Skills Qualification in Mathematics at Level 1, learners may wish to continue their development by undertaking one of the following qualifications:

- Highfield Functional Skills Qualification in Mathematics at Level 2
- GCSE Maths

After successfully completing the Highfield Functional Skills Qualification in Mathematics at Level 2, learners may wish to continue their development by undertaking the following qualification:

- GCSE Maths

Useful websites

- http://www.highfieldqualifications.com/
- https://www.gov.uk/government/collections/functional-skills-qualifications-requirements

Please contact your Highfield account manager for access to the following site:
Maths resources (incl. initial assessment)

- http://skills.highfieldabc.com

Appendix 1: Qualification structure

Highfield Functional Skills Qualification in Mathematics at Level 1

Learners must complete 1 mandatory unit that must be achieved to complete the qualification.

Mathematics	100% of the qualification
Externally assessed. Learners must complete 1 assessment that is set, marked and moderated by Highfield Qualifications. Duration of assessment: 2 hours 30 minutes The assessment consists of two parts: ▪ the Calculator Test (1hr 50 minutes) ▪ the Non-calculator Test (40 minutes) In each part of the assessment*: ▪ 25% of the marks are allocated to underpinning skills ▪ 75% of the marks are allocated to problem solving The qualification outcome is pass or fail.	

* +/- 2%

Highfield Functional Skills Qualification in Mathematics at Level 2

Learners must complete 1 mandatory unit that must be achieved to complete the qualification.

Mathematics	100% of the qualification
Externally assessed. Learners must complete 1 assessment that is set, marked and moderated by Highfield Qualifications. Duration of assessment: 2 hours 30 minutes The assessment consists of two parts: ▪ the Calculator Test (1hr 50 minutes) ▪ the Non-calculator Test (40 minutes) In each part of the assessment*: ▪ 25% of the marks are allocated to underpinning skills ▪ 75% of the marks are allocated to problem solving The qualification outcome is pass or fail.	

* +/- 2%

Appendix 2: Qualification content

The content of the functional skills qualifications is determined by a range of skills called 'subject content'. Learners are required to demonstrate their underpinning knowledge of the subject content as well as their ability to apply the content when solving problems in different contexts.

The subject content is split into 3 mathematical areas:

- Using numbers and the number system
- Using common measures, shape and space
- Handling information and data

Each assessment will assess a range of the subject content from all 3 mathematical areas.

The subject content also outlines the skills expected of learners in relation to solving mathematical problems and decision making.

Centres should note that subject content at each level of qualification subsumes and builds upon the content at lower levels.

The subject content for level 1 and level 2 is outlined on the following pages.

Subject Content: Highfield Functional Skills Qualification in Mathematics at Level 1

Use of number and the number system: learners are expected to be able to count in steps of various sizes, including negative numbers; read, write and understand positive whole numbers to one million. They can order and compare whole numbers of any size, and fractions, ratios and decimals and recognise the effect of multiplying and dividing by powers of 10, 100 and 1000. They can identify, compare and extend a range of numerical and spatial patterns, use, understand and calculate with fractions, decimals and percentages and calculate simple interest. For specific detail on using numbers and the number system, see below.

Level 1: Using numbers and the number system: *whole numbers, fractions, decimals and percentages*	
1.	read, write, order and compare large numbers (up to one million)
2.	recognise and use positive and negative numbers
3.	multiply and divide whole numbers and decimals by 10, 100, 1000
4.	use multiplication facts and make connections with division facts
5.	use simple formulae expressed in words for one or two-step operations
6.	calculate the squares of one-digit and two-digit numbers
7.	follow the order of precedence of operators
8.	read, write, order and compare common fractions and mixed numbers
9.	find fractions of whole number quantities or measurements
10.	read, write, order and compare decimals up to three decimal places
11.	add, subtract, multiply and divide decimals up to two decimal places
12.	approximate by rounding to a whole number or to one or two decimal places
13.	read, write, order and compare percentages in whole numbers
14.	calculate percentages of quantities, including simple percentage increases and decreases by 5% and multiples thereof
15.	estimate answers to calculations using fractions and decimals
16.	recognise and calculate equivalences between common fractions, percentages and decimals
17.	work with simple ratio and direct proportions

Use of common measures, shape and space: learners are expected to be able to work out simple relationships between common units of measurement to define quantities, also involving mathematical terms for position and direction. They can apply and use calculations with common measures including money, time, length, weight and capacity. They can visualise, draw and describe 2-D and 3-D shapes and use properties of 2-D shapes in calculations. For specific detail on using common measures, shape and space, see below.

Level 1: Using common measures, shape and space	
18.	calculate simple interest in multiples of 5% on amounts of money
19.	calculate discounts in multiples of 5% on amounts of money
20.	convert between units of length, weight, capacity, money and time, in the same system
21.	recognise and make use of simple scales on maps and drawings
22.	calculate the area and perimeter of simple shapes including those that are made up of a combination of rectangles
23.	calculate the volumes of cubes and cuboids
24.	draw 2-D shapes and demonstrate an understanding of line symmetry and knowledge of the relative size of angles
25.	interpret plans, elevations and nets of simple 3-D shapes
26.	use angles when describing position and direction, and measure angles in degrees

Handle information and data: learners are expected to be able to select, construct and interpret a range of statistical diagrams in various contexts; select and use methods and forms to present and describe outcomes. They can extract and interpret information from tables, diagrams, charts and graphs; apply simple statistics and recognise features of charts to summarise and compare sets of data; recognise and use the probability scale and interpret probabilities. For specific detail on handling information and data, see below.

Level 1: Handling information and data	
27.	represent discrete data in tables, diagrams and charts including pie charts, bar charts and line graphs
28.	group discrete data and represent grouped data graphically
29.	find the mean and range of a set of quantities
30.	understand probability on a scale from 0 (impossible) to 1 (certain) and use probabilities to compare the likelihood of events
31.	use equally likely outcomes to find the probabilities of simple events and express them as fractions

Solving mathematical problems and decision making: learners at Level 1 are expected to be able to use the knowledge and skills listed above to recognise and obtain a solution or solutions to a straightforward problem. A straightforward problem is one that requires learners to either work through one step or process or to work through more than one connected step or process.

Individual problems are based on the knowledge and/or skills in the mathematical content areas (number and the number system; common measures, shape and space; information and data). At Level 1 it is expected that the learner will be able to address individual problems, some of which draw upon a combination of any two of the mathematical content areas and require learners to make connections between those content areas.

Level 1: Solving mathematical problems and decision making
Learners at Level 1 are expected to be able to: - read, understand and use mathematical information and mathematical terms used at this level; - address individual problems as described above; - use knowledge and understanding to a required level of accuracy; - analyse and interpret answers in the context of the original problem; - check the sense, and reasonableness, of answers; and - present results with appropriate explanation and interpretation demonstrating simple reasoning to support the process and show consistency with the evidence presented. The context of individual problems at this level will require some comprehension in order for the learner to be able to independently identify and carry out an appropriate mathematical approach.

Subject Content: Highfield Functional Skills Qualification in Mathematics at Level 2

Use of numbers and the number system: learners are expected to be able to use numbers of any size; read, write and make use of positive and negative integers of any size; use, order and compare integers, fractions, decimals, percentages and ratios as well as recognise the value of a digit in any whole or decimal number. They can use numerical and spatial patterns for a purpose and calculate with, and convert between, numbers written as fractions, decimals, percentages and ratios. For specific detail on using numbers and the number system, see below.

Level 2: Using numbers and number system: *whole numbers, fractions, decimals and percentages*	
1.	read, write, order and compare positive and negative numbers of any size
2.	carry out calculations with numbers up to one million including strategies to check answers including estimation and approximation
3.	evaluate expressions and make substitutions in given formulae in words and symbols
4.	identify and know the equivalence between fractions, decimals and percentages
5.	work out percentages of amounts and express one amount as a percentage of another
6.	calculate percentage change (any size increase and decrease), and original value after percentage change
7.	order, add, subtract and compare amounts or quantities using proper and improper fractions and mixed numbers
8.	express one number as a fraction of another
9.	order, approximate and compare decimals
10.	add, subtract, multiply and divide decimals up to three decimal places
11.	understand and calculate using ratios, direct proportion and inverse proportion
12.	follow the order of precedence of operators, including indices

Use of measures, shape and space: learners are expected to be able to handle relationships between measurements of various kinds, use angles and coordinates when involving position and direction and make use of geometric properties in calculations with 2-D and 3-D shapes and understand the relationships between them. For specific detail on measures, shape and space – see below.

Level 2: Measures, shape and space	
13.	calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting
14.	convert between metric and imperial units of length, weight and capacity using a) a conversion factor and b) a conversion graph
15.	calculate using compound measures including speed, density and rates of pay
16.	calculate perimeters and areas of 2-D shapes including triangles and circles and composite shapes including non-rectangular shapes (formulae given except for triangles and circles)
17.	use formulae to find volumes and surface areas of 3-D shapes including cylinders (formulae to be given for 3-D shapes other than cylinders)
18.	calculate actual dimensions from scale drawings and create a scale diagram given actual measurements
19.	use coordinates in 2-D, positive and negative, to specify the positions of points
20.	understand and use common 2-D representations of 3-D objects
21.	draw 3-D shapes to include plans and elevations
22.	calculate values of angles and/or coodinates with 2-D and 3-D shapes

Handle information and data: learners are expected to be able to construct, interpret and evaluate a range of statistical diagrams. They can calculate and interpret probabilities. They can calculate, analyse, compare and interpret appropriate data sets, tables, diagrams and statistical measures such as mean, median, mode and range, and use statistics to compare sets of data. They can identify patterns and trends from data as well as recognise simple correlation. For specific detail on handling information and data, see below.

Level 2: Handling information and data	
23.	calculate the median and mode of a set of quantities
24.	estimate the mean of a grouped frequency distribution from discrete data
25.	use the mean, median, mode and range to compare two sets of data
26.	work out the probability of combined events including the use of diagrams and tables, including two-way tables
27.	express probabilities as fractions, decimals and percentages
28.	draw and interpret scatter diagrams and recognise positive and negative correlation

Solving mathematical problems and decision making: Learners at Level 2 are expected to be able to use the knowledge and skills listed above to recognise and obtain a solution or solutions to a complex problem. A complex problem is one which requires a multistep process, typically requiring planning and working through at least two connected steps or processes.

Individual problems are based on a combination of the knowledge and/or skills from the mathematical content areas (number and the number system; measures, shape and space; information and data). At Level 2 it is expected that the learner will be able to address individual problems some of which draw upon a combination of all three mathematical areas and require learners to make connections between those content areas.

Level 2: Solving mathematical problems and decision making
Learners at Level 2 are expected to be able to: - read, understand, and use mathematical information and mathematical terms; - address individual problems as described above; - use knowledge and understanding to a required level of accuracy; - identify suitable operations and calculations to generate results; - analyse and interpret answers in the context of the original problem; - check the sense and reasonableness of answers; and - present and explain results clearly and accurately demonstrating reasoning to support the process and show consistency with the evidence presented. The context of individual problems at this level will require interpretation and analysis in order for the learner to be able independently to identify and carry out an appropriate mathematical process or processes.

Appendix 3: Sample Assessment Material

Full practice examinations can be found on the Highfield Qualifications website in both paper-based and on-screen formats.

Highfield Functional Skills Qualification in Mathematics at Level 1

Sample question: underpinning knowledge

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Using the scale, what is the distance between points A and B, in miles?

1km = 0.62 miles

Scale
2cm:5km

Show your working out and write the answer in the box below. *(3 marks)*

Sample question: problem solving

Highfield Functional Skills Qualification in Mathematics at Level 2

Sample question: underpinning knowledge

What is 36 out of 96 as a fraction? Simplify your answer.

Show your working out and write the answer in the box below. *(2 marks)*

Answer: _____

Sample questions: problem solving

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There are 2 different waterparks near your hotel.

You and Josh both have the following leaflets:

The exchange rate is:

£1 = €1.12

How much less is it for you both to go to the cheaper waterpark than go to the more expensive waterpark? Give your answer in pounds sterling (£).

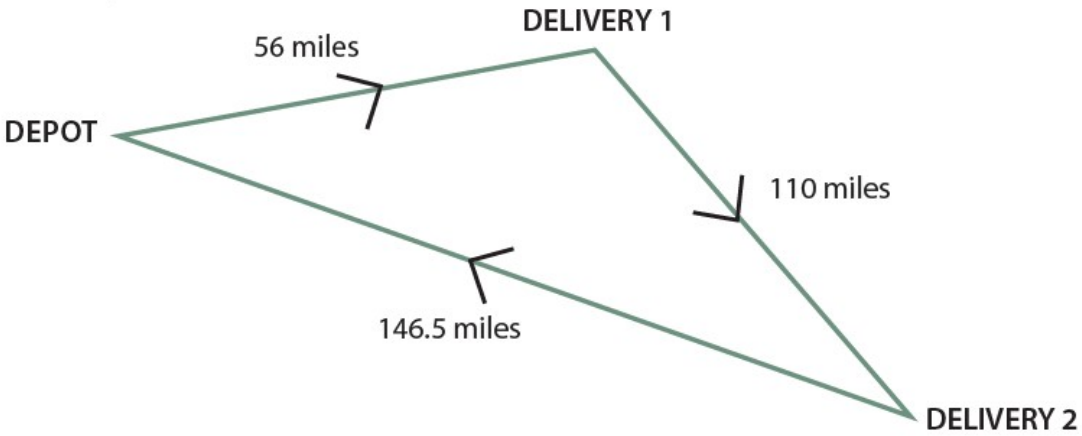
Show your working out and write the answer in the box below. *(6 marks)*

You deliver furniture to two customers.

You know that:

- each delivery takes 30 minutes (including breaks)
- you drive at an average speed of 50mph

This is the route you take:



You leave the depot at 8:00 am.

What time would you return to the depot if everything went to plan?

Show your working out and write the answer in the box below. *(4 marks)*