KEY SKILLS APPLICATION OF NUMBER (NOVEMBER SERIES) 2006

Chief Examiner's Report

Level 3

Examiners felt that this paper was excessively long, with a large number of one mark questions, each with a fresh set of information and requiring a new thought process. Some of the two mark questions were quite complex. As a result, it was difficult for the candidates to complete in the time allocated.

Throughout the paper, the examiners allowed for a range of accuracy in the acceptable answer for most one mark questions. If we had been strict about 'sensible accuracy', many candidates would have been heavily penalised. However, candidates should be taught to ask themselves about the accuracy they give in the final answer, because marks **are** lost by answers which are not suitable in the context.

The cohort for this paper for CCEA was small so it is difficult to make general comment; however, these candidates did not appear to have used the 'reading time' to plan their approach to the solution of each question.

In this small group, many exhibited weaknesses in their knowledge and use of Number skills. In some questions, they showed little skill in deciding what operations to use and in which order – this is crucial in Level 3 work. Candidates should be reminded that if an answer looks stupid, it probably is! Some of these weaknesses are discussed below.

Some issues specific to this paper:

Q.1 (a) & (b) Many correct responses, but some had problems with the 'large' numbers.

(c) Very few recognised that this is 'percentage backwards'. In this group, few were using a factor for percentage change (in this question or elsewhere).

(d) Many ignored at least one of the pieces of information required to reach a final correct answer.

Q.2 There were many difficulties thrown up by this question – knowledge of formulae; selecting and combining complex data; diameter and radius; retaining accuracy; conversion of units. There is a need for clear communication, not only with the examiner, but also so that the candidate knows what (she/he has done and where she/he is going next!

(a) Very few correct responses from this group.

(b) Once again we saw major problems in managing units.

(c) & (d) Some candidates do not know the number of days in a year – this makes finding the correct answer impossible!

Q.3 (a) In most cases, a 'simple form' will involve numbers such as integers up to 10.

(b) Answer was expected to nearest £ or penny.
(c) This had seemed straightforward, yet many candidates ignored the **per employee.**
(d) Repeated percentage change really needs to use a factor - in this case 1.0138 Accuracy must be retained.

Q.4 (a) Many could attempt to use trigonometry, but often forgot to consider a right angled triangle – ie to divide the angle by 2.
(b) Many were totally lost with the complex data.
(c) This showed the weakness of many candidates in using a formula (and/or their calculator?).
(d) This also appeared relatively straightforward, but many candidates had difficulty in the sequence of the operations to demonstrate the validity of the given statement.

Q.5 (a) Finding the area of rectilinear shapes should not cause a problem. This shape should be treated as a trapezium. Despite a large range of examples in previous papers and comments in these reports, there are still candidates who do not scale up first. I felt that the change to square feet over-extended the difficulty of this question.
(b) to (d) A relatively routine set-up, solve and check simultaneous equations. Some of this group seemed to be prepared for this.
(e) Another fairly straightforward part – but many ignored the 'per square foot' – and impossible for candidates who do not know the number of weeks in a year.
(f) Another example where most candidates lost themselves by failing to plan a route through the question or by poor presentation.

Q.6 (a) Most candidates made acceptable comments; the emphasis in questions like this is to summarise overall patterns, not to focus on individual values.
(b) Another question using 'large numbers'; this cohort struggled with this. I suggest that candidates should firstly focus on the route through the solution, then work with the numbers.
(c) Few of this group knew how to draw a cumulative frequency graph. Most had non-linear scales or even worse non-continuous scales on the variable axis.
(d) It is nearly impossible to comment adequately from an incorrect graph; some produced acceptable comments, presumably from the table. Interpretation of data is an important skill.
(e) As I have often commented before, mean from a grouped frequency table should be a straightforward source of 3 marks. Most of these candidates were not able to do this.
(f) Candidates should also be aware that the calculation from **any** grouped or continuous data is an approximation. Perhaps a re-emphasis of discrete and continuous is needed in the light of this and other parts of this question?
(g) Sometimes this is a matter for options, but in this case candidates need to recognise the problems with the mean, and select the median. In general, candidates need to understand that the mean is not 'more

accurate' – they do not understand what accuracy means! – nor is it 'the average' as a reason for making a choice.