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January 2018
Version 1.0

3748-120 (Evolve) and 3748-320 (Paper)

Functional Skills Mathematics Level 2

Chief Examiner's report – January 2018

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City & Guilds
1 Giltspur Street
London EC1A 9DD
www.cityandguilds.com

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1 Introduction

The purpose of this document is to provide centres with feedback on the performance of candidates for 3748-120 and 3748-320 Functional Skills Mathematics Level 2.

The Chief Examiner's Report has been reintroduced as a result of feedback from centres, to give them guidance in preparing candidates for examination.

2 Overall Performance

This report covers the period from January 2017 to December 2017. The patterns of candidate responses (and difficulties experienced) are similar to those encountered in previous assessment tests and reported previously.

2.1 Areas of good performance

A large number of candidates cope very well with the assessment formats, both paper based and online versions, producing well worked solutions to the problems set.

Well prepared candidates are coping well with the review section of Task 1. They are generally finding the more structured nature of this task easier to deal with and solutions to the problems set in Task 1 have been noticeably more comprehensive and sensible.

Most candidates cope with calculation requirements and understand the principles of basic operations (addition, subtraction, multiplication and division) and can deal with fractions, decimals, percentages, ratios/proportion and scaling within task contexts.

Statistical problems have been dealt with competently by most candidates who can generally at least calculate averages and ranges accurately. Probability has been calculated and understood by a large number of candidates and more candidates have demonstrated their understanding of trend lines presented graphically.

Basic checking of calculations has been well demonstrated by most candidates. Explanations of what results mean in the context of tasks is improving. Presentations of results using summary tables, charts and graphs is generally good.

2.2 Areas for development

Although many candidates have been well prepared for their chosen assessment format, script marking shows that a significant number still seem to be unaware of some or all of the detail required. There have been a significant number of candidates who seem to be unprepared for, or simply unable to cope with, the demands of the Level 2 papers, particularly the need to select information / data, but also the practical use of scaling, ratio and proportion.

Candidates are expected to show their working in order to be eligible for compensation marks in cases where they have not achieved a fully correct answer. This has been a particularly important issue for some online candidates who are clearly doing their working out on paper and neglecting to transfer some or all of their working to the online script. There is a menu bar online to assist this process where there is a clear instruction to show working. A few online candidates have missed parts of sections by failing to scroll down sufficiently and some seem unaware of the

need to access source material. Some candidates do not appear to have had sufficient practice in using the diagram or chart tools and have therefore lost a significant number of marks.

Introduction and source material. In order to tackle tasks, candidates must access the instructions given in the introduction and select relevant data from the source material. A number of candidates appeared to neglect to read the detail of the requirements of each task and its overall purpose, and some clearly failed to access all of the required source material, especially in online versions where candidates failed to scroll down sufficiently to find data. Generally candidates should approach each task as a whole with the view that earlier parts of a task may inform later parts.

Some candidates find the interpretation of travel timetables particularly difficult to understand.

Units. Misunderstanding units, particularly relating to linear dimensions (mm, cm, m and km) and those of time, prevents some candidates from successfully completing their search for information needed to complete a task. Many candidates do not show units either in their answers or workings. Although a candidate will not be repeatedly penalised for this, the absence of units can lead to confusion for the candidate as her/his answer develops, eg when dealing with scale plans. Many candidates ignore the need to make use of the £ sign and some give answers in incorrect money format, eg an answer £107.30 written as £107.3 will be penalised.

Checking. Some candidates are still not attempting to show checks. The marks available for these steps could make the difference between a pass and a fail grade. Checking calculations requires candidates to use a different method from the original calculation, usually reverse calculations or approximation. Candidates must show the original calculation in their working. Some **Task 2** checking relates to the interpretation of a scale plan. Candidates should be able to explain their use of scale by relating the scale used to the actual and scaled length on a diagram. Some candidates lose marks by missing either reference to the scale or reference to the scaled length.

Presentation of results. Many candidates who demonstrate their ability to calculate accurately to find solutions for the tasks, find some difficulty in summarising and explaining their results in the context of the task. Explanations generally need to be no more than simple statements relating to what a candidate's results show. On some occasions, a comparison of two values will explain findings and candidates should be taught to use words that indicate comparison, eg 'the highest average'.

Most tasks require some graphical support for, and/or summary of results. Although most candidates produce good presentations, it is worth emphasising the following basics:

- paper based presentations are more likely to be accurate if candidates use a ruler
- online (E-volve) candidates should practise the use of the presentation tools available

Section 1 Number focus

Section 1 tasks frequently involve money and/or time. Candidates are expected to extract information from text and a variety of other formats including tables, timetables, invoices and receipts. Many candidates find particular difficulty interpreting timetables. It is important that candidates also read the text content of questions carefully (eg in a recent paper, a majority of candidates omit to multiply some data up by the factor of four included in the first part of a question).

Calculations involving time and time of day are particularly challenging for a number of candidates, frequently because of the failure to recognise that decimal fractions of hours are not synonymous with minutes. Other calculations that cause difficulties for some candidates include:

- percentages
- ratios
- fractions
- understanding indices, eg $(1.25)^2 = 1.5625$ not 2.5
- formulae and the need understand the correct sequence of operators (ie to apply BIDMAS rules)

Presentations of results very often require a table, timetable or time line. Candidates should understand that the purpose of a presentation table is to provide a suitable summary of results. It should therefore be systematically constructed with appropriate headings and delineated in a logical format. Candidates lose marks for the following reasons:

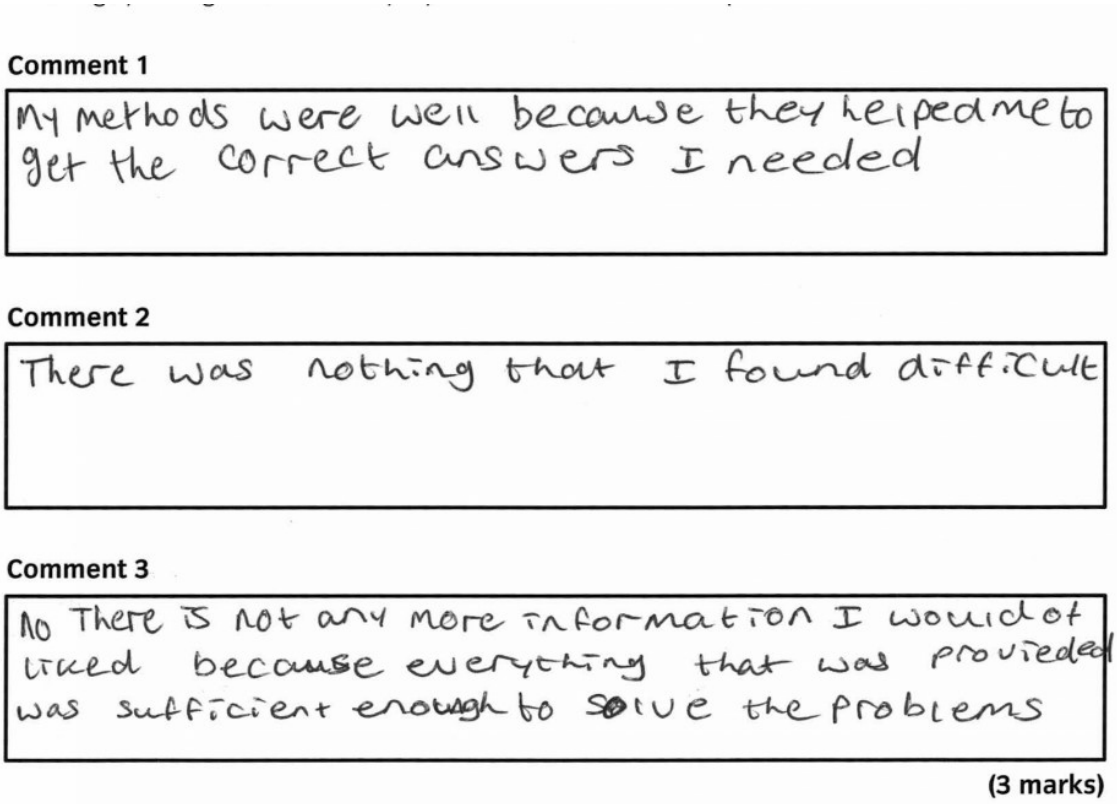
- inadequate / no headings
- poor layout
- data inconsistent with results

A few candidates still draw charts or graphs (for which they will be penalised).instead of the required table.

Review. The last part of Section 1 requires candidates to reflect upon and evaluate the way they have tackled the task. Many candidates appear to have ignored the initial instruction: 'You need to review **how well you did** the Task' and simply read the final line: 'List three important points', thereby simply reporting stages of the calculation process. Others use generic phrases, eg 'I checked my calculations' without making specific references to the actual work they have done in the context of the task requirements. Candidates will gain the marks allocated for this section by making specific reference to something they have done in working through the task and relating this to one or more of the categories listed, ie

- any other information that would have informed a fuller answer
- how sensible the answers were
- how well the methods worked
- anything they found difficult
- things they might do differently if you had to tackle a similar problem.

Candidates continue to give answers similar to the following (for which they will achieve zero marks):



Section 2 Shape, space and measures focus

Candidates are expected to extract information from diagrams, plans, simple maps, often involving the application of a given scale. The application of scale and the associated use of different orders of units present a number of candidates with considerable problems. Some diagrams require the application of spatial awareness, an application that is causing considerable problems for some candidates. Candidates should be aware that packing smaller objects into a larger volume cannot be accurately calculated by simply dividing the smaller volume into the larger volume. A similar principle applies to fitting areas of small objects into larger areas.

Many candidates have difficulty with associated calculations involving:

- calculation of L-shaped areas
- calculation of volume
- conversions within the same system (eg $1m^2 = 10000cm^2$ not $100cm^2$)
- conversions of imperial to metric
- scaling up
- scaling down
- use of given formulae (particularly an understanding of BIDMAS principles)

Some candidates' explanations of results are poor. Generally there is an expectation that candidates should be able to draw together results with a simple explanation, often involving a comparison – phrases such as 'larger than', 'less than', etc can be useful ways of summarising results.

Section 3 Statistics focus

Candidates are expected to extract information from tables of data with additional information shown in various text formats. Additionally, data may be extracted from various graphical formats including line graphs scatter graphs.
They must be able to select an appropriate average (mean, median or mode) and explain why they have chosen that average. At this level, simple explanations such as 'uses all available data' (mean) or 'excludes outliers' (median) is all that is required.

Generally candidates, with few exceptions, calculate averages and range accurately. Some errors occur in calculations of range and average because candidates ignore data with a zero value or fail to recognise the need to use different divisors when data relates to eg different periods of time. Many candidates find explaining their results difficult. In particular, few candidates understand that a range result reflects the consistency or inconsistency of the original data. Many candidates have difficulty with associated calculations involving percentages.

Probability calculations are beyond many candidates and presentations of results often poor, frequently because there is no recognition that the end points of the scale are 0 and 1 (0% and 100%).

Presentations of results in bar chart format are generally good, although some online candidates have problems with finding a scale that is easy to use. Online candidates need to be familiar with the idea that the scale works best by setting the maximum at 10, 50 or 100 (or multiples thereof) and they are best advised to avoid using the 3-D tool. Many candidates find difficulty in producing sensible pie charts and should be aware that results should be presented as proportions (fractions or percentages).

Where candidates are required to draw trend lines, they should be aware that they should draw a straight line of best fit through given points.
Common errors made by candidates when constructing charts and graphs include:

- failure to label axes, particularly the vertical axis
- not constructing a continuous linear scale on the vertical axis
- failure to start the vertical scale at zero (bar chart only)
- not drawing bar heights, plots or sectors accurately

3 Recommendations/Advice for centres

Centres should use the Guidance for Delivery of Functional Maths (City and Guilds website) in order to support teaching and learning. This Guidance provides information and examples of what is expected from Level 2 candidates.

Centres should carefully consider whether a candidate is operating at an appropriate level for entry at Level 2. Unfortunately there have been a small number of candidates who were clearly not anywhere near the standard required, eg, unable to work out one third of a given value.

There are two platforms, paper based and online, available for this assessment. Centres should ensure that an appropriate choice of platform is made for candidates based on each candidate's need and preference. A few online candidates have actually indicated on their scripts that their preference for working on paper has been ignored by centres.

Centres should advise candidates about appropriate 'exam technique' particularly with regard to attempting Tasks in order. Candidates may attempt Tasks in any order and it may be to a candidate's advantage to start with Task 2 or 3 rather than Task 1.

Candidates who choose to access the assessment online need to be prepared not only in terms of the prescribed Functional Skills Standards, but also in terms of using the E-volve platform. They must be well practised in the use of the presentation tools (tables, diagrams, charts and graphs) but also understand how to insert sufficient text, eg to show calculations and working, so that potential compensation marks, in the event of incorrect answers, are accessible.

The importance of showing working in paper based assessment should be stressed for the same reason.

4 Additional Information

Centres should be aware that pass marks may vary from paper to paper as a result of an awarding process undertaken by City & Guilds. Any difference in pass marks reflects the perceived and actual difference in demand of the exam papers, including the source materials and the questions themselves. Therefore, it is possible that two candidates with the same score may have different overall results (pass or fail) if they sat different papers.

Centres are reminded that the assessment format for Level 2 was remodelled in November 2016. Task 1 is now more structured, planning will no longer be assessed, but reviewing is retained. Candidates will not be required to draw scale diagrams, although they will be expected to read from given scale plans and diagrams.