



# Reformed Functional Skills Maths Levels 1 and 2 Senior Examiner's Report May 2021

## Introduction

Reformed Functional Skills maths Levels 1 and 2 qualifications have been available since September 2019. As with many new qualifications there has been a period of adjustment and learning, as centres become familiar with the changes in the qualification and they begin to implement and integrate these changes into the teaching, learning and assessment of their learners. Performance is therefore expected to improve following this initial learning period. This natural improvement was delayed somewhat due to the Covid restrictions throughout most of 2020 and many centres choosing to register learners onto the legacy qualifications before they expired. That said, it is encouraging to note that performance has improved since the introduction of the qualification and centres should use the guidance in this report to support the teaching of their learners and improve performance further.

## Overall learner performance

Overall learner performance has improved since the launch of the qualifications, suggesting that centres are now becoming more familiar with the specification and are incorporating this into their teaching and learning programs.

However, there are still areas where performance of learners has been consistently poor at both Level 1 and Level 2. These areas are predominantly the new subject content that has appeared at each level. This suggests that there are still centres that are either not

familiar with the new subject content areas, or they are not incorporating the new content sufficiently well in their teaching and learning programs.

At Level 2 such content includes: Estimated mean of grouped data, compound interest, finding area and circumference of circles, surface area and volume of cylinders, percentage change and original value before percentage change, amongst others.

At Level 1 this content includes: finding areas of combinations of rectangles, order of precedence of operators, drawing 3-D shapes, interpreting plans, elevations and nets etc.

There is also evidence that some learners do not have sufficient skills to enable them to solve multi-step problems. Problem solving questions incorporate 75% of the overall assessment and often includes high tariff questions of 4-8 marks. Underpinning skill questions, which make up 25% of the paper performed better overall. Centres should note that all subject content can be tested as either underpinning skill, or as part of a problem-solving question.

Poor performance in the non-calculator sections suggest that learners do not have sufficient strategies for calculating using paper-based methods, or adequate mental calculation skills. It is essential that learners are confident with using alternative methods for all types of calculations.

Drawing of charts and graphs shows reasonable performance both at Level 1 and Level 2, however marks are lost due to inadequate labelling, in particular a lack of title and there is some evidence that learners are not familiar with the functionality of onscreen tests.

To support learners, we have created a tool to provide them with the opportunity to practice the functionalities which may appear in their exam, such as drawing charts, graphs, pie charts, 2-D and 3-D shapes, using the ruler or protractor. We strongly recommend learners take the opportunity to familiarise themselves with these functionalities prior to taking their exam. They can be located on our website by following this [link](#).

Learners show good performance when calculating using percentages at Level 1 and Level 2, however the more complex percentage subject content at Level 2 shows some poor performance.

There is also evidence that learners do not read questions properly and miss key information or key words, such as 'estimate', or 'give a reason for your answer.' This is causing the loss of relatively low-level marks that could easily be picked up along the way for the majority of learners.

## Areas requiring improvement for weaker learners

The subject content areas requiring improvement for weaker learners are:

### **Level 1**

#### **Using numbers and the number system – *whole numbers, fractions, decimals and percentages***

##### **SC7 – Follow the order of precedence of operators**

Learners of all abilities have not performed well on this subject content, although improvements are now being seen, indicating tutors are now teaching this subject content. Scientific calculators are not permitted and 25% of the paper is non-calculator, therefore 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**

We have seen poor performance in this subject content when testing in the non-calculator section, particularly when part of a problem-solving context. Centres should ensure learners have secure strategies to perform calculations without the use of a calculator.

##### **SC16 - Recognise and calculate equivalences between common fractions, percentages and decimals**

Learners are far more proficient at recognising and calculating equivalences between decimals and percentages, than they are when using fractions. There is a reliance on 'knowing' the equivalence with common fractions but performance has been poor when a calculation is required.

#### **Using common measure, shape and space**

##### **SC22 – Calculate the area and perimeter of simple shapes, including those that are made up of a combination of rectangles.**

Finding areas of L shapes and T shapes was previously assessed at Level 2. Level 1 learners should now be taught clear methods to enable them to calculate area and perimeter of these shapes, including finding the length of missing sides.

##### **SC25 – Interpret plans, elevations and nets of simple 3-D shapes**

Learners should have experience of a wide variety of 3-D shapes and explore both nets and elevations, as well as gain an understanding of what a plan view is.

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

This subject content is largely tested using the idea of bearings. However, learners should be familiar with both '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.

## **Handling information and data**

### **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, this then has implications when trying to represent this data in graphs and charts.

## **Level 2**

### **Using numbers and the number system – *whole numbers, fractions, decimals and percentages***

#### **SC5 – Work out percentages of amounts and express one amount as a percentage of another**

#### **SC6 – Calculate percentage change (any size increase and decrease), and original value after percentage change**

Both of these subject content areas at level 2 test learners' ability to calculate and use percentages. Learners are quite proficient at calculating basic percentages of amounts, but they also need to calculate one amount as a percentage of another, calculate percentage change, calculate original value after percentage change and calculate percentage increases and decreases where this relates to money. Many learners are much less familiar with these and consequently this area of the subject content shows very poor performance. Likewise, learners are much less proficient at finding one amount as a percentage of another, particularly when part of a problem-solving context

#### **SC7 – Order, add, subtract and compare amounts or quantities using proper and improper fractions mixed numbers**

Performance in this area appears to be improving, it is important to point out that learners need secure strategies to find common denominators, particularly with mixed numbers and improper fractions.

### **SC10 – Add, subtract, multiply and divide decimals up to three decimal places**

Although this is often tested as an underpinning skill, it can appear in the non-calculator section, therefore learners need to have reliable paper-based methods they can use when tackling these questions.

### **SC11 – Understand and calculate using ratios, direct proportion and inverse proportion**

Calculating inverse proportion is new subject content, learners have performed badly in this skill, indicating they have not been taught this subject content. They are much more proficient at calculating ratios and direct proportion, centres should be aware of the requirement to test to the challenging end of the subject content, inverse proportion is a common question that will appear on assessments.

## **Measures, shape and space**

### **SC13 – Calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting**

Please see comments in SC5 and SC6 above which covers this subject content.

Calculate compound interest - this is an area that is now beginning to see improvement in performance but it is still worth noting, a significant number of learners are still unable to calculate compound interest, preferring to calculate one year's interest and apply that same interest to each year. It would be beneficial for learners to be taught the formula for compound interest, as this is much faster than using the step-by-step method.

### **SC15 – Calculate using compound measures including speed, density and rates of pay**

Learners are very familiar with rates of pay as a compound measure, however they are much less familiar with speed and even less so of density. Formulae is given for how to calculate speed and density; however, learners need to be able to use these formulae and in particular understand the units in their final answers.

### **SC16 – Calculate perimeters and areas of 2-D shapes including triangles and circles and composite shapes including non-rectangular shapes**

It should be noted by centres that because area of combinations of rectangles are now assessed in Level 1, the predominant 2-D shapes now assessed under this subject content will be triangles and circles. A significant number of learners are not familiar with the formulae for calculating area and circumference of circles, these are not provided in the assessment, they must be memorised.

**SC17 – Use formulae to find volumes and surface area of 3-D shapes including cylinders** (formulae not given for cylinders)

As with SC16 above, learners have to memorise the formulae for calculating surface area and volumes of cylinders, unfortunately most do not know this. Where formulae is provided (for shapes other than cylinders) learners perform much better.

**SC19 - Use coordinates in 2-D, positive and negative, to specify the positions of points**

Learners need to be able to state the correct coordinates of a given point, or plot a point or a line from coordinates provided. A significant number of learners incorrectly read or plot these points, as they do not know that the first number indicates the x-axis and the second indicates the y-axis.

**Handling information and data**

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

This is new subject content and a significant majority of learners have been unable to answer questions testing this, indicating they have not been taught this subject content. Many will attempt to calculate the mean of something, or make a start by finding the midpoints of the groupings, but many have no knowledge of the method needed to find the estimated mean. When asked as part of a problem-solving scenario, the testing of this subject content can be a high tariff question worth up to 6 marks, it is therefore important that this subject content is properly taught.

**SC26 – Work out the probability of combined events including the use of diagrams and tables, including two-way tables**

Calculating combined probability causes particular difficulty, especially when part of a problem-solving context. Unfortunately, learners lack these skills and resort to adding instead of multiplying. To ensure learners are prepared when sitting the exam, centres should ensure that this topic is specifically taught.

**SC28 – Draw and interpret scatter diagrams and recognise positive and negative correlation**

Learners must produce a scatter diagram to gain marks. At Level 2 the only chart type assessed is a scatter diagram. Learners often plot points incorrectly, or fail to recognise the different types of correlation. In addition, they find it difficult to produce a statement to describe the relationship between the two sets of data.

### Advice for centres

In summary the main advice for centres is to ensure that all the new subject content at both Level 1 and Level 2 is sufficiently covered, as these are the areas that show the poorest performance.

Centres should look at the subject content statements and ensure that they teach to the challenging end of each statement. It is an Ofqual requirement that assessments are both robust and challenging and most areas of the assessment will cover the subject content statement at the challenging end.

Additionally, centres should ensure all learners have the opportunity to practise the functionality on XAMS for onscreen exams, to prepare them and avoid wasting time trying to navigate unfamiliar functionality during their exam time.

Learners should be given plenty of opportunity to solve problems in a variety of contexts and with several steps to unpick.

Learners should be reminded and encouraged to read questions carefully.

**Chrissy Thomas, Senior Examiner**

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.

**For further information, please contact the  
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