



EXAMINATIONS AND ASSESSMENT CHIEF DIRECTORATE

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REPUBLIC OF SOUTH AFRICA, Website: www.ecdoe.gov.za

2023 NSC CHIEF MARKER'S REPORT

SUBJECT	MATHEMATICAL LITERACY		
QUESTION PAPER	1×	2	3
DURATION OF QUESTION PAPER	3 HOURS		
PROVINCE	EASTERN CAPE		
DATES OF MARKING	7-18/12/2023		

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

Generally, the learner performance is not good as expected in most centres. With the new structure candidates were expected to perform well because they focus only on Finance, Data Handling and Probability in Paper 1.

There are responses that show that some candidates lack basic mathematical literacy skills that should have been covered in grade 10 and 11 from 2020, that problem recurred to the following years which yield to the problems we are facing currently to this current year 2023. The data handling that usually and commonly boost the performance of the learners, was pitched at higher order, which threw away many hopes on scoring marks on it by many learners.

They missed scoring marks in the questions that are meant to be easy since they were pitched at cognitive level 3 and 4, instead of mixed up, which usually involves level 1.

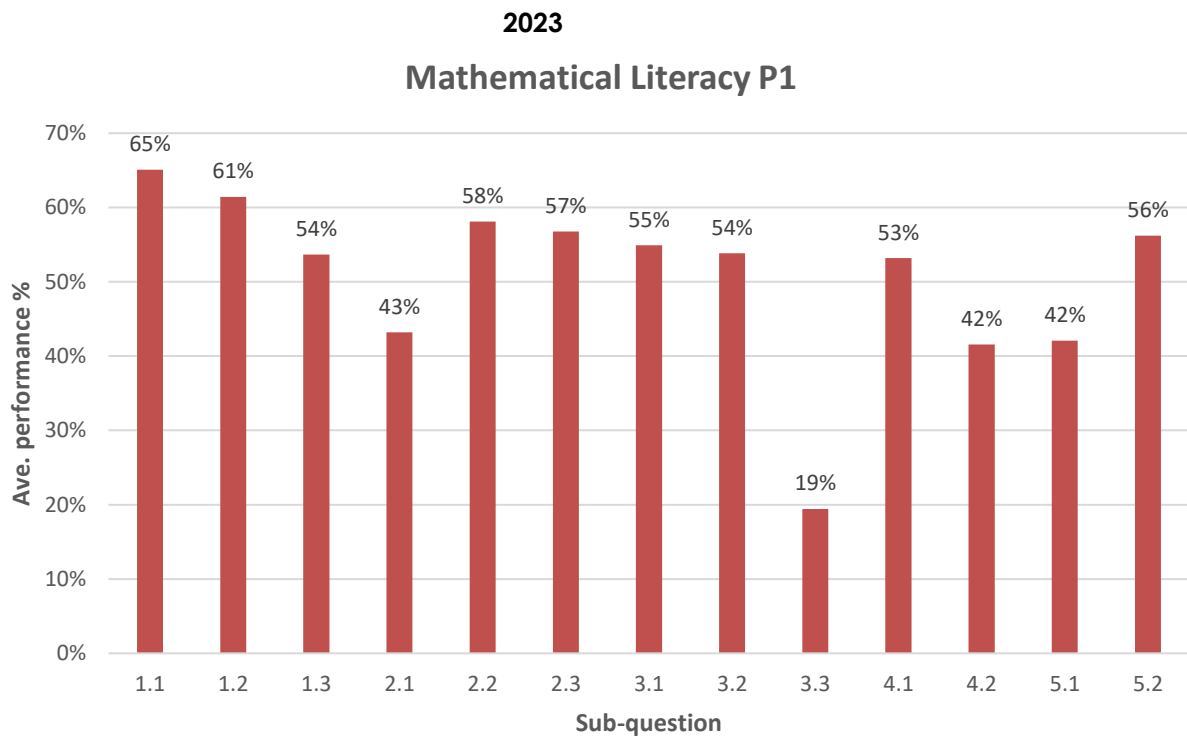
Some of these questions include the very first question 1.2.4 & 1.2.5. that required to determine the amount of money and to calculate the number of CDs sold, they were pitched at highest order for question 1. In this question 54% got 0 marks from the Rasch sample of 100 candidates.

Candidates performed poorly in the paper as seen from the Rasch sample of 100 scripts, at 54 % overall pass.

This a sample of 100 scripts out of about 51513 scripts and may not be a true reflection the population. However, it gives a good insight on the performance especially the details about the questions. If the sample is to be represent performance of the 2023 candidates in Mathematical Literacy P1, then the results for the province in Mathematical Literacy may not be good especially in quality aspect.

The performance of the candidates in various questions as from the same sample indicate the following passes.

ANALYSIS OF RASCH AND TABLES, GRAPHS:



Topic	Ave. performance %
DATA HANDLING	65%
FINANCE	61%
FINANCE	54%
FINANCE	43%
FINANCE	58%
FINANCE	57%
DATA HANDLING & PROBABILITY	55%
DATA HANDLING	54%
DATA HANDLUNG	19%
DATA HANDLUNG & FINANCE	53%
DATA HANDLUNG & FINANCE	42%
DATA HANDLING & PROBABILITY	42%
FINANCE	56%

SECTION 2: Comment on candidates' performance in individual questions

QUESTION 1
(a) General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
<ul style="list-style-type: none">• The question was fairly answered by the candidates even though there are still lots of problem areas as the Rasch analysis an average general performance of 63%.• Most candidates obtained below 50% on the question even though few obtained a total.• Those who could not make it struggled in definitions, percentage calculations, analysis of the question, incorrect addition in interest concept, rounding off around financial concept.
(b) Why were the questions poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.
<p>1.1.1. Fairly answered, Few learners who did not get the answer right, a little of them were doubtful, scratched the correct to the wrong</p> <p>1.1.2. Fairly answered. Many got it right.</p> <p>1.1.3. Fairly answered. Only few who got it wrong by omitting the second largest, answered the largest. Some candidates wrote the value (6089852) instead of the session.</p> <p>1.1.4. Poorly answered. Some calculated the values (1641 and 156) separately and did not add them up. Some candidates added the values and subtracted one value (e.g. 88706141-88704344+88705985)</p> <p>1.1.5. Poorly answered. Many candidates were not able to read the correct values. Some who were able to read correct values from the table, but failed to use them properly. (e.g. 690160/8120031 = 1/111.7) 8120031: 690160 =11: 1</p> <p>1.2.1. Fairly answered. Many candidates got it right, but there are some who defined/explain the term vat, some</p>

wrote tax. Some wrote the definition of value added tax as indirect tax.

1.2.2. Poorly answered.

Many candidates failed to read all the correct values ended up omitting R0,11,

Some read all values correctly, but leave them on addition without using calculator to find the final answer (e.g. $R18.05+R41.84+R12.16+R8.33+R0.11+R6.98+R11.53$).

1.2.3. Poorly answered.

Few candidates managed to read the values correctly but failed to properly use them. (e.g. $R41.84-R8.33$)

$$=41.84/100 \times 8.33$$

$$=3.485\%$$

1.2.4. Fairly answered.

Most got it right. Some read values incorrectly which yield $R210000 \times 41.83$

Rec: thorough revision throughout.

1.2.5. Fairly answered.

Some read values correctly but challenged to used them (e.g. $R16.50 \times R0.11 = 1.815 = cd$)

1.3.1. Fairly answered.

Many defined it as the monthly income, omitted the gross term, which changes the whole meaning and sense of the question.

1.3.2. Fairly answered only very few who read on the wrong column.

1.3.3. Reading of the value was mostly satisfactory, but the rounding to the nearest thousand was alarming.

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

- Emphasis to be made on rounding. (2 decimal places for monetary values).
- Definition of terms before you teach every topic.
- They need to be taught the basic skill of different types of rounding off.
- They must be taught the difference between gross and net salary, emphasizing that one is before deductions, and the other is after deductions.
- Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

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

- Inability to read the given text.
- To be trained on use of ratios and rates
- Defining terms according to the given context.
- Once again, learners must be taught how to read a question with understanding, emphasizing that the order in which the values are named in the question, is the order in which the values must be given in the answer.

QUESTION 2

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

- Not well answered.
- Average performance from the 100 scripts rasch sample was 53%.
- The longest topic based on the various subtopics under finance which enables the candidates to score some marks even though very few obtained the total out of 40 marks.

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

- Rasch showed an average of 53% on the question which of course is the moderate performance.

2.1.1. most candidates answered the question correctly, whilst few were quoting the account number instead of type of account. (e.g. 110876250, instead of elite cheque account).

2.1.2. Most candidates instead of reading 3 values from the annexure they read 2 values, (e.g. R69+R110 = R179, omitting R1.60, whilst some instead of reading all the values they were reading 1 or 2 values,

2.1.3. Very Poorly answered.
The context was missed out, most of the candidates could not find the salary amount which was the value of A, and neither could find sum for the insurances. Alarming calculations of the quarter for the salary, instead they calculated the quarter of the insurances.

$$A = R10078.41 \times 25\%$$

$$= R 2519.6025$$

OR

$$=R1880.78 \times \frac{1}{4}$$

$$=R470.195$$

2.1.4. very poorly answered. Many candidates struggled to differentiate between, vat inclusive and vat exclusive, that resulted to the calculation of VAT amount of the vat exclusive price, instead of the VAT inclusive amount.

$$R110 \times \frac{15}{100}$$

$$=R16.50$$

$$=R110 - R16.50$$

$$=R93.5$$

$$=R93.5 \times 1.14$$

$$=R106.59$$

- 2.2. Fairly answered. According to the Rasch analysis an average of 60% was obtained.

2.2.1 Poorly answered, but many candidates who got it right was random guess work, with recovery procedure or method. calculated the taxable income correctly, but then chose the correct tax bracket, as the salary falls in bracket 1. Learners do not know how to read the tax table. They look at the values in the rates column, instead of the taxable income column. More work is needed when introducing the tax table to learners. They must be taught what each column is for and how to read the information in the table.

(e.g. $R8978 + 12$

= R8990 BRACKET 1

OR

=R8990

BRACKET 1)

2.2.2

Learners struggle to identify the correct tax bracket, then they cannot substitute into the formula correctly, especially since they do not know how to read the tax table. Many use all the rebates given on the table, instead of just the rebates for that specific year. Learners also add the rebates instead of subtracting them.

(e.g. $R8978 \times 18\%$

=R1616.04 - R16425 + 9000

= -R5808.96

VALID

2.3.1 Fairly answered, although the Rasch analysis show 59%, it was because of the indecisiveness and doubtfulness of learners.

2.3.2

This was an easy question but learners still struggled.

Some only added without subtracting the answer from 340688

e.g. $111769 + 48152$

2.3.3

Very poorly answered question, for a relatively easy question. The responses from may learners was the "original budgeted amount". Others used the terms from 2.3.4 to answer this question (surplus/deficit).

2.3.4

Most learners attempted to answer this question but many swopped the values. They do not understand the terms surplus/deficit.

e.g. $322891 - 313792$

2.3.5

Learners again did not read this question carefully. They tried to calculate 2,53% of R316 678 or R322 891 or R309 547.

But maybe because the question was confusing and not fairly phrased.

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

- Tables and calculating totals must be practiced more often.
- More time should be spent on terminology when doing financial statements.
- Learners to be given more different tables to use and read and analyse from.
- Learners to be trained from making use of the addendum.
- More different activities that includes actual maths lit content and context.
- Unfamiliar contexts must be brought to learners by teachers (real payslip, real water bills)
- Subject integration must be done.
- Simple to dominate in the paper or be translated to avoid language barrier.
- Drilling candidates on basic skills topics, ratios, percentages, rates, etc.
- Financial concepts to define based on the given context and general.
- Taxation to be thoroughly done from the ground basics, from known easy to complex.
- VAT must be done in all spheres (exclusive, inclusive, and independent)

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

- Learners to be prepared by educators to expect a variety of questions from Level 1 to 4 as per the new structure and also the easy, medium and difficult question to be dealt with in class on their daily activities.
- Rounding issue when it comes to money and rounding according to the specified manner.
- Preparing learners on questions that need reasoning to sharpen their level of thinking.

QUESTION 3

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

- Fairly well answered question. However, many learners gave a percentage for males (15.2) or even wrote both percentages for males, instead of writing the actual word "male".
- It was fairly answered, only few swapped the percentage.
- Candidates struggled to compare and comment on two age groups.
- Candidates failed to understand the percentage and NOT.
- Candidates struggled and unfamiliar with convert percentage to fraction.
- Fairly answered question, except few candidates who struggled to find correct units.
- It was challenging as whole. The growth chart was difficult to interpret for candidates and sizing was a problem.
- Fairly answered, except candidates who cannot interpret the graph.
- Box and Whisker diagram needs attention; many candidates struggled to understand the diagram. Candidates did not understand the percentiles.
- This question was poorly answered, candidates could not calculate a percentage of a number.
- It was really challenging. The Sampling concept confused the candidates instead of commenting in selection, they comment on HCP and Box and Whisker plot.

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

- 3.1.1 Candidates gave a percentage for males (15.2) or even wrote both percentages for males, instead of writing the actual word "male".
- 3.1.2 Candidates lost 2 marks because instead of subtracting and finding the difference, they divided the two percentages and, multiplied by 100%. Some swapped the values and got a negative answer. For example $(11.1 \div 21.5) \times 100$, $21.5 \div 11.1 \times 100\%$
- 3.1.3 Candidates do not know how to compare and comment on data. They cannot interpret information from a table/graph, and therefore cannot draw conclusions. Candidates simply rewrite the information given in the beginning of the question. When they did write something, they commented on bars for males and females, and said nothing about age groups. And also the language barrier caused them to not identify the action verb.
- 3.1.4 Candidates used the incorrect percentage to calculate the number of learners, but then subtracted this answer from 795. They calculated 16.3% of 795 and stopped there. They could not understand NOT overweight. Rounding the number of candidates was also a major issue. Say difference in percentages is 3.5%.
- Urban increases from 13.2% to 20.1% and rural increases from 13.5% to 16.3%.
- 3.1.5 Some candidates subtracted the incorrect value or percentage from 100% and just wrote a decimal fraction thereafter. Probability is still a challenge for candidates, they could not calculate probability as percentage. They just wrote 11.1/100 and 0.889.
- 3.2.1 The growth chart should have been given as an Annexure and enlarged. It was very hard to read off the information as the lines were very small and very close together. As a result, many learners struggled to read the information correctly. They also gave the units as cm instead of inches, thereby losing 1 mark e.g
- 46 inches.
- 3.2.2 Candidates do not understand how to interpret a growth chart. They simply wrote all the months given on the chart as their answer.
- 3.2.3 Once again, candidates did not understand how to interpret this question. Many referred to quartiles or simply left it out.
- 3.3.1 Candidates do not know how to read a box and whisker graph. As a result, they cannot interpret the information given in the graph. They must be taught how to read

the graph, especially where the five main points are (lowest, Q1, Q2, Q3, highest). Many responses were simply 25% or 50%.

- 3.3.2 Candidates found 50% of the incorrect value. Learners also rounded incorrectly in this question
- 3.3.3 They cannot comment or draw conclusions, they simply rewrite the information given in the beginning of the question. Many candidates left this question out. They did not understand this question.

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

1. Biggest problem is language barrier.
 - Encourage candidates to use highlighters to indicate the core word.
2. Make sure candidates know the mathematical terminology.
3. Encourage candidates to take note of graph headers to make sense of information.
4. Do a lot of percentage calculations.
5. When explaining probability do it together with percentage calculations to see that probability is reflected as percentage.
6. Candidate should do opinion and justification questions.
7. Should focus on basic concepts, skills covered in grade 10 in-order to get better understanding of growth charts and conversions like inches.
8. More data should be provided to candidates for interpretations.

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

1. Basic operations must be taught in depth i.e. Negative numbers are not popular to candidates.
2. Language barrier: Teacher should emphasize on key points in a question so that candidates who struggle with English, will manage to respond to questions, without understanding all parts of the questions.
3. Educator development in specific topics like finance is required so as to empower teachers, with proper content and teaching techniques in order to better equip them to cope with fundamentally challenged questions to candidates going through in responding to questions.
4. Subject Advisors, are encouraged to develop manuals that are simplified to teach all category of candidates, and topic tests must be set to tackle topics specifically.

QUESTION 4

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

- Not well answered.

- Average performance from the 100 scripts was 47%
- The longest question based on various sub topics under finance which enables the candidates to score some marks even though very few obtained the total out 33 marks.

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

- The concept of mode as a whole is not known and learners seen unfamiliar with finding the mode using a table of values. Using the word “Modal” might have confused some learners, as the more common word is “Mode”. Many learners wrote 0 or zero
- Majority of learners answered the question well. Some learners listed the items instead of giving the number.
- The one-way trip confused the learners as such. Most learners include the R15, some exclude it totally from their calculations. Many learners just subtract the in-store price from the online price. Language could have been a problem in this question.
- The concept of mean and its application using values from the table is unfamiliar with most learners. They choose the wrong values from different column. Some learners seem to miss the whole concept of mean and confuse it with the median. Learners do not arrange the data before they determine the median.
- 4.1.5 Question was answered well by learners. Some learners wrote in ratio form instead of as a fraction, causing them to lose marks. Also writing just ‘6’ should be awarded marks, as the learners had to count the items to get to that answer. Some learners wrote 12/24, looking at both the in-store and online columns, which also simplifies to 50%, but only received 1 mark.
- 4.2.1 In this question learners who got it wrong is due to language barriers. Overall the question was answered fairly well. Most common wrong answer is FLM-store.
- 4.2.2 Learners could not differentiate between fixed and variable cost. Mark allocation was too high and it was unclear where all marks should be awarded for alternative options. The option of using the formula was not very common.
- 4.2.3 Poorly answered question. The graph was misleading. Learners’ opinions contradicted their reasons. Most learners wrote that the breakeven point was only reached at 20 packets. This answer was not relevant.
- 4.2.4 Question was also poorly answered. Learners struggled to express themselves. They would say breakeven point is higher, which is wrong but then continue to give the

correct reason.

- 4.2.5 Substitution was done well in this question. The learners did not know how to simplify after substituting. Lack of calculators might be a reason. The rounding in this question was also a problem. Most common wrong answer is R1 900.

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

- Teachers should emphasize that 0 is not the same as no mode.
- More emphasis should have been placed on return trip.

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

- Learners to be prepared by educators to expect a variety of questions from Level 1 to 4 as per the new structure and also the easy, medium and difficult question to be dealt with in class on their daily activities.
- Rounding issue when it comes to money and rounding according to the specified manner.
- Preparing learners on questions that need reasoning to sharpen their level of thinking.
- Learners to be drilled on taking advantage of the given formulas, to make use of them thoroughly so as to score easy low hanging fruit marks

QUESTION 5

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

- This question was poorly answered, and the marks were low. Many learners did not attempt the question at all, or only did the first one or two questions. If they did attempt the question, they did not finish, probably because they spent more time on the other questions, and then ran out of time.
- Learners who are not familiar with these scenarios and terminologies, would not be able to answer well.
- Question on exchange rates was also a problem as it is always a problem.

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

- 5.1.1
- Fairly well answered question. There is a lot of information given in this table, which may be overwhelming to learners. Learners were unable to read the correct aircraft operator. Instead, they gave the countries (e.g., Netherlands – Wizz Air Group, United

Kingdom – Ryanair Group). Some learners went to the extent of explaining rather than writing the aircraft operator. Many learners have a problem with integers and understanding which is bigger and which is smaller. They do not understand that, for example, +13% is greater than -35%.

- 5.1.2
- Poorly answered question. Candidates were unable to differentiate between percentage increase and decrease, and finding the missing value. No formula was given, which made the question harder for learners. Candidates did not consider that the new operation of 2020 was 3763, not 4290. Therefore, they swapped the values avoiding having a negative value of A. The learners struggle to work with negative values. They swapped the values around in order to avoid having a negative answer. Rounding to the nearest whole number is also a problem. Learners also did not multiply by 100%, they simply divide the values and write the answer as a percentage. This shows lack of understanding in calculating percentages, which is a basic skill that needs to be practiced all the time. There is definitely a language barrier in this question.

$$\text{e.g., } (4290-3763)/4290 \times 100$$

$$= 12\%$$

$$\text{e.g., } 4290/3763$$

$$= 1\%$$

- 5.1.3
- Poorly answered question. Again, learners do not understand the difference between positive and negative values. To them, the biggest number was -35, and the smallest number was 13.

$$\text{e.g., range} = 35 - 13$$

$$\quad \quad \quad \blacksquare = 22$$

- Other candidates did not know that a negative value x a negative value = positive value.

$$\text{e.g., } 13\% - (-35\%)$$

$$= -22\%$$

- Some candidates did not understand the concept of the range, and calculated the mean instead:

$$\text{Mean} = (9\%+20\%+7\%-29\%-21\%-18\%+13\%-3\%-35\%)/10$$

$$= (-148)/10$$

$$= -14,8\%$$

- 5.1.4
- Learners seem to understand the concept of the mean, but do not know how to determine the missing value once you already are given the mean. They also forget that the "B" value is also part of the data, and needs to be included in the calculation. As a result, they divide by 9, instead of by 10.

$$\text{e.g., } 9640/9=1028,2$$

$$= 1071,1 - 1028,2$$

$$= 42,9$$

- Learners also do not know how to change the subject of the formula. Instead of multiplying or cross multiplying by 10, they just divide the total of 9640 only by 10. They leave the 1028,2 as it is. Many learners also simply subtracted all the values from 1028,2.

$$1028,2 = (9640 + B) / 10$$

- $1028,2 = 964 + B$

$$1028,2 - 964 = B$$

- $B = 64,2$

- The skill of interpreting, analysing and reading the table correctly is still a problem, as some learners read from “change from 2019” column adding the percentages.

- 5.1.5

- Fairly answered question. Some learners wrote the probability as a ratio, e.g. 2 : 10. Others left the answer as a fraction, and did not simplify to a decimal. Many learners also were confused as to which information to use.

- 5.2.1

- Whenever dealing with foreign currency or exchange rates, learners become confused. They do not know how to interpret which currency is weaker or stronger. More examples need to be given to learners in class to try to help them see the difference between when a currency is weak and when it is strong.

- 5.2.2

- Poorly answered question. Learners do not know how to convert between rates, and as a result they do not know if they should multiply or divide. Teaching learners the ratio method of cross-multiplying would help, and this then needs to be practiced often. The learners did not understand the conversion table, because they are used to exchange rates being written as a ratio, and therefore did not know what to do with the information. They could not pick one correct rate, and ended up using both and multiplying and dividing.

- e.g. $3,66061 / 0,27317867 \times 2580$

- $= 34572,14943$

- e.g. $2580 / 3,66061 = 704,80$

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

- The skill of interpreting, analyzing and reading the table correctly is still a problem, teachers to take note of that and drill the learners consistently.
- Integration between English language teacher and mathematical literacy teacher
- The use of Exam Guidelines during lesson preparations is paramount.
- Content workshops to be done at the beginning of each term more especially to the new educators.
- Workshops to be done on assessments and examinations.
- Team teaching must be done within the Mathematical Literacy teachers of the same schools or nearby schools.

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

- The teachers to be patiently consistent with learners, giving them different scenarios of exchange rate.
- To emphasize on the use of exchange rate that on calculation only one exchange rate to be used on one step.
- To emphasize on how to calculate the percentage change.
- How to find the difference.
- How to read the tables properly.