

Levels

Level 1 & 2

Paper/s

Maths

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SE Name

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1. Overall performance

This report addresses issues arising out of learner performance at both level 1 and level 2 Functional Skills Maths.

Since all papers at each level are based upon the same specification, it is possible to identify broad themes so that they can be addressed by centres in the interest of improving learner performance.

At both level 1 and level 2, there was evidence of a wide range of learner ability with both exceptionally good performance, as well as some very poor scripts. There were plenty of good learners taking and passing these examinations, at level 1 there were a greater number of higher scoring performances than lower scoring performances.

Some learners at both levels 1 and 2 - albeit a small percentage of the overall entry, were clearly not adequately prepared for the examination for which they were entered and they consequently scored very poorly, sometimes scoring fewer than 10 marks. Some level 2 performances were particularly poor and suggest that the learners concerned may not have passed at level 1.

2. Areas causing concern for weaker learners

Broadly speaking, there are 3 areas which need to be considered in order to pass the examination. Whilst they may appear to be distinct, in reality they are closely linked and interwoven in most learners' performance.

These three equally important areas are mathematical skills, functional awareness and examination technique.

If at all, weaker learners are perhaps a little stronger in the area of mathematical skills. This may well reflect the focus of the way they are taught, but without significant contributions from the other two areas, even mathematically competent learners are unlikely to pass the examinations.

Mathematical knowledge and skills

With regard to the mathematical skills and knowledge displayed by learners the following observations can be made.

In no particular order:

Questions in the area of statistics are generally well attempted; most learners are able to calculate a mean, but median is a less well understood concept and the idea of range is much less understood. Weaker learners focus on the mean, even if asked about median or mode or range.

Correct contextual explanations about the meaning / implications of calculated values such as means, ranges etc are generally less common.

Questions involving bar and pie charts are usually well answered.

Questions involving probability are not well answered, only stronger learners appear to understand this concept.

Weaker learners appear unable to round fractions to their simplest form.

Simple questions on ratios are usually well attempted, but very few learners are able to grasp and apply the idea of scales on maps etc.

Learners are generally good at extracting information from diagrams, tables, graphs etc.

Learners often struggle to correctly use formulae provided to them on the question paper, especially when the order of operations is a key issue being tested.

Weaker learners find the 24 hour clock tricky to convert (and vice-versa).

Weaker learners struggle with simple mathematical terminology e.g. percentage, pi etc almost as if they do not understand the basic meaning of the terms.

Numerous learners confuse diameter and radius.

Few learners appear to be able to come to terms with area and volume questions, especially the concept of fitting smaller units into larger ones , i.e. tile type questions, packing boxes / cups etc.

Many learners, across the whole ability spectrum consistently lose marks due to an inability to show alternate methods for checking a calculation e.g. a mean, a total cost, a price, a ratio. A repeat of what they have already done is not good enough as a check; a reverse calculation, estimation or alternative method are the only acceptable responses. This is always made clear in the question, so there is no value in the learner simply repeating their original method.

Since many questions include the need for a check, this is another source of marks for which a learner can come prepared.

Finally, the most consistent issue for which learners fail to gain marks, continues to relate to not checking their answers.

Functional awareness

These are functional mathematics examinations, therefore learners will be faced with mathematical problems based on scenarios they could reasonably expect to meet in the real world.

It is important learners are able to relate their mathematical skills to the scenario as outlined in the functional skills criteria.

It is strongly suggested that teachers/tutors should seek to always relate their mathematical teaching to the skills standards for Functional Skills criteria for mathematics, paying attention to both the skills standards and the range statements.

Integrating the ideas of representing, analysing and interpreting into the teaching of mathematical techniques to address the range statements, will significantly help prepare learners for the examination, as opposed to simply teaching mathematical techniques in isolation.

Examination technique

There are a number of non-mathematical areas in which some simple improvements could make a significant difference to learners' overall marks. These comments apply to both level 1 and level 2.

Reading the question

A significant number of learners, including many who clearly understood the question and demonstrated a high level of mathematical competence, failed to obtain some relatively straightforward marks by not reading the question carefully and therefore not answering it completely or as required.

The clue is in the question and learners should be reminded to read each question carefully and do as it asks.

Some questions have more than one part, so reading the question carefully, maybe even twice to identify everything that is required, is a good idea.

Examples include where the question asks learners to:

- 'Explain your answer'
- 'Comment on your findings'
- 'Give a reason for your answer'

or even simply asks the learner to make a decision or choice (simply working out all the options but not saying which you would choose will in such cases lose an easy mark!)

In many questions there is usually at least one mark available for a valid explanation / comment / reason. Simply calculating the answer (or stating Yes or No) will not gain full marks, since it is important in functional maths that learners are also able demonstrate an understanding of what the calculated result means.

Since this is functional mathematics based on scenarios learners could reasonably expect to meet in the real world, they should be encouraged to:

- explain their answer;
- give a reason;
- make a comment;
- make a decision

Across the whole examination paper these 'easy to gain' marks – which require common sense as much as mathematical skills - can add up to at least 4 (6%) and could in some cases turn a fail into a pass.

Other similar examples of reading the question carefully and answering appropriately include:

- providing units if required e.g. m or cm, this also applies to labelling time correctly e.g. am/pm or 24 hr format;
- rounding to an appropriate number of figures;
- answering in proper cash format e.g. £25.40 not £25.4;

all of which may lose marks if not provided and again are not majorly challenging mathematical issues.

Another particular example concerns labelling diagrams/tables/graphs. When a graph/table is required there will always be marks awarded for the title, labelling of the axes and appropriate scale as well as the data itself. All fairly straightforward marks not to be missed out on.

Showing working

There is also the issue of learners not 'showing their working', another item of advice quite clearly indicated in most questions.

Partial marks can be gained if the methodology employed is correct, even if the final answer is incorrect.

This may also be the case in a multi-part question where later parts can score marks, even if the first part is calculated incorrectly. However, given that the subsequent answers will not match the 'expected' ones, it is essential that the learner shows their working out in order to illustrate to the marker that they do indeed know what they are doing and thus be awarded some marks.

At both level 1 and level 2 even if the marker suspects that failing learners have some limited understanding of the mathematics involved, they are not able to award many marks if there is a lack of actual evidence i.e. no working out shown.

Working the problem/calculation through on the script, may well alert the learner to an error which they might have made and which they might otherwise not have noticed.

Checking and common sense

There remains the issue of applying common sense when checking answers - it does not require great mathematical skills to stop and consider whether the calculated answer makes sense / is possible, or even that it confirms the accuracy of the original calculation.

As noted previously, functional skills in mathematics focuses upon the application of mathematical skills in real life situations to solve real life problems. Learners should therefore be prepared and ready to 'sense check' their answers to see whether they actually make sense / could happen in the real world.

Scripts regularly contain 'impossible' answers which a moment's thought should cause the learner to revisit their calculations. Examples seen include:

Tiled floors in bathrooms containing tens of thousands of standard tiles;
Miles per gallon for cars in the high hundreds;
Cinema tickets costing just a few pence;
Car park spaces measuring 3 cm x 5cm;
Temperatures variations of over 100 degrees

Learners therefore need to be encouraged to 'sense check' their answers before moving on. One common cause for this sort of error is due to the lack of understanding of unit conversions i.e. millilitres not litres.

Furthermore, the purpose of a check is to confirm the correctness of the original calculation, if the check does not do so, then remedial action needs to be taken.

3. Advice for centres

By its very advisory nature, this report focuses on areas where there is room for improvement.

These examinations are well within the grasp of the well-prepared learner who has a good understanding of the basic mathematical requirements, but who equally and importantly also understands the importance of and is able to apply good examination techniques to allow them to show their mathematical skills and knowledge.

Furthermore, if centres can enhance their integration of the mathematical requirements of these programmes with contextual and functional perspectives, the greater the likelihood of learners understanding the problems contained within the question papers, being better prepared for and ultimately passing the examinations.

Entering learners for the examination who are clearly not ready does no one any favours and there are no winners. For learners who may well already be anxious and lacking in confidence, it will almost certainly reinforce feelings of inability when they do badly, especially if they are so unprepared that they not only receive very few marks, but also find themselves unable to make a meaningful attempt at the questions.

Centres are strongly advised to carry out appropriate diagnostic assessments before entering learners for examinations at either level.

Furthermore when learners do fail, care should be taken in planning any resit attempts. It is important learners are provided with additional support to try and ensure they have had time to improve their knowledge and skills so that they are in a position to do better and hopefully pass at their next attempt.

Finally, it is suggested that centres consider giving a copy of this report to each of their learners to consider and discuss its contents with them prior to their examination.