

EXAMINATIONS AND ASSESSMENT CHIEF DIRECTORATE

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2019 NSC CHIEF MARKER'S REPORT

SUBJECT:	MATHEMATICAL LITERACY
PAPER:	2
DURATION OF PAPER:	3 hours
DATES OF MARKING:	01 - 13 December 2019

SECTION 1: (General overview of Learner Performance in the question paper as a whole)

- Candidates performed much better than 2018. From the Rasch Analysis, it is also evident that from the 100 scripts, the following was noticed:

Level	Number of candidates
1	24
2	9
3	7
4	29
5	11
6	11
7	9

76 candidates passed and 24 candidates failed the Question Paper.

- Therefore, it can be said that the Question Paper was fair and of a good standard.
- Candidates could easily manage the easier questions.
- Brighter candidates performed extremely well in especially the Level 3 and Level 4 questions, while the weaker learner struggled and found the Level 4 questions very challenging.

SECTION 2: Comment on candidates' performance in individual questions

(It is expected that a comment will be provided for each question on a separate sheet).

QUESTION 1
<p>(a) General comment on the performance of candidates in the specific question. Was the question well answered or poorly answered?</p> <p>From the Rasch Analysis, the average mark was 17 (44%) out of 39 marks, which is an indication that the candidates struggled with some of the subsections of the question.</p>
<p>(b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by candidates in this question, and any misconceptions.</p> <p>1.1.1 Was well answered, it was only when candidates gave the other town as Klerksdorp.</p> <p>1.1.2 Most of the candidates could only give one of the correct directions.</p> <p>1.1.3 Candidates did not take the routes given into account and tried to figure out any route. They did not take note of the key of the map.</p> <p>1.1.4 Candidates could not write 8 pm in digital time to calculate the elapsed time. And if they have calculated the elapsed time, they could not convert the portion of the minutes to a part of an hour.</p> <p>1.2.1 Candidates could not convert to centimetres as the question required (cm^2), and only substituted the values that contained different units. They also could not convert litres to cm^3. As well as not finding the difference.</p> <p>1.2.2 Question was well answered.</p> <p>1.2.3 Candidates only did one part of the answer, which was divided by the rate, but did not divide by 2 or they could not round to the nearest minute.</p> <p>1.3.1 Candidates could not recognise that the dimensions of the very small block is 1 m, therefore, they could not estimate a portion of the small block.</p> <p>1.3.2 Candidates could not measure correctly between the two given points. They also could not find the actual distance between the two given points. Some of them could not put their values in scale form.</p> <p>1.3.3 They could not find the unit price for a 4 m x 4 m stand. They also could not find the dimensions needed to find the area of stand 26. Instead, they used the number (26) of stand 26 as the area to find the cost of stand 26.</p>
<p>(c) Provide suggestions for improvement in relation to Teaching and Learning</p> <ul style="list-style-type: none">• More intensive lessons on time in terms of adding, subtracting time as well as how to write time in analogue or digital time.• Teach candidates how to convert parts of an hour to minutes and vice versa.• Directions should be taught with practical examples.• Candidates should be taught if dimensions are given in different units, they must convert to the same unit based on the what the question requires.• Conversions are still a critical issue and even when a given conversion is given as in the paper 1 litre = 1 000 cm^3.

<ul style="list-style-type: none"> • Teach candidates how to work with proportions.
<ul style="list-style-type: none"> • Rounding is still of great concern such as to the nearest number, one decimal place, three decimal places etc.
<ul style="list-style-type: none"> • The topics of Maps, Plans and other representations and Measurement are still a big challenge for candidates • More intensive teaching should be done in this topic. • Candidates should be exposed to various types of Maps Plans and other representations.

<p>(d) Describe any other specific observations relating to responses of candidates and comments that are useful to teachers, subject advisors, teacher development etc.</p>
<ul style="list-style-type: none"> • More teacher development should be conducted on those topics that are extremely challenging to the candidates.
<ul style="list-style-type: none"> • Curriculum Advisors should conduct workshops to show teachers how to interpret the CAPS document.
<ul style="list-style-type: none"> • Conduct workshops where teachers share their ways of methodology in different topics.

QUESTION 2

(a) General comment on the performance of candidates in the specific question. Was the question well answered or poorly answered?

The Rasch Analysis shows that the average mark for 100 candidates was 20 marks (54%) out of the 38 marks. This is an indication that the candidates performed very well in this question. But some candidates also struggled in this question.

(b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by candidates in this question, and any misconceptions.

2.1.1 Candidates cannot work with large numbers, especially the expansion of numbers such as

287,24 billion. They don't know the difference between millions and billions. They also interpreted the question incorrectly by either using the 1 or 2 million or they find the average of it.

2.1.2 Working backwards with a percentage to find the previous value (which is the same as VAT inclusive), is still a major challenge to most of the candidates. What candidates do in this question was to find the value of the percentage and then subtract from the given value. Some of those who responded correctly, did not round to a whole number.

2.2.1 Question was well answered, but those who did not score full marks, forgot to multiply by 2 and 12. They either multiplied by 2 OR 12 ONLY.

2.2.2 Some candidates could not identify the correct tax bracket. They did not place the taxable income in correct Amount above 1 500 000. They could not use the BODMAS-Rule correctly. Some subtracted the medical aid credit from the taxable income. They did not recognise that the person is older than 64 which made the person entitled to 2 tax rebates.

2.3.1 Candidates rounded too early. They either multiplied or divided for both exchanges.

2.3.2 Candidates could easily find the total deductions, but then subtracted from the gross Salary and don't know what to do to find the percentage.

2.4.1 Candidates still don't know the concept of range and most of them identified the country as Japan OR India.

2.4.2 Candidates have seen "G20" as the number of countries to calculate probability.

2.4.3 (a) Question was well answered.

2.4.3 (b) Although the data was arranged, candidates struggled to find Q_1 and Q_3 or they could only find one of the quartiles.

(c) Provide suggestions for improvement in relation to Teaching and Learning

- Teach learners to work with large numbers.
- When teaching VAT inclusive to find the VAT exclusive price, it should be emphasized that the same principle should be applied.
- Teachers should stay informed with the latest developments in terms of individual taxes.
- Candidates should be taught the difference between gross income and taxable income.
- The understanding and applying of the BODMAS-rule must be emphasized.
- The different concepts of measures of central tendencies should be taught thoroughly.

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| <ul style="list-style-type: none">• The different concepts of measures of spread should be taught thoroughly. |
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(d) Describe any other specific observations relating to responses of candidates and comments that are useful to teachers, subject advisors, teacher development etc.
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| <ul style="list-style-type: none">• Educators should use previous question papers in order for candidates to become aware of how questions are structured. |
| <ul style="list-style-type: none">• Conduct workshops on calculator skills. |
| <ul style="list-style-type: none">• Workshops on Data handling should be conducted as it is still of great concern. |

QUESTION 3**(a) General comment on the performance of candidates in the specific question. Was the question well answered or poorly answered?**

The average mark for Question 3 from 100 scripts was 21 (59%) out of 35, which makes this question the best answered.

(b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by candidates in this question, and any misconceptions.

3.1.1 Question was well answered.

3.1.2 For 18 hours solo flying at a cost of R31 050, candidates multiplied these values which was not needed. They also multiplied the 700 by 2 which was also not needed. For the cost of the theory lessons they multiplied by 3 instead of 5.

3.2 Candidates still use the compound interest formula. They could find the balance for the first year, but used the original value for the second year.

3.3.1 Question was well answered while other candidates could not give a reason why learners passed after the first test.

3.3.2 From the Rasch Analysis it is evident that the candidates performed very poor in this question. Those candidates who managed to answer the question correctly, did not add the totals for the number who passed. Candidates could not work with proportions involving percentages.

3.4 Candidates cannot convert hours in terms of weeks, days and hours.

3.5.1 Some of the candidates find it difficult to count the number of parts.

3.5.2 Question was well answered.

3.5.3 Question was well answered.

(c) Provide suggestions for improvement in relation to Teaching and Learning

- Candidates should be guided how to analyse given information.
- Educators should not teach the compound interest formula, but rather the step by step solution.
- Educators should include Level 4 questioning during their lessons and have assessments that include Level 4 questions for candidates to get used to Level 4 questioning.
- Educators should teach learners how to work with proportions in various contexts.
- Candidates should be guided how to analyse given information.
- Educators should drill large numbers of hours and ask learners to do conversions in weeks, days and hours and vice versa. The emphasis should also be on working out a part of a time period.
- Assemblment of structures should be an integral part of Maps, Plans and Other representations.

(d) Describe any other specific observations relating to responses of candidates and comments that are useful to teachers, subject advisors, teacher development etc.

- Curriculum Advisors should emphasise the importance of using the CAPS document.
- Conduct workshops on what a Level 4 question is and how educators can set their own Level 4 questions.

QUESTION 4

- (a) General comment on the performance of candidates in the specific question. Was the question well answered or poorly answered?

Evidence from the Rasch Analysis is that this question was the worst answered question. For 100 scripts, the average mark was 15 marks (39%) out of 150. This is an indication that the candidates struggled with this question.

- (b) Why the question was poorly answered? Also provide specific examples, indicate common errors committed by candidates in this question, and any misconceptions.

4.1.1 Candidates only subtracted the 2 values to be used but did not complete the solution to find the percentage. They also substituted the incorrect denominator.

4.1.2 (a) Question was well answered.

4.1.2 (b) Question was well answered.

4.1.3 Candidates selected the incorrect data, or they did not understand what was expected from the question.

4.1.4 Majority of the candidates don't know that if percentages do not add up to 100%, then it was because of rounding.

4.1.5 Candidates rather used the number of household sizes as the total outcomes and used that and therefore, concluded that the probability as $\frac{3}{5}$.

4.2.1 For the modal class, most of the candidates only scored 1 mark, because they did not write the range of the class, only wrote R20 instead of R20 – R79.

4.2.2 Candidates wrote the total without the word million or in expanded form.

4.2.3 Candidates could not find the correct household size because they did not read the NOTE

in the key information. Candidates also don't know how many days we have in a year.

4.2.4 Candidates could only find the 4% of 280 and multiply by the number of months in a year instead number of days in a year.

4.3.1 Candidates gave the incorrect name, but did not state that the person was correct, meaning that the candidates didn't check the calculations.

4.3.2 Candidates could not find the amount for electricity or water and if they did, they did not

multiply it by 12 because the calculation did not indicate for a year but only 2011.

4.3.3 Candidates referred to the percentages that differ, instead of referring to the scales of the graphs.

- (c) Provide suggestions for improvement in relation to Teaching and Learning

- Candidates should be reminded that not all formulae will be given, therefore they should know the formula for percentage change.
- For all verification questions, teachers should emphasise that there must be calculations for justifications.
- Rounding and the effect of rounding should be emphasized during teaching.
- Educators should teach candidates how to interpret pictograms with tables.
- Educators should teach candidates that if the data is given in percentages, then it immediately represents probability.
- The different concepts of measures of central tendencies should be taught thoroughly.
- Candidates should be taught how to expand large number or to write their final

answers with the word million.
<ul style="list-style-type: none"> Time periods such as months and years should be emphasized as to how many days in specific months and how many days in an ordinary or leap year.
<ul style="list-style-type: none"> Basic skills operations should be part of each lesson.
<ul style="list-style-type: none"> Candidates should be taught how scales can have an in impact on how the appearance of graphs will differ, though the data is the same.

(d) Describe any other specific observations relating to responses of candidates and comments that are useful to teachers, subject advisors, teacher development etc.
<ul style="list-style-type: none"> Make use of data in newspapers, magazines, etc.
<ul style="list-style-type: none"> Curriculum Advisors should workshop educators that data is not only about numbers, but can also be categorical where you will use tables, graphs, etc.