2025 NCEA Assessment Report

Subject: Numeracy

Unit standard: 32406

Report on individual unit standard

Unit standard 32406: Apply mathematics and statistics in a range of everyday situations

Assessment

In the Common Assessment Activity (CAA), all three outcomes were assessed by requiring candidates to answer question items based on a range of different contexts. The question items provided candidates with multiple opportunities to produce evidence against each outcome.

Outcome 1: Formulate mathematical and statistical approaches to solving problems in a range of everyday situations

1.1 Select an appropriate operation, representation, variable, and/or method to solve the problem(s).

This includes:

- Selecting mathematical and statistical approaches that meet the demands of the situations.
- Interpreting questions correctly and checking to see that the answers address the questions.

Outcome 2: Use mathematics and statistics to meet the numeracy demands of a range of everyday situations

2.1 Apply mathematical and statistical procedures correctly in the situations.

This includes:

- Calculating or reasoning correctly, including using calculators and verifying the reasonableness of answers.

Outcome 3: Explain mathematical and statistical responses to situations

3.1 Use evidence to explain the selection of the method and/or calculation.

This includes:

- Taking a position in relation to a given situation (usually any position is accepted if it is explained adequately).
- Explaining their position for a given situation using information provided in the problem.
- Persevering with the assessment, even if some problems seem difficult.
- Managing time adequately.

Summary

Areas of strength demonstrated by candidates who were clearly at, or above, the required standard in the Term 2 CAA:

- Performing calculations with units of time, including seconds, minutes, hours, days, weeks, and years.
- Applying whole number and decimal multipliers (scalars) to everyday situations, including finding missing multipliers, where needed.
- Using fractions as numbers and operators, such as combining fractions of objects or measurements and finding a non-unit fraction of an amount expressed in metric measurements.
- Working with decimals, including ordering decimals and performing operations, usually in conjunction with measurements and rates.
- Calculating percentage discounts, including the amount of the discount or the discounted price.
- Applying rates and ratios to make decisions about cost, best value for money, and to find unknown amounts.
- Applying the concepts of minimum, maximum, and range in everyday situations, usually in measurement contexts.
- Noticing and applying linear relationships in everyday situations, presented in tables, diagrams, and graphs, to find unknown values or the difference between terms.
- Calculating metric measures, including finding areas of rectangles, and volumes of rectangular prisms (cuboids), working with common units of mass and capacity, and including converting between metric units.
- Interpreting tables of measures, such as timetables and sizing charts, to make decisions in everyday situations.
- Reading and interpreting scales such as thermometers, rulers, protractors, and other measurement tools, including calculations such as finding a difference.
- Comparing measures to make or evaluate statements about objects, such as comparing price and mass simultaneously.
- Measuring angles using a protractor and estimating angles using benchmarks such as 45º, 90º, and 180º.
- Interpreting and applying a scale on a map to estimate distance, coordinates to locate or describe location, and cardinal compass directions to describe paths between points.
- Applying spatial visualisation to test the correctness of nets, to interpret 2-dimensional diagrams and 3-dimensional objects, and to anticipate the results of simple transformations (reflections, rotations, enlargements).
- Interpreting time series graphs from realistic situations to critique given statements or to make statements about trends and other patterns in the data.
- Interpreting bar charts and proportional representations of categoric data, to combine or compare categories, or critique a claim made from the data display.

Candidates who did **not** achieve the Numeracy standard in the Term 2 CAA demonstrated that they had difficulty in:

- Learning the mathematical and statistical concepts above.
- Selecting mathematical and statistical approaches that meet the demands of the situation (Outcome 1).
- Interpreting questions correctly and checking to see that the answers generated address the questions and provide reference to the information provided.
- Calculating or reasoning correctly, including recorded working on paper to organise numbers and reason with problems, using calculators efficiently, and verifying the accuracy of answers (Outcome 2).
- Explaining their position for a given situation using information provided in the problem (e.g. if percentages are required, there must be percentages included in the answer) (Outcome 3).
- Persevering with the CAA, even if some problems seem difficult, to give answers to all questions.
- Using assessment techniques effectively, such as monitoring and managing time, taking very short breaks, and returning to difficult question items.

Areas of strength demonstrated by candidates who were clearly at, or above, the required standard in the Term 3 CAA:

- Working with large whole numbers expressed in various ways, e.g., 2.4 million or 2,400,000, sensibly rounding whole numbers, and providing reasonable results for whole number calculation.
- Finding the best option from two or three given deals, such as mobile plans, or combo vs normal price scenarios.
- Applying whole number and decimal multipliers (scalars) to everyday situations, including finding missing multipliers, where needed, such as 40 is how many times the size of 2.5.
- Using fractions as numbers and operators, such as combining fractions of objects or measurements, and finding a non-unit fraction of an amount expressed in metric measurements.
- Working with decimals, including ordering decimals, and performing operations, usually in conjunction with measurements and rates.
- Calculating with percentages, including the amount of the discount or the discounted price.
- Applying rates and ratios to make decisions about cost, best value for money, speed, and to find unknown amounts.
- Applying the concepts of minimum (least), maximum (greatest), and range in everyday situations, usually in measurement contexts.
- Noticing and applying linear relationships in everyday situations, presented in tables, diagrams, and graphs, to find unknown values or the difference between terms.
- Calculating with metric measures, including finding areas of rectangles, and volumes of rectangular prisms (cuboids), working with common units of mass and capacity, including simple convertions between metric units.
- Calculate with times to establish the difference between times, or find the starting point or endpoint of a duration, e.g., movie finishing time. This included understanding of 24-hour time and fractions of a second.
- Interpreting tables of measures, such as timetables and sizing charts, to make decisions in everyday situations.
- Reading and interpreting scales such as thermometers, rulers, protractors, and other measurement tools, including calculations such as finding a difference, and estimation of angles using known benchmarks, like 90º.
- Comparing measures to make or evaluate statements about objects, such as comparing price and mass simultaneously.
- Interpreting and applying a scale on a map to estimate distance; coordinates to locate or describe location; and cardinal compass directions to describe paths between points and directions.

- Applying spatial visualisation to test the correctness of nets, to interpret 2-dimensional diagrams and 3-dimensional objects, and to anticipate the results of simple transformations (reflections, rotations, enlargements) or establish the symmetry of a figure.
- Interpreting time series graphs (line or bar) from realistic situations to critique given statements or to make statements about trends and other patterns in the data.
- Interpreting bar charts and proportional representations of categoric data, to combine or compare categories, or critique a claim made from the data display. This includes finding proportions of the data within a category or categories.
- Interpreting dotplots and histograms to represent measurement data, including finding proportions of the data with a range, e.g., greater than x, less than y.

Candidates who did **not** achieve the Numeracy standard in the Term 3 CAA demonstrated that they had difficulty in:

- Proficiency and application of the mathematical and statistical concepts above.
- Interpreting questions correctly and checking to see that the answers generated addressed the questions and provided reference to the information provided.
- Considering the reasonableness of answers within the context, such as a sensible time that sunblock would last, a practical size for a bag of popcorn, and a sensible cost for hiring an e-scooter.
- Intepreting info-graphical displays, such as diagrams, tables and graphs, e.g., plate graphic of serving proportions, planting chart for carrot seeds. This includes visualising and organising the information that is not provided, e.g., the position of seedlings in rows and columns.
- Explaining their position for a given situation using information provided in the problem, e.g., if percentages are required, there must be percentages included in the answer; if a calculation is asked for it must be provided.
- Persisting with the CAA, even if some problems seem difficult, to give answers to all questions. There has been a noticeable improvement in candidates' persistence over the last two years.
- Using assessment techniques effectively.

Examiner comments

Over 2025, there were encouraging signs of improvement from previous years.

Candidates seemed to be better prepared for Outcome 3 items that require the taking of a position and arguing for that position from the evidence provided.

Again, there were noticeable improvements in some content areas from previous years, e.g., reasoning with rates, particularly speed, position, and direction from maps, and interpretation of time-series graphs.

Candidates, in general, are more persistent in completing the assessments.

There are several ways in which schools and teachers can prepare candidates for the Numeracy Assessments, including:

- Providing a teaching and learning programme that focuses on the key proficiencies identified in the Areas of Strength part of this report.
- Supporting candidates with the literacy demands of the numeracy items, such as identifying key words and information, categorising the types of problems, creating algorithms and/or diagrams to represent the information and action required, and checking to see that an answer meets the demands of the question.
- Promoting a pragmatic approach to calculation that includes sensible use of written recording to represent and organise important information, combined with sensible use of the calculator to both reduce cognitive load and improve reliability.
- Encouraging attention to the reasonableness of answers, particularly related to measurements so that candidates develop trusted benchmark measures, such as 1 litre and 1 kilogram, and develop an understanding of when to apply, or not apply, decimal-place value to units of time.