

Reformed Functional Skills Maths Levels 1 and 2 Senior Examiner's Report November 2023

Introduction

Reformed Functional Skills has now been available to teach for almost four years. In that time teaching resources have become more readily available, and centres have now had time to embed the subject content requirements at Level 1 and Level 2 into their teaching programs. The availability of practice papers is also much better with older exam papers being retired and put into the practice paper cycle.

It is recognised that centres incorporate the teaching of Functional Skills maths (and English) with their learners in many different ways. For example, some prefer the 'one day a week' option whereas other centres might plan teaching blocks of perhaps two or more weeks at a time. Regardless of how Functional Skills maths is incorporated into learning programs, centres face similar challenges in how to teach all of the required subject content to their learners in the time they have available.

The purpose of this report is to highlight the main subject content areas where learners tend to perform well or less well so that centres are aware of the specific areas that they should pay attention to. Advice contained within this report will also point out high value areas of the subject content, whereby a particular skill might cover several different subject content areas and therefore help those centres whose learners are on more limited timetables.

Learner performance thus far, has showed year on year improvement since the outset of the qualification. There has always been the exception of a small number of subject content areas that learners continue to find challenging and show little if any improvement in performance figures, e.g. combined probability. Performance generally though in the past year, however, appears to be levelling out somewhat, which is to be expected given the length of time that the

qualification has been available. There continues to be significantly more exams taking place at Level 2 compared to Level 1.

Centres should be aware that any subject content area can be tested in any assessment version. They should also be aware that any subject content can be tested as either an underpinning skill or as part of a problem-solving question in the non-calculator or calculator section. The split between underpinning skill questions and problem-solving questions in all papers is 25%/75%.

Every assessment version will cover subject content from all three mathematical areas, ie, Number, Measures and Handling Data often combining skills from more than one area in the same question.

We continue to see evidence of learners taking tests that score extremely low marks, suggesting that they simply were not ready to take the test.

Overall learner performance

Learners appear to be much more willing to tackle problem solving questions. Often these questions cover more than one subject content area and poor performance in step one of a problem-solving question does not necessarily mean that step two and step three cannot be successful. The marking of scripts makes allowances for changes in subject content within a question and will always try to award marks where credit is due, even if earlier stages of the question show incorrect workings. Learners should always be encouraged to work through all problem-solving questions to the end as often marks can be picked up.

Performance in underpinning skill questions is encouraging. Where these questions appear in the non-calculator section there are still many learners struggling with pen and paper methods but where a calculator is available it is clear many learners know what skills they need to use.

It is recommended that learners have sufficient opportunity to do practice papers so that they can see the difference in the way that underpinning skill questions are presented, compared to problem solving questions.

The areas where learners generally perform well are finding percentages, finding mean, median, mode and range, finding areas of basic shapes and conversions. In section B of the test where use of a calculator is permitted, performance shows that learners can carry out basic calculations and for this reason underpinning skill questions tend to perform well.

The areas which cause learners more difficulty is outlined in more detail below but at Level 1 these areas include:

- order of precedence of operators
- drawing 2d shapes
- interpreting plans, elevations and nets
- estimate answers to calculations

At Level 2 these areas include:

- finding estimated mean of grouped data
- surface area and volume of cylinders
- percentage change and original value before percentage change
- combined probability

It is encouraging to note that learners are more readily attempting onscreen questions where functionality is needed, e.g. using onscreen tools to draw a 3d shape or a graph. Centres should continue to ensure that their learners use the practice onscreen functionality prior to taking an onscreen test to ensure the time available is used optimally.

Specific Subject Content Performance Feedback

Level 1:

SC7 – Follow the order of precedence of operators

Where this subject content is taught as an underpinning skill, we are seeing improvements in performance in this area. However, when this subject content is tested within a problem-solving question, the use of BIDMAS tends to dip and performance is poor. Scientific calculators are not permitted and 25% of the paper is non-calculator so it is essential that learners are taught BIDMAS to ensure they know the order in which operations should be calculated.

SC11 - Add, subtract, multiply and divide decimals up to 2 decimal places

In Section B learners perform reasonably well with this subject content, especially when it is tested as an underpinning skill. However, when tested as part of a problem-solving question performance is less secure. Learners should also be taught at least one clear paper-based method for each operation to ensure they have the skills to tackle this subject content in the non-calculator section also.

SC15 – Estimate answers to calculations using fractions and decimals

This is an area of the subject content that shows poor performance. Learners tend to miss the word 'estimate' in the question and try to carry out the given calculation using the actual figures. Where this appears in the non-calculator section it becomes a difficult and time consuming task. If learners are taught to sensibly round numbers to the nearest 10, 100 etc before starting their calculation they would find it significantly easier and have more chance of gaining marks.

SC16 - Recognise and calculate equivalences between fractions, decimals and percentages

The relationship between fractions, decimals and percentages is not clear to many learners, other than common unit fractions, e.g. $\frac{1}{4}$, $\frac{1}{2}$, etc which they can identify as 25%, 50%, etc. Where learners have to do a calculation to see equivalences, they are less able to score marks.

SC25 - Interpret plans, elevations and nets of simple 3d shapes

Many learners fail to understand that a plan or an elevation is a 2d drawing of an aspect of a 3d shape. Often, they will try to recreate the 3d shape from a different angle. Learners should have experience of a wide variety of 3d shapes including cylinders and also including real life objects such as a house or shed.

SC26 – Use angles when describing position and direction and measure angles in degrees

Learners perform well where this subject content is tested as a multiple choice question, however learners should be made familiar with the terms 'clockwise' and 'anticlockwise' when describing turns as well as have familiarity with compass points and calculating degrees. Learners should also be proficient in using a protractor whether doing paper-based or onscreen tests.

SC28 - Group discrete data and represent grouped data graphically

Learners appear to understand the concept of grouping data, particularly where some scaffolding is provided in the form of an incomplete table. However, they are less familiar with the concept of evenly spaced groupings and this then has implications when trying to represent this data in graphs and charts.

Level 2

SC5, SC6, SC13 -

Percentages as a whole, represents an opportunity to score several marks in a paper as there are several percentage subject content areas. Learners are adept at calculating basic percentages of amounts, and are then able to add or subtract these, however, they are less familiar with calculating one amount as a percentage of another, calculating percentage change and calculating original value after percentage change.

SC7 Add and subtract fractions including proper, improper and mixed numbers

Performance in this area appears to be improving but learners need secure strategies to find common denominators, particularly with mixed numbers and improper fractions. It should be noted that if fractions are converted to decimals to enable ease of adding or subtracting then often a method mark can be achieved.

SC9b – Approximate decimals

Many learners fail to correctly approximate decimals when asked to round to a specified number of decimal places. In some cases, learners may have the skills to do this but nevertheless lose this mark because they have not re-read the question to check how the answer should be expressed.

SC10 - Multiply and divide decimals up to three decimal places.

Although this is often tested as underpinning skill, it can appear in the non-calculator section and learners therefore need to have reliable paper-based methods they can use when tackling these questions. It can also be tested anywhere in the paper as part of a problem solving scenario. Most learners perform well in this where it appears in the calculator section.

SC11 – Calculate using ratios, direct proportion and inverse proportion

Inverse proportion is a part of the subject content that continues to show poor performance in every assessment version. Learners are much more proficient at calculating ratios and direct proportion but centres should be aware of the requirement to test to the challenging end of the subject content and therefore inverse proportion is a common question that will appear on assessments.

SC13 - Calculate compound interest

We have continued to see an improvement in learners calculating compound interest correctly, however there are still a significant number of learners calculating one year's interest and multiplying it by the number of years to get an incorrect answer.

SC15 – Calculate using compound measures include speed and density and rates of pay

Centres should note that where learners are required to calculate using speed and density that the formulae is given. Learners should be taught how to use these formulae in all question types. Performance generally is on the low side, especially when this is part of a problem solving question.

SC16 and SC17 – Calculate areas and perimeters of 2d shapes including triangles and circles

Use formulae to find volumes and surface area of 3-d shapes including cylinders (formulae not given for cylinders)

More and more learners show evidence that they have been taught, and have memorised the formulae for finding area and circumference of circles and most have a good attempt at solving it. Common errors are where learners use diameter instead of radius or confuse the formula for circumference with the formula for area of a circle. Where formulae are allowed to be given, learners are showing improvement.

SC24 - Estimate the mean of a grouped frequency distribution from discrete data

Performance in this area showed improvement since the introduction of the qualification, but this now shows signs of levelling off. There are still a significant majority of learners that find this difficult and will try to carry out a basic mean calculation.

SC26 – Work out the probability of combined events including using diagrams and two-way tables.

This subject content continues to show learners performing poorly. Learners tend to add the fractions or decimals instead of multiplying. Centres should ensure that this topic is specifically taught so that learners are prepared when sitting the exam.

Advice for centres

All learners should be encouraged to tackle all parts of a question to try to pick up 'follow through' marks where the subject content being tested changes. In this instance learners are not usually penalised for an error in a previous step.

Ensure learners have ample opportunity to do practice tests and make clear the differences between how an underpinning skill question is presented compared to a problem-solving question.

Learners should be given the opportunity to use the practice functionality available on XAMS to ensure that the time available during a test is not used trying to get used to how the functionality works.

Learners should be familiar with paper-based methods of calculating as well as using a calculator.

Ensure that session planning for learners incorporates all of the subject content areas within the qualification, with practice maths questions that are presented as both underpinning skill and problem solving.

Learners should be reminded repeatedly to read questions carefully, particularly for key information such as 'estimate'.

Due to the requirement of assessments to be robust and challenging, centres should ensure teaching is to the challenging end of the subject content statement.

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Department for Education. Subject Content Functional Skills Maths Document

https://www.gov.uk/government/publications/functional-skills-subject-content-mathematics

Scope of Study – pages 13-18 of the above document.