

2025

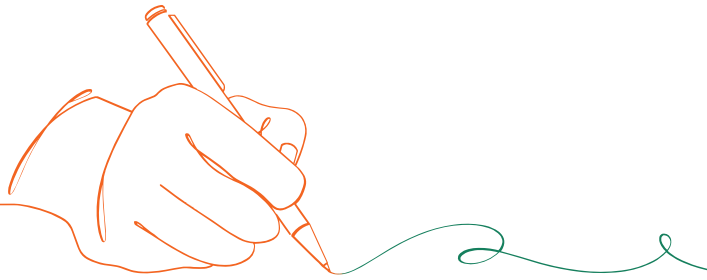
DIAGNOSTIC REPORT

BOOK 1



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CHAPTER 9

MATHEMATICAL LITERACY

The following report should be read in conjunction with the Mathematical Literacy question papers of the November 2025 examinations.

2.1 PERFORMANCE TRENDS (2021–2025)

The number of candidates who sat for the Mathematical Literacy examination in 2025 increased by 34 419 candidates, compared to that of 2024.

There was a slight increase in the pass rate this year. Candidates who passed at the 30% level increased from 86,1% in 2024 to 86,2% in 2025. The pass rate at the 40% level over the past two years dropped from 62,1% in 2024 to 61,4% in 2025.

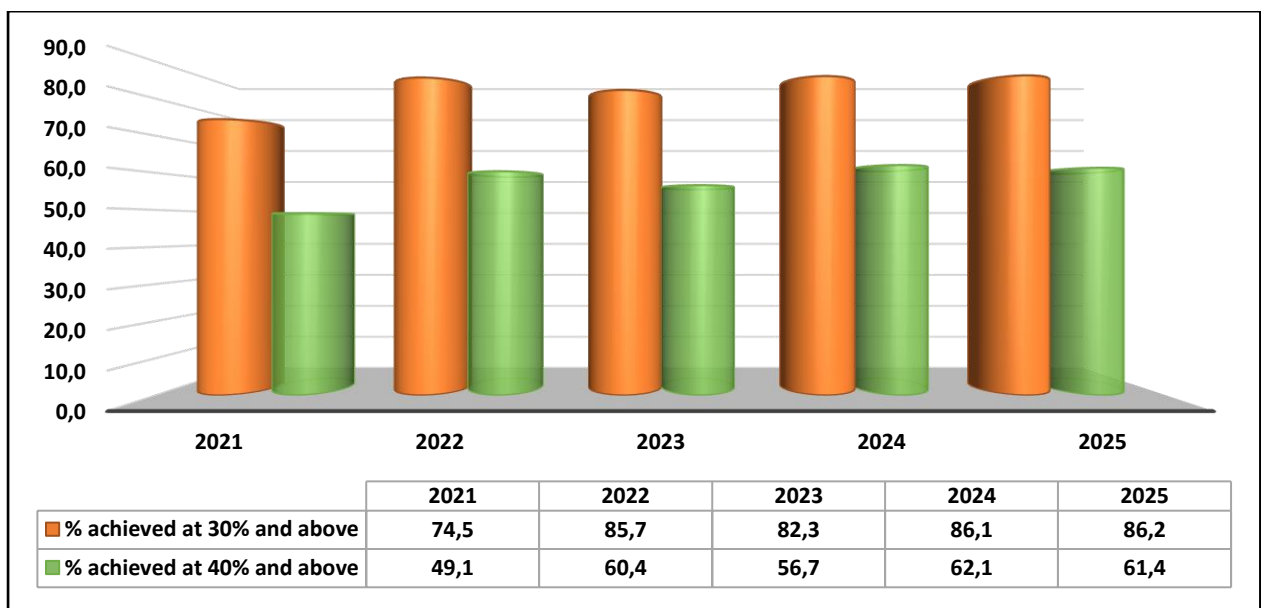
The number of distinctions dropped by 0,2%.

The various intervention strategies employed by teachers, subject advisors and provincial education departments were continued in 2025. The results in 2025 are similar to those in 2024.

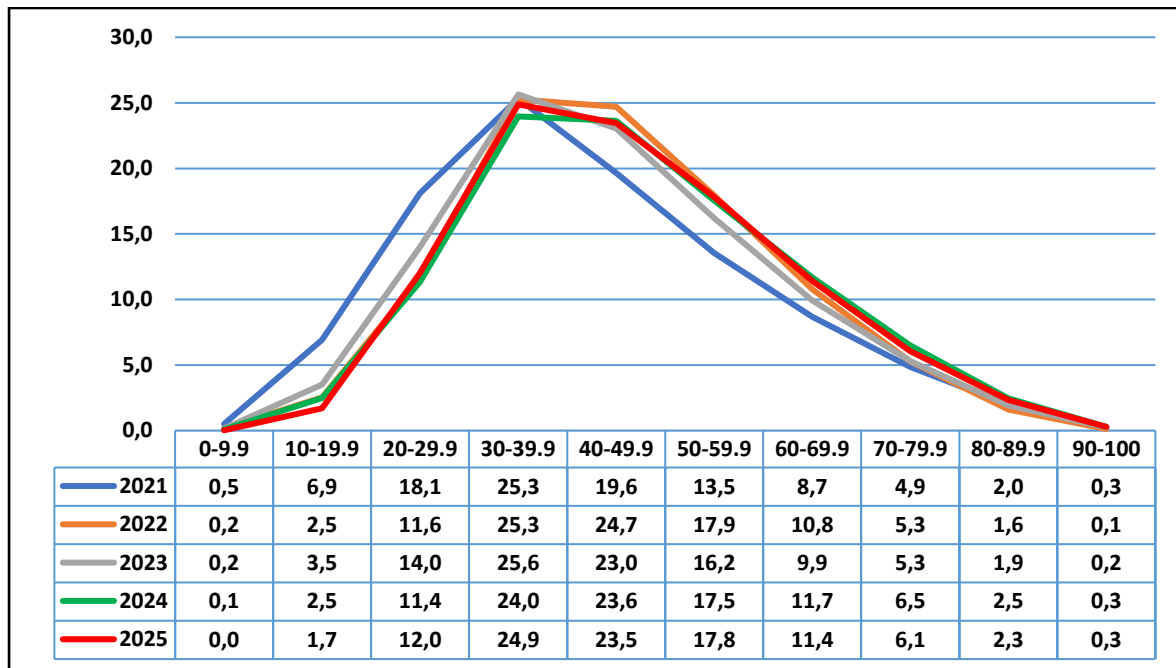
Table 9.1.1 Overall achievement rates in Mathematical Literacy

Year	No. wrote	No. achieved at 30% and above	% achieved at 30% and above	No. achieved at 40% and above	% achieved at 40% and above
2021	441 067	328 382	74,5	216 692	49,1
2022	450 005	385 515	85,7	271 830	60,4
2023	421 835	347 227	82,3	239 045	56,7
2024	442 741	380 994	86,1	274 895	62,1
2025	477 160	411 509	86,2	292 783	61,4

Graph 9.1.1 Overall achievement rates in Mathematical Literacy (percentage)



Graph 9.1.2 Performance distribution curves in Mathematical Literacy (percentage)



9.2 GENERAL COMMENTS ON PAPER 1 AND PAPER 2

- (a) The analysis of candidates' performance in the current examination cycle continues to reveal recurring patterns of errors that have persisted across recent years, including 2023 and 2024. The purpose of consistently documenting these common misconceptions in diagnostic reports is to provide clear, actionable direction so that teachers and learners can actively address and eliminate these weaknesses before they become entrenched.
- (b) The observations, explanations and targeted advice presented in this report are intended to serve as a practical planning tool for teachers. By incorporating the highlighted areas of difficulty into daily lesson design, homework tasks and informal assessments, educators can systematically reduce the likelihood of learners repeating the same errors observed in previous examination cycles.
- (c) While past NSC question papers remain a valuable resource for examination preparation, they should never constitute the sole focus of classroom instruction. Over-reliance on past papers limits the development of genuine conceptual understanding and problem-solving flexibility. Teachers are strongly encouraged to use past papers selectively and strategically, integrating them into broader teaching and learning programmes.
- (d) Regular, short formative assessments play a critical role in building candidates' confidence and deepening understanding across all topics. These low-stakes activities provide immediate feedback, reinforce correct procedures, and familiarise learners with mark allocation expectations. In particular, the less demanding sections of each question – especially those typically found in Question 1 – offer excellent opportunities to boost confidence and establish positive momentum early in the examination.
- (e) It is concerning that many of the weaknesses identified in this report mirror those repeatedly flagged in previous diagnostic reports. This suggests that earlier

recommendations have not been fully implemented or sustained over time. Teachers are urged to review diagnostic reports from the past three to five years and identify topics or concepts that appear persistently problematic. Long-standing concerns, such as candidates' difficulties with basic arithmetic operations involving large numbers, place value, time calculations, and unit conversions, require deliberate, ongoing intervention across the FET phase.

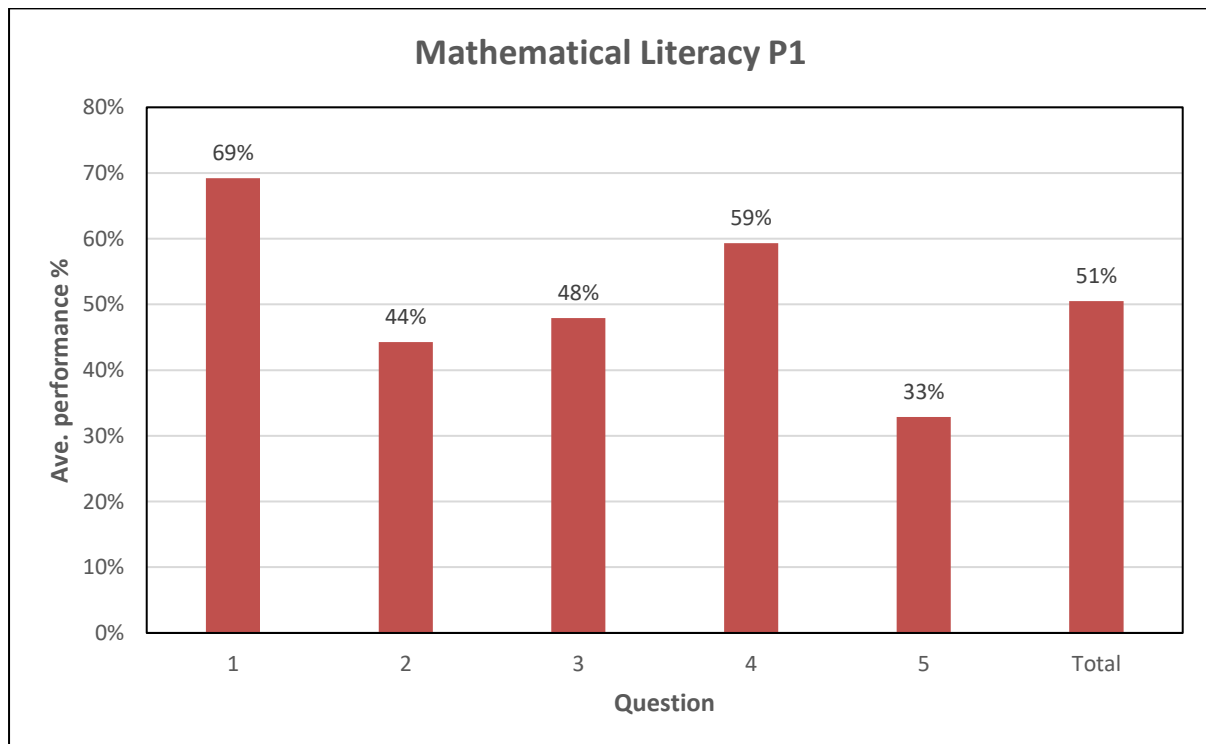
- (f) Once again, candidates demonstrated limited proficiency in extracting and interpreting information directly from graphs, tables, maps and other data sources. This fundamental skill remains a significant barrier to success and must be prioritised through consistent, progressive practice. Teachers should integrate targeted graph- and table-reading exercises into every topic, across classroom activities, homework assignment, and informal assessments throughout Grades 10 to 12.
- (g) Candidates once again lacked the skill of reading information from a graph or table. These should be practised and integrated into classroom and homework activities throughout the FET phase.

9.3 OVERVIEW OF CANDIDATES' PERFORMANCE IN PAPER 1

General comments

- (a) The 2025 question paper was set according to the *2021 Examination Guidelines*. The Application Topics tested in Paper 1 are: Finance, Data Handling and Probability. Question 1 was based entirely on short contexts with all questions pitched at level 1.

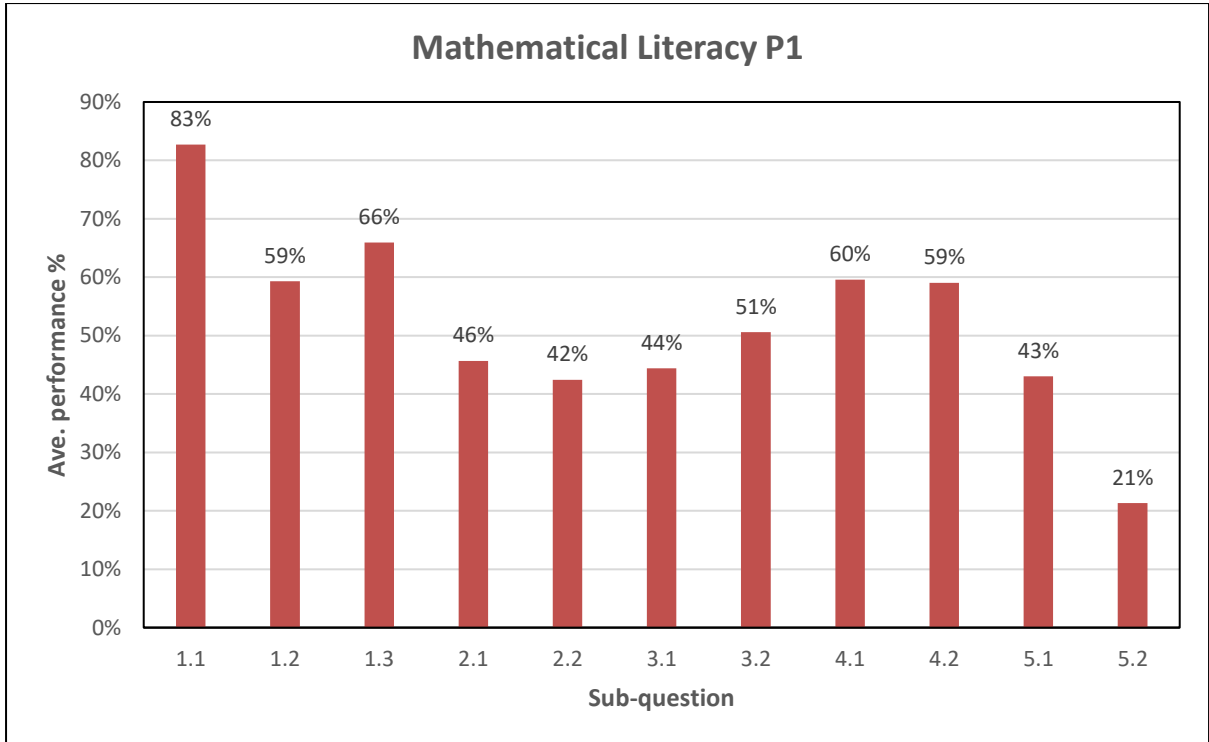
Graph 9.3.1 Average performance per question in Paper 1 2025



Mathematical Literacy

Question	Topic	Ave. performance %
1	Finance and Data Handling	69%
2	Finance and Probability	44%
3	Data Handling and Probability	48%
4	Finance and Data Handling	59%
5	Finance and Data Handling	33%
Total		51%

Graph 9.3.2 Average performance per subquestion in Paper 1 2025



Subquestion	Topic	Ave. performance %
1.1	Finance	83%
1.2	Finance; Data Handling	59%
1.3	Data Handling	66%
2.1	Finance	46%
2.2	Finance; Probability	42%
3.1	Data Handling; Probability	44%
3.2	Data Handling; Probability	51%
4.1	Finance	60%
4.2	Finance; Data Handling	59%
5.1	Finance	43%
5.2	Finance; Data Handling	21%

9.4 ANALYSIS OF CANDIDATES' PERFORMANCE IN EACH QUESTION IN PAPER 1

QUESTION 1: SHORT CONTEXTS (INTEGRATED LEVEL 1 QUESTIONS ONLY)

The three application topics, combined with the short contextual questions in Q1, helped candidates perform well. Q1 was the best answered question in the paper.

Common errors and misconceptions

- (a) In Q1.1.2 candidates multiplied by 5 instead of dividing by 5 to find the unit price per kg (poor question interpretation).
- (b) Candidates could read correct prices from the table in Q1.1.3, but failed to round the ratio to three decimal places (e.g. 1 : 1,024 instead of 1 : 1,025). Some candidates swapped the order of the ratio.
- (c) In Q1.1.4 most candidates used Durban or Cape Town prices instead of Johannesburg, a reading of the wrong column.
- (d) In Q1.2.1 most candidates chose H instead of D (confusion regarding simple and compound interest).
- (e) Candidates chose E instead of F in Q1.2.3, revealing a struggle with words like 'bank' and 'pay monthly'.
- (f) In Q1.2.4 many candidates chose A instead of G.
- (g) In Q1.3.2 candidates confused discrete and continuous data.
- (h) Candidates could not name the right data collection instrument in Q1.3.3, where the method was inconsistent or left blank.
- (i) In Q1.3.4 some candidates added wrong totals or used 'black females' as the total, revealing that they did not understand the table.
- (j) Candidates struggled to write large numbers in words, consistently missing the hundred thousand zero in Q1.3.5.
- (k) In Q1.3.6 candidates swapped top/bottom numbers; forgot to multiply by 100 for percentage; or did not calculate percentage at all.

Suggestions for improvement

- (a) Provide learners with consistent opportunities to practise 'per kg/per litre/per item' questions using different operations. Teach the phrase 'to find the price **per** unit, we **divide** total price by number of units' as a fixed rule. Use colour-coding or arrows in illustrative examples ($\text{total} \div \text{quantity} = \text{unit price}$).
- (b) Train learners to **underline/highlight** the city name in the question first, then to find and underline the matching column header before reading any value. Make this a non-negotiable first step in table-reading questions.
- (c) Create clear **side-by-side comparison tables** for similar concepts, for example simple vs compound interest, debit order vs stop-order. Teach learners to **cross out** obviously wrong options first and to justify every choice in full sentences. Use real-life scenarios and ask, 'What actually happens to the money?', rather than memorising definitions.
- (d) Use visual anchors:

- Discrete = 'countable items, whole numbers only' (such as the number of eggs, people, cars) show pictures of separate objects.
 - Continuous = 'can take any value, measured with decimals' (such as mass, height, time, temperature) illustrated by rulers, scales, clocks. Give learners a quick test: 'Can I count it in whole numbers only?' Then it is discrete.
- (e) Teach the full data-handling cycle early and often, using a big visual wall poster or mind map. Make two clear lists side by side: Instruments/tools: questionnaire, interview schedule, observation checklist, data logger, etc. Methods: survey, experiment, observation, etc. Ask exam-style questions: 'Name **one instrument** used to collect this data.'
- (f) Do regular reverse practice: give the number in digits → write in words and give words → write in digits. → Teach the place value chart every time (millions | hundred thousand | ten thousands | thousands | hundreds | tens | units). → Stress: 'If there is no hundred thousand, you **must** write the zero.'
- (g) Use a fixed 4-step procedure every time:
- Write the fraction (in the correct order)
 - Divide top by bottom
 - Multiply by 100
 - Add % sign
- Provide many short percentage drills with tables so that this skill becomes automatic.
- (h) Start every lesson with a 5-minute 'skill drill' on one weak area (such as rounding, ratios, table reading, definitions, place value).

QUESTION 2: FINANCE

Common errors and misconceptions

- (a) In Q2.1.1 most candidates struggled to expand the acronym UIF correctly. Common wrong answers included 'Unemployment Insufficient Funds', 'Unemployment Investment Funds', or 'Unemployment Index Fund'. Many candidates simply guessed to arrive at a response.
- (b) Most candidates could not interpret that the employer contributes one-third of the total medical aid premium in Q2.1.3. They often divided the employee's contribution (R2 531,54) by 3 instead of recognising it as two-thirds and calculating the total contribution first and then finding the employer's one-third share. Some used tax credit values instead of the actual contribution amount.
- (c) In Q2.1.4(a) most candidates read the wrong value from the monthly PAYE deduction table (R6 235 instead of R6 298) or ignored Muriel's age when selecting the correct tax rebate.
- (d) Candidates calculated the total deductions (UIF + PAYE + Medical Aid) in Q2.1.4(b), but forgot to subtract this sum from the gross salary. Some subtracted from the wrong gross amount or simply added the deductions instead of subtracting.
- (e) In Q2.1.4(c) most candidates struggled to calculate annual taxable income correctly. Common mistakes included:
- Forgetting to multiply monthly income by 12
 - Not annualising the Medical Tax Credit (MTC) by multiplying by 12
 - Choosing the wrong tax bracket

- Adding the rebate instead of subtracting it
 - Poor application of BODMAS. Many candidates could not justify whether Muriel was overtaxed based on their final calculation.
- (f) In Q2.2.1 candidates often calculated the percentage of pensioners to adults instead of the percentage saved on the bus trip. Some swapped values, using R14,20 instead of R4,20 as the saving and forgot to multiply by 100, or used the wrong denominator.
- (g) Most candidates calculated the total saving for 44 trips instead of the saving per trip as required in Q2.2.2. Some used the wrong number of days (such as 30/31), selected incorrect table values, or stopped after finding the difference without dividing for per-trip saving.
- (h) In Q2.2.3 candidates struggled to interpret Table 4 correctly, namely to determine that a 10-year-old cannot buy a weekly 12-trip package (probability = 0). Common errors included writing 'none', '0/12', '0/8', or using descriptive words instead of a proper probability fraction, 0/4 or 0/3.
- (i) Most candidates divided the total package value (R416,30) directly by the weekly price (R127,10 or R106,00) without first subtracting the R35 card activation fee. This led to incorrect answers (for example 3 trips instead of the correct value) in Q2.2.4.

Suggestions for improvement

- (a) Expose learners regularly to activities that target the observed errors and misconceptions.
- (b) Give learners consistent activities on basic arithmetic skills, including BODMAS, changing the subject of a formula, and adding fractions within a real-life authentic context.
- (c) Encourage learners to read questions carefully to understand the context instead of relying on memorisation.
- (d) Practise scaffolded level 3/4 questions by breaking them into smaller steps to help learners handle complex information without confusion.
- (e) Provide more classwork and homework activities that focus on key financial terms and acronyms such as UIF, PAYE, and MTC.
- (f) Strengthen probability understanding by teaching that it is expressed in a scale from 0 (impossible) to 1 (certain) and that answers must be expressed as fractions or percentages (e.g. 0 or 0%).
- (g) Revise basic skills (such as ratios, rates, proportions, and percentages) regularly across all Grade 12 application topics.

QUESTION 3: DATA HANDLING

Common errors and misconceptions

- (a) Candidates generally performed well in Q3.1.1. However, some candidates failed to arrange the data in ascending or descending order before determining the median.

A common error was calculating the mean percentage instead of the median, often by simply adding the values and dividing by two: $(46\% + 56\%)/2 = 51\%$.

- (b) Candidates expressed the probability as a percentage or fraction instead of the required decimal format in Q3.1.2.
- (c) In Q3.1.3(a) many candidates struggled to calculate the total number of *Snapchat* users when given the number of female users and the percentages for both males and females. Common errors included incorrect percentage calculations (such as using the wrong percentage as the multiplier), adding male and female users incorrectly, and omitting zeros when working with millions, for example writing 750 instead of 750 000 000.
- (d) Candidates were unable to determine the difference between female and male users in Q3.1.3(b). Many failed to express the final answer in millions, for example writing 60 instead of 60 000 000. Conclusions were often inconsistent with calculations, with some candidates manipulating figures to produce an answer without demonstrating conceptual understanding.
- (e) In Q3.2.1 candidates had difficulty in correctly identifying the graph type. The majority described it simply as a 'bar graph' or 'stacked graph', failing to specify that it was a stacked bar graph. Many candidates also incorrectly referred to it as a double bar graph.
- (f) Candidates struggled in Q3.2.2(b) to read values correctly from the stacked bar graph. Many failed to subtract the appropriate segments to isolate the middle portion of the bar, resulting in incorrect values for LTE devices in Limpopo. A frequent error was omitting the unit of millions, leading to answers with insufficient zeros or without the word 'million'.
- (g) In Q3.2.2(c) most candidates understood the concept of range, but they were unable to identify the maximum and minimum values from the stacked bar graph accurately. Once again, omission of the million unit was common.
- (h) Q3.2.3 proved challenging for most candidates. Many were unable to complete the stacked bar graph accurately for KwaZulu-Natal and Mpumalanga in 2023. Difficulties included incorrect interpretation of the scale, wrong starting points for bars and failure to plot the correct end points.

Suggestions for improvement

The performance in Q3 revealed persistent challenges in the application of basic statistical concepts, graph interpretation, graph construction, and working with large numbers expressed in millions. The following recommendations are provided to address the identified misconceptions and errors, strengthen foundational skills and improve overall candidate performance in future examinations.

- (a) Teachers should expose learners to different types of graphs; teach how to draw them accurately; and develop strong interpretation skills across all prescribed graph types.
- (b) Learners must be exposed to a wide variety of activities specifically targeting the observed errors and misconceptions, particularly in the calculation of mean, median and range.

- (c) Informal activities should include level-3 and level-4 questions to better prepare learners for the cognitive demands of formal assessments.
- (d) Teachers are encouraged to attend regular subject content and methodology workshops to stay up to date and enhance their instructional strategies.
- (e) Candidates must be taught multiple methods of using percentages to calculate actual values such as reverse percentage calculations, with particular emphasis on working with large numbers (millions and billions) as required by the *CAPS* document.

QUESTION 4: FINANCE, DATA HANDLING AND PROBABILITY

Common errors and misconceptions

- (a) In Q4.1.1 candidates struggled to construct a correct algebraic formula for the trailer rental cost. Most were able to identify the fixed deposit of R1 000, but many wrote the formula in words only, without using variables and the numerical co-efficient to represent the fixed and variable components.
- (b) Most candidates successfully calculated the value of B in Q4.1.2, although some incorrectly applied the variable cost of the large trailer (R500) instead of the small trailer.
- (c) In Q4.1.3(a) most candidates failed to subtract the refundable deposit of R1 000 from the total income, while others incorrectly subtracted R8 000.
- (d) In Q4.1.3(b) candidates demonstrated a clear lack of understanding of the phrase 'or part thereof' in the context of labour charges. Most multiplied the hourly rate of R480 by 1,5 hours instead of rounding up to 2 hours.
- (e) Candidates were generally able to identify the correct values from the table and simplify the calculation in Q4.2.1, but the majority failed to round the final answer correctly from millions to the nearest thousand.
- (f) In Q4.2.3 candidates showed limited understanding of the *mean* concept. Many used incorrect values from the table, divided by the wrong number of items, or selected the wrong column, resulting in poor performance in this question.
- (g) In Q4.2.4(a) some candidates confused 'ascending' and 'descending order' when arranging the data, while others omitted a value entirely, affecting their ability to identify the correct *quartiles*.
- (h) Many candidates struggled with Q4.2.4(b), since they were unable to identify the lower quartile (Q1) from the arranged data, even though Q3 was provided, and many failed to apply the IQR formula correctly.

Suggestions for improvement

- (a) Teachers should supply more practice in translating word problems into accurate mathematical expressions and formulae.
- (b) Teachers should focus on and reinforce the meaning of 'or part thereof' in tariff contexts, emphasising that 1,5 hours must be charged as 2 full hours.

- (c) Candidates must be provided with additional activities on unit conversions, such as millions to thousands, and precise rounding techniques.
- (d) Teachers should develop multi-set data table activities that focus on accurate data selection, correct column choice and thorough analysis in varied contexts.
- (e) Candidates should be exposed to complex, extended contexts that demand careful reading and deep comprehension to strengthen reasoning for higher-cognitive questions.
- (f) Rounding skills, a core Grade 10 skill, must be practised frequently under supervision, with emphasis on correct procedures and the impact of small rounding errors on final answers when multiplied.
- (g) Measures of central tendency (*mean, median, mode*) should be practised using both large and small numbers in varied contexts, with written feedback and remediation provided after assessments.
- (h) Candidates must receive clear instruction on identifying *quartiles*, explaining the process, and calculating *interquartile* ranges, including reverse applications.

QUESTION 5: DATA HANDLING AND FINANCE

Common errors and misconceptions

- (a) Most candidates answered Q5.1.1 correctly, but some read incorrect values from the table, such as using £25,36 from Option A instead of the value from Option B.
- (b) Candidates failed to provide a convincing reason for choosing Option A in Q5.1.2(a). Many simply stated that it was cheaper, without referring to the lower deposit and first-month instalment. In Q5.1.2(b) candidates used the wrong VAT rate of 15% instead of the given 20%. Many multiplied the monthly instalment by 48 months, forgetting that the first instalment was included in the deposit.
- (c) Candidates struggled in Q5.1.3 with the double currency conversions from pounds to rands and then to Swiss francs. Most were unsure whether to multiply or divide by the exchange rates and often rounded incorrectly.
- (d) In Q5.2.1 candidates could not calculate the missing inflation value when the *mean* was given. Many failed to recognise that 'average' means 'mean' and omitted the missing value from the dataset.
- (e) Candidates struggled to read petrol prices accurately from the graph for July and August 2024 in Q5.2.2. Most did not calculate the cost difference for a 40-litre tank.
- (f) In Q5.2.3 candidates performed poorly on the reverse inflation calculation. Many incorrectly calculated 2,2% of the July price and subtracted it, instead of applying the correct reverse method.
- (g) Candidates described trends vaguely, using terms like 'increasing' or 'decreasing' without specifying time frames in Q5.2.4. Many incorrectly analysed the petrol price graph instead of the inflation rate table.

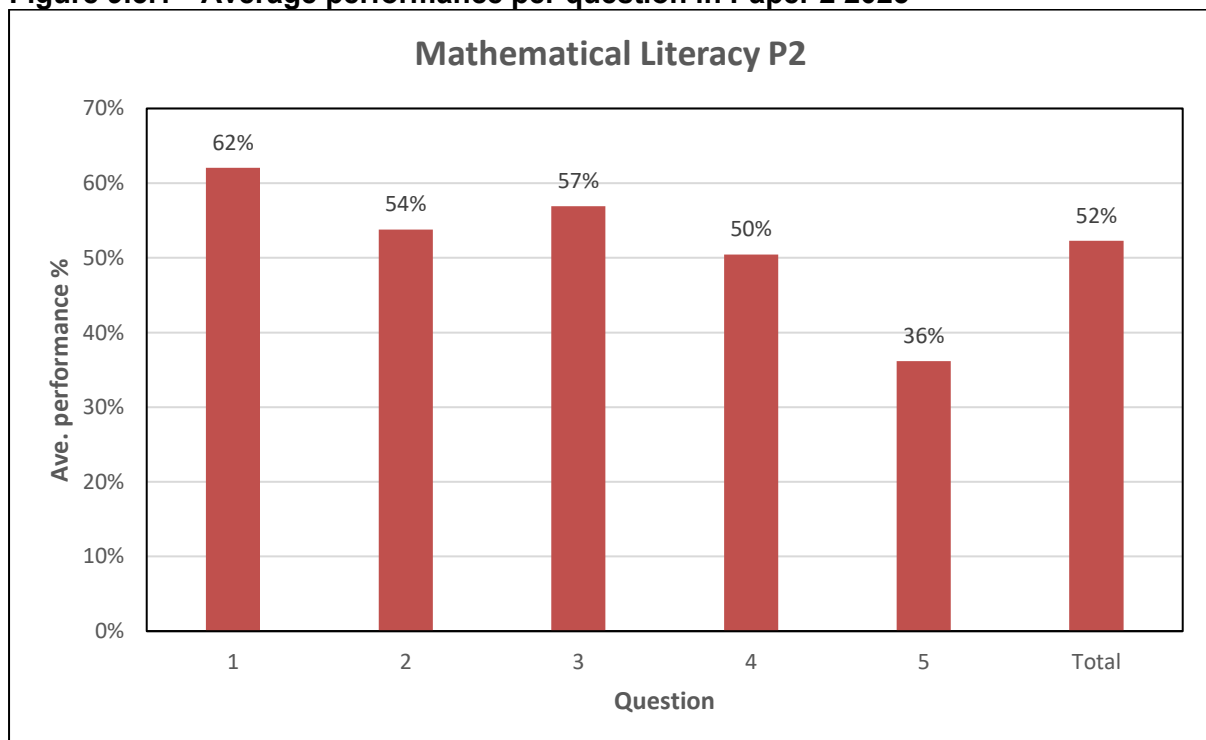
Suggestions for improvement

- (a) In order to address the specific errors and misconceptions that have been observed in candidates' responses effectively, teachers are strongly advised to provide extensive targeted practice activities throughout the teaching and learning process.
- (b) Learners require systematic and regular training in the skill of accurately describing trends derived from various graphs and tables. Teachers must ensure that learners incorporate precise data points, relevant time periods and appropriate terminology such as 'increasing,' 'decreasing' or 'remaining stable' in their descriptions.
- (c) Candidates should be exposed systematically to a wide variety of exchange rate problems that involve conversions between multiple currencies, presented in both familiar everyday scenarios and more unfamiliar international contexts.
- (d) Regular review of previous NSC examination papers remains a valuable strategy for building both knowledge and the ability to apply concepts effectively in questions of medium to higher difficulty.
- (e) Candidates need explicit guidance on how to formulate deductions, opinions, or validations within financial contexts, drawing on accurate calculations, multi-step procedures, and information from texts, tables, graphs, rates, ratios and percentages.
- (f) Teachers must reinforce that the terms 'average' and 'mean' are interchangeable in statistical contexts, while repeatedly practising the core formula of dividing the sum of values by the number of values.

9.5 ANALYSIS OF CANDIDATES' PERFORMANCE IN EACH QUESTION IN PAPER 2

The following graph is based on data from a random sample of candidates. While this graph may not accurately reflect national averages, it is useful in assessing the relative degree of challenge of each question as experienced by candidates.

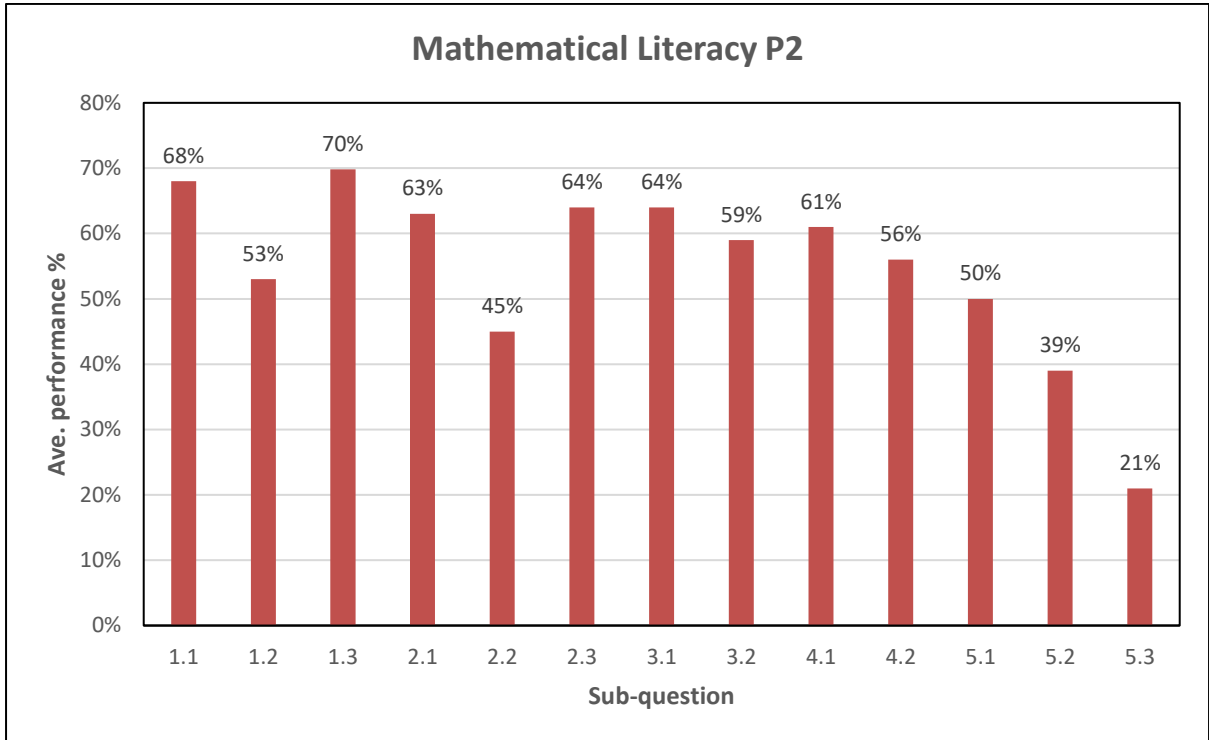
Figure 9.5.1 Average performance per question in Paper 2 2025



Mathematical Literacy

Question	Topic	Ave. performance %
1	Maps, plans and Measurements	62%
2	Maps, plans	54%
3	Measurements and Probability	57%
4	Measurements, Maps, and Probability	50%
5	Measurements, Maps and plans and Probability	36%
Total		52%

Figure 9.5.2 Average performance per subquestion in Paper 2 2025



Subquestion	Topic	Ave. performance %
1.1	Measurement, Maps, Plans and Other	68%
1.2	Measurement	53%
1.3	Measurement, Maps, Plans and Other	70%
2.1	Maps, Plans and Other	63%
2.2	Maps, Plans and Other	45%
2.3	Maps, Plans and Other	64%
3.1	Measurement and Probability	64%
3.2	Measurement	59%
4.1	Maps, Plans and Other	61%
4.2	Measurement and Probability	56%
5.1	Probability, Maps, Plans and Other	50%
5.2	Measurement	39%
5.3	Measurement	21%

9.6 ANALYSIS OF CANDIDATES' PERFORMANCE IN EACH QUESTION IN PAPER 2

QUESTION 1: SHORT CONTEXTS (INTEGRATED LEVEL 1 QUESTIONS ONLY)

Common errors and misconceptions

- (a) Q1.1.1 was well answered by most candidates, but certain candidates could not differentiate between a *floor plan* and an *elevation plan*.
- (b) In Q1.1.5 candidates chose letter D instead of F. They confused the definitions 'the region covered by the shape or object' and 'the distance around the shape of the object'.
- (c) In Q1.2.1 most candidates could not write the arrival time 14:15 in words, using the 12-hour format instead.
- (d) When calculating $33\frac{1}{3}\% \times 189$ passengers in Q1.2.2, candidates who used non-scientific calculators often obtained 62,999... and incorrectly rounded down to 62 passengers instead of up to 63 passengers.
- (e) In Q1.2.3 most candidates were unable to identify the correct method for calculating speed from the given options, with some using the arrival time instead of the actual duration. Furthermore, candidates did not realise that the time in the time/distance/speed formula is a duration and not an exact time.
- (f) In Q1.2.4 many candidates struggled to count days backwards to a specific day without a calendar; hence, they did not get to Thursday but another day of the week. In some cases, candidates' lack of knowledge of the number of days per month and how to count backwards when given a last date to a previous date caused incorrect responses.
- (g) Q1.3.1 was well answered; however, some candidates were still unable to match the given statements with the pictures.
- (h) In Q1.3.2 candidates struggled to select the formula for surface area of a closed cylinder.
- (i) In Q1.3.3 some candidates used incorrect conversion factors, while others did not know whether to multiply or divide when converting from metres to millimetres.

Suggestions for improvement

- (a) Teachers must reinforce terminology, using simple definitions and repeated exposure in different contexts. Give learners spot tests on definitions and recognising formulae.
- (b) Learners should be exposed to definitions/concepts in Mathematical Literacy that are easily confused. Definitions for *layout plan*, *elevation plan* and *floor plan* should be taught simultaneously so that learners may recognise the difference between them.
- (c) Give learners regular practice in converting 24-hour time to 12-hour time and writing these in words.

- (d) Teach learners how to handle recurring decimals and how to apply rounding based on context (such as rounding up for capacity). Encourage learners to use the fraction button when performing calculations.
- (e) Where possible, struggling candidates should be taught to calculate time using the hour/minute/second button on the calculator.
- (f) Calendar analysis is introduced in Grade 10 and needs to be taught using calendars, moving forward and backwards, to train learners to arrive at the correct answers.
- (g) Provide more diagram-based activities where learners interpret or match written descriptions with images.
- (h) Teachers are encouraged to reinforce concepts that are easily confused simultaneously, so that learners can distinguish between the concepts, such as elevation plan and floor plan.

QUESTION 2: MAPS AND PLANS

Common errors and misconceptions

- (a) In Q 2.1.1 some candidates demonstrated a clear understanding of the seating plan; however, they could not calculate the correct number of forward-facing seats. The way the seats were drawn caused the confusion.
- (b) In Q2.1.3 many candidates misinterpreted the directions for moving from seat C2 to seat J3 on the seating plan of the double-decker bus; as a result, they were unable to provide the correct answers.
- (c) Many candidates had difficulty interpreting the round-trip route map in Q2.2.1, which resulted in their being unable to identify the southernmost stop on the route, which was Camps Bay rather than Bakoven.
- (d) In Q2.2.2 many candidates wrote 'number scale' instead of 'bar scale'.
- (e) In Q2.2.3 most candidates were unable to determine whether the bus would be travelling in a clockwise or anticlockwise direction from stop 11 to stop 18. This may be because many learners struggle to visualise rotational movement on a map or diagram, leading to confusion between clockwise and anticlockwise directions.
- (f) In Q2.2.4 most candidates were unable to measure the bar scale on the map accurately and used the given round-trip distance to calculate the map distance. Many also struggled with converting between units correctly, possibly due to a lack of familiarity with scale conversions or difficulty in interpreting the relationship between real distances and map distances.
- (g) Many candidates were unable to determine whether the bathroom door on the floor plan opens to the right or left in Q2.3.1. This may be due to difficulty interpreting architectural symbols and door swing conventions commonly used in floor plans.
- (h) In Q2.3.2 some candidates were unable to identify the longest side of the living room in feet and inches and struggled to convert these measurements to centimetres using the given conversion factors. This may be due to difficulty working with imperial units and performing unit conversions accurately.

- (i) In Q2.3.3 candidates often provided only one difference between the two flats instead of two differences.
- (j) In Q2.3.4 some candidates did not provide an appropriate reason for the absence of a balcony, possibly due to language barriers or difficulty understanding the context. Some incorrect answers were: 'The balcony costs too much money'; 'the owner did not like the balcony'; and 'the balcony cannot be next to stairs.'
- (k) Many candidates gave incorrect or irrelevant reasons in Q2.3.5 for the absence of windows on north-facing walls, often mentioning sunlight instead of considering the functional design reasons. Others did not understand the concept of a 'block of flats'.

Suggestions for improvement

- (a) Teachers should dedicate sufficient time to teaching the use of scales and performing metric conversions accurately. This includes practical exercises involving real measurements and conversion between metric units (km, m, cm, mm) as well as imperial units (feet and inches).
- (b) Learners should be exposed to different types of layout plans, including single- and double-storey flats, elevation plans and seating arrangements, to build familiarity and confidence. Teachers should practically demonstrate to candidates that a door can open to the left/right as you enter a classroom/house.
- (c) Teachers should guide learners to analyse the context of questions carefully, particularly open-ended questions, to avoid irrelevant or incorrect answers.
- (d) Teachers should put more emphasis on the conversion of metric to imperial units.
- (e) Learners must be encouraged to practise measuring dimensions accurately, using rulers and applying scale factors to convert between units.
- (f) Teachers should familiarise learners with the estimation of either actual distance or map distance using the bar scale.
- (g) For questions requiring explanations, teachers should scaffold learners' language skills to improve comprehension and expression, especially in interpreting spatial contexts.
- (h) Workshops should be organised at district levels to share approaches to the topic on maps and plans, in order to improve learners' performance in this topic.

QUESTION 3: MEASUREMENT AND PROBABILITY

Common errors and misconceptions

- (a) In Q3.1.1 some candidates struggled with the concept of time, particularly in distinguishing between specific times and time duration. They were unable to determine the starting time given a finishing time of 13:12 and a duration of 3 hours 27 minutes. They subtracted the duration incorrectly, confusing hours and minutes, or misreading the 24-hour clock format.
- (b) In Q 3.1.2 some learners could not visualise the pattern described in words.
- (c) In Q3.1.3 most candidates did not convert the height of 240 mm to centimetres before substituting it into the given formula to calculate the area of Part A.

- (d) A few candidates were unable to perform conversions involving two-dimensional measurements (mm^2 to cm^2), which affected their calculations in Q3.1.4.
- (e) In Q3.1.5 most candidates demonstrated limited understanding of probability. They struggled with the correct interpretation of 'and' and 'or' in the statements and were unable to add fractions to determine the correct percentage.
- (f) In Q3.2.1 candidates wrote $\text{radius} = \frac{4}{7} \times \frac{14 \text{ mm}}{2}$ instead of $\text{radius} = \frac{4}{7} \times 14 \text{ mm}$.
- (g) In Q3.2.2 some candidates could not distinguish between *diameter* and *radius*. Many candidates did not follow the rounding instruction.
- (h) In Q3.2.3 most candidates calculated the area of the material and the area of the circle correctly, but they did not multiply by 48. They failed to account for the fact that 48 pairs of earrings were to be covered on both sides, with each pair consisting of two earrings. Additionally, they were unable to calculate the remaining synthetic leather to verify whether the leftover area was less than 3 000 cm^2 . This indicates difficulty to apply multi-step calculations and verifying their calculations.

Suggestions for improvement

- (a) Teachers should dedicate more time to teaching unit conversion, including length, area, and volume. Teachers must also ensure that learners understand how to apply formulae correctly.
- (b) Learners should be trained to analyse problems carefully, extract relevant information from the context, and follow all required calculation steps, particularly in multi-step questions.
- (c) Teachers should emphasise the importance of including the correct units in all calculations and answers before substituting values in the given formula. Teachers must emphasise the importance of these being converted into the unit required by the question.
- (d) Regular practice exercises should reinforce accurate measurement and unit conversions.
- (e) Learners should know the difference between radius and diameter.
- (f) Learners should be encouraged to work with the formula provided since it gives them guidance on which values should be used in the calculation.
- (g) Learners should be given more activities on calculation of the remaining material or area.
- (h) Teachers must impress on learners key words, such as 'pairs' and 'both sides', when answering Q3 type of questions.
- (i) Teachers should provide practical examples to help learners understand probability, including 'and' versus 'or' scenarios and how to combine fractions correctly.
- (j) Teachers should provide learners with more level 4 (complex, multi-step) questions to develop critical thinking, planning, and systematic problem-solving skills.

QUESTION 4: MAPS AND PLANS, MEASUREMENT AND PROBABILITY

Common errors and misconceptions

- (a) In Q4.1.1 most candidates were unable to identify the closest town west of Colesberg due to difficulty interpreting compass directions and understanding cardinal points correctly.
- (b) Most candidates were unable to count the actual number of national roads enclosed within the pentagon on the map in Q4.1.2(a). This may be due to difficulty interpreting map symbols and a lack of careful observation when reading the map.
- (c) In Q4.1.2(b) most candidates were unable to identify the correct town along the N12 on the map, often naming incorrect towns. This is likely due to difficulty in interpreting the map accurately.
- (d) In Q4.2.1 most candidates were unable to calculate the number of months from 13 January 2022 to 13 June 2023 to determine the duration the flamingo spent in Area A. Some candidates gave the answer in years and months (1 year 5 months), disregarding the given instruction.
- (e) Some candidates struggled with the concept of time in Q4.2.2, particularly when adding time or calculating duration (such as 19:00 + 14 hours 25 minutes). As a result, they were unable to determine the bird's date and time of arrival at Area E, given that it flew non-stop for 14 hours 25 minutes. Candidates demonstrated a lack of application of probability in the context of the route.
- (f) Candidates wrote 'Probability = $\frac{3}{5}$ ' / 'no probability' / 'the bird did not fly directly over Queenstown' instead of 'Probability = 0 **OR** 0%' / 'impossible'.
- (g) In Q4.2.4 most candidates were unable to substitute values into the given formula correctly. They struggled to change the subject of the formula, using the incorrect time and they did not convert 25 minutes into hours when calculating the bird's average speed from Area B to Area E.
- (h) In Q4.2.5 most candidates correctly converted the direct distance between Area B and Area E from miles to kilometres, but they did not calculate the additional distance to determine whether the bird flew 268,13 km more than the direct route.
- (i) Most candidates misunderstood the question in Q4.2.6 and used the total population of 333 million in all steps instead of first calculating the number of adult women. They also struggled to round the final answer correctly. The calculation should have considered that 78% of the population were adults; that half of the adults were women; and that 10% of these adult women were shorter than 5 feet.

Suggestions for improvement

- (a) Learners should be exposed to a wide range of unit conversion problems, including length (such as miles to kilometres) and measurements involving feet and inches. Emphasis should be placed on understanding conversion factors and applying them accurately.
- (b) Teachers should explain explicitly the difference between *time* and *duration*, and provide examples of how to represent, add and convert time correctly.

- (c) Teachers should guide learners to interpret multi-step problems, extract relevant information and apply reasoning skills systematically. Level 3 questions should be practised regularly to develop analytical and comprehension skills.
- (d) Teachers should integrate revision exercises on time and unit conversions, topics from previous grades, to reinforce learners' understanding.
- (e) Teachers should provide learners with frequent practice in reading and interpreting maps, including understanding symbols, scales and routes.
- (f) Percentage calculations, as a basic skill should be practised and included in activities from Grade 10.

QUESTION 5: MAPS AND PLANS AND MEASUREMENT

Common errors and misconceptions

- (a) In Q5.1.1 candidates failed to identify the diagrams that matched the shelf and the bookcase.
- (b) In Q5.1.2 candidates failed to apply the concept of probability in the context of the drawers and the bookcase.
- (c) Most candidates failed to relate the dimensions to the size of the bookcase in Q5.1.3(a).
- (d) In Q5.1.1.3(b) most candidates were unable to draw a scaled diagram of the hardboard using the given scale of 1:20, despite the dimensions being provided.
- (e) Candidates' performance in Q5.2 was poor. Many candidates calculated the area of a single piece of wood but were unable to use the given dimensions of the six pieces of wood and the hardboard to determine the area of the leftover wood after cutting the required material for two bookcases. They added areas, instead of subtracting them; they confused the units of measurement; they did not account for all six pieces; and failed to consider the hardboard separately from the wooden pieces.
- (f) In Q5.3 candidates struggled to convert the volume of wood from m^3 to cm^3 . They were unable to substitute the given density into the formula correctly and did not change the subject of the formula to calculate mass. They also failed to convert the mass from 300 000 g to 300 kg and then to tonnes in order to verify the statement. They did not recall that 1 tonne equals 1 000 kg, leading to incorrect unit conversions and calculation errors when applying the formula.

Suggestions for improvement

- (a) Teachers must ensure that all content and skills outlined in the *CAPS* and the *Examination Guidelines* are covered thoroughly during teaching.
- (b) To help improve learner performance relating to maps, plans and scaled diagrams, teachers should organise district-level workshops to share best practices.
- (c) Teachers should make use of DBE definition booklets and administer speed tests on terminology to reinforce understanding.

- (d) Teachers should develop real-life scenarios in class activities to expose learners to a variety of contexts. Emphasis should be placed on interpreting pictures and illustrations in conjunction with the information provided in each question.
- (e) Teachers should provide learners with regular exercises that involve different formulae, simplification, and making the unknown the subject of the formula.
- (f) Reverse calculation of perimeter, area and volume should form part of daily activities when teaching and assessing measurement.
- (g) Teachers should maximise contact time by incorporating daily Mathematical Literacy practice. Exercises should be corrected with explanations and short classroom tests should be administered frequently with timely feedback.
- (h) Teachers should reinforce the topic of how to draw a sketch of a real-life object according to scale and the topic of density.