

NAPLAN

State report – Year 9

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Queensland
Government



Queensland Curriculum
& Assessment Authority

For all Queensland schools

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Preface

The QCAA issues State reports on the performance of Queensland students on the National Assessment Program — Literacy and Numeracy (NAPLAN) tests. State reports provide system-level information and are publicly available. This report for Year 9 students in 2017 contains:

- the Queensland performance on each item
- the national performance on each item
- the item descriptors
- a commentary on the state results
- some recommendations for teaching.

Who should use this State report?

The NAPLAN State reports help principals, teachers and other school personnel understand, interpret and use information about student performance on NAPLAN.

School principals can use this report to provide information to the school community on aspects of the tests. This would allow professional conversations with their teachers, curriculum leaders, and department heads. Curriculum leaders can use this information to interpret the more specific information given in their school and class reports. These other reports are explained below.

Since this report is publicly available on the QCAA website, it can also inform providers of teacher training, special education services and educational research and policy.

Parents and carers can use this report to interpret the results on their child's student report. They are also able to judge how their child performed when compared with the whole population of students. The item descriptors provide them with useful information about the scope of the tests.

About the tests

The purpose of the National Assessment Program (NAP) is to collect information that governments, education authorities and schools can use to identify the important educational skills Australian students can demonstrate. As part of that program, the NAPLAN tests are administered to full cohorts of students in Years 3, 5, 7 and 9 each year. These standardised tests are sources of information about literacy and numeracy learning that can be used to inform educational policy and current educational practice.

The NAPLAN tests were developed using the nationally agreed Statements of Learning for English and Statements of Learning for Mathematics, 2005. Since 2016 however, the tests now directly relate to the Australian Curriculum. The NAPLAN tests are designed to provide a nationally comparable indication of student performance in Language conventions, Writing, Reading and Numeracy. The tests are designed to assess student understanding in the following areas:

- **Language conventions:** The test assesses the ability of students to independently recognise and use correct Standard Australian English grammar, punctuation and spelling in written contexts.
- **Writing:** The test assesses the ability of students to convey thoughts, ideas and information through the independent construction of a written text in Standard Australian English.

- Reading: The test assesses the ability of students independently to make meaning from written Standard Australian English texts, including those with some visual elements.
- Numeracy: The test assesses students' knowledge of mathematics, their ability to apply that knowledge in context independently, and their ability to reason mathematically.

Marking and scoring the tests

Marking the tests

Markers mark those test items that do not use a multiple-choice format. These markers apply nationally-agreed marking guides. There are marking guides for open-ended Reading items if any such items are included. Marking guides allow consistent and reliable judgements by markers. There are guides for the Writing test and one each for the constructed responses in Numeracy and Spelling. For some Numeracy items, students may provide a correct response in different forms. Professional officers decide on agreed scoring protocols for these items.

Calculating raw scores

The simplest calculation made in scoring the tests is the raw score — the number of questions answered correctly. All of the questions for the Language conventions, Reading and Numeracy tests are marked as either correct or incorrect. Raw scores for the Writing test are sums of the marks on each of ten criteria.

Raw scores have limited use. They enable the performance of students who have all completed the same test at the same time to be placed in a rank order, but they do not provide information about the level of difficulty of the test nor the relative differences between students.

Constructing scaled scores and bands

To make raw scores more useful, they are transferred to scores on a common scale that reflects how difficult it was to achieve each score. Each year ACARA publishes equivalence tables that allow a student's raw score to be located on the NAPLAN scale. The scale is comparable between year levels for each assessment area. An equating process is also carried out on each year's test to enable scores to be compared between successive years of testing. For example, a raw score of 20 on the Year 3 Reading test might be transformed to a scaled score of 354. This will also represent the same achievement for a student with the same scaled score in Year 5, and for a student with the same scaled score for Reading in a previous year.

Each NAPLAN scale is divided into ten bands used to report student progress.

Using NAPLAN reports to inform teaching and learning

Using scaled scores

The scaled score can compare the results of different students. Scaled scores provide a basis for measuring and comparing students' abilities across years of schooling, for example, comparing a student's result in Year 3 in 2015 and Year 5 in 2017. The scales can thus help to monitor the growth of groups of students over time. This enables the school to review and/or consolidate special programs that may have been put in place.

Principals and teachers should take care when making comparisons between small groups of students. For groups of fewer than 10 students, differences may not be reliable, particularly small differences.

Using item analysis

While the national and state reports provide the comparative data, class reports provide a school with the information that can be used to inform teaching and learning and to build capacity in schools. Analysis of the NAPLAN class data, in particular the performance on each item, will provide teachers with information about the understandings and patterns of misunderstandings of students.

Looking at the performance on the items and then analysing the error patterns allows teachers and principals to make hypotheses about why groups of students make particular errors. As mentioned below, more detailed analysis by QCAA staff is available from the QCAA website.

Steps for analysis might be as follows:

- Compare the facility rates (percentage correct) achieved by the school's students with the national and state results available in this document. Is their performance consistent?
- Look at the common errors made by their students and compare them with the common errors made in the state (only errors from Queensland students are available, and are found in the item analyses that are part of SunLANDA Online).
- Form hypotheses about why students are making these errors, e.g.
 - How did students think about this aspect of the curriculum?
 - What misunderstandings might these errors represent?
 - How might the structure of the test question have shaped the response?

Using a combination of the NAPLAN data, school data and professional judgment, teachers may then test these hypotheses to see whether they are valid or whether there is more to be thought about and investigated. Teachers can then plan lessons related to the general areas where students seem to need help. Teachers can also make judgments about teaching approaches and curriculum.

The professional conversations that are part of this process are the most effective and powerful way to use the data, as they are the vehicle for developing shared understandings.

Placing the tests in the assessment context

The results from the NAPLAN tests should be seen as only one input into a school's assessment program. Various forms of assessment are needed to inform the different stages of the teaching and learning cycle. Principals and teachers should keep in mind that NAPLAN is a pencil-and-paper, point-in-time, timed test that can only cover a few curriculum features.

The results from a school's own assessments of students should be consistent with the NAPLAN test results. If the test results are different from what was expected, consider the possible reasons. The results of the tests may indicate aspects of student performance that need further investigation within the classroom, using other forms of assessment.

An item with a low facility rate (percentage correct) may not necessarily indicate a problem in teaching and learning. It may be that this was simply a difficult item for all students in this cohort across Australia.

Other NAPLAN reports

In addition to the State reports, the following reports are produced:

SunLANDA Online

Since 2015, student data has been released on the QCAA School Portal using the SunLANDA Online interface. State schools can access the data through One School. Access to SunLANDA as application software is also still available on the QCAA website.

SunLANDA Online provides class and school information in an electronic form that permits customised spreadsheet generation by users. In addition, it shows representative samples of students' incorrect responses to constructed responses where applicable. Hyperlinks from within SunLANDA Online lead to the QCAA's test item analysis. Information on how to use this service is available at: www.qcaa.qld.edu.au/p-10/naplan/test-reporting-analysis/sunlanda/accessing-navigating-sunlanda

Test Item analysis

These pdf documents contain analysis of each test item. They can be downloaded directly from the QCAA website. The analysis reproduces each item followed by expert analyses of how the item operated. It shows the distractors presented in multiple-choice items and explains students' reasoning.

School and class reports

The NAPLAN school and class reports are supplied electronically on the secure section of the QCAA website. These reports are accessible only with the school's Brief Identification Code (BIC) login and password. Individual student reports are distributed to schools as printed copies.

School reports

The QCAA issues NAPLAN School reports giving information about each school's performance. They provide a summary of year-level performance as well as performance by gender, language background and Indigenous status in the following fields:

- distribution of scaled scores
- distribution of achievement bands
- school and state means
- participation of the group.

The School report positions a school's performance within the state on a graph that is shaded to show the range of performance for the middle 60% of Queensland students together with the state mean.

Class reports

The QCAA issues NAPLAN class reports that show the performance of every student on every item. Under the name of each student is recorded the items they had correct and incorrect. They also show students' responses to constructed-response items.

The class report also gives the:

- percentage correct for each item for the class and state, and by gender
- scaled scores for each student
- performance bands for each student.

Individual student reports

The QCAA issues individual student reports to schools after the tests. Schools receive one printed report for each student to distribute to parents/carers.

ACARA Reports

As well as the Queensland reports from the QCAA, national reports are available from the website of the Australian Curriculum Assessment and Reporting Authority (ACARA). The *NAPLAN National Summary Report* and the *NAPLAN National Report* allow states and territories to place the achievement of their students in relation to their peers across the nation. This is system-level information and is publicly available.

Literacy

Writing

Stimulus (writing prompt) Years 7 & 9

YEAR 7 AND YEAR 9

Don't waste it

Write to persuade a reader why something you care about should not be wasted or thrown away.

Choose something that you think should be re-used or recycled, or kept forever.

It might be a part of the environment like a river or a mountain, or a resource such as water. It might be something made by humans such as a building or a machine. It could be something that you can't see or touch, like time, a talent, a value, a tradition or an opportunity.

- **Start with an introduction.**
An introduction lets a reader know what you are going to write about.
- **Write your opinions on the topic.**
Give reasons for your opinions.
Explain your reasons.
- **Finish with a conclusion.**
A conclusion sums up your reasons so that a reader is convinced of your opinions.

Remember to:

- plan your writing
- use paragraphs to organise your ideas
- write in sentences
- choose your words carefully to convince a reader of your opinions
- pay attention to your spelling and punctuation
- check and edit your writing.

About the task

- In 2017, the NAPLAN Writing test was based on the persuasive genre. As was the case in the past two years, two prompts were used: one for Years 3 & 5 and another for Years 7 & 9. The test conditions and administration remained the same as in previous years, i.e. teachers delivered the same spoken instructions and read the text aloud to students. Working independently, students had to plan, compose and edit a written response. Students were allowed five minutes to plan, 30 minutes to write their script, and a further five minutes to edit and complete the task. Three pages were provided for students to write a response.
- The 2017 prompt for Years 7 & 9 was titled *Don't waste it*. Students were asked, in the textual component of the prompt, to:

- Write to persuade a reader why something you care about should not be wasted or thrown away.
- Choose something that you think should be re-used or recycled, or kept forever.
- Additional textual information was provided. This named the structural components, and further defined these elements, e.g. Start with an introduction. An introduction lets the reader know what you are going to write about. Other notes were also provided in relation to the conventions associated with the writing task, e.g. write in sentences, check and edit your writing etc. A montage of stylised images surrounded the text, covering a range of possible topics/ideas such as a sun (global warming or renewable energy), a tap (water conservation), a clock (time) etc.
- The prompt was relatively open-ended, allowing students to base their writing on one or more of the images provided, or compose their own text around a particular idea.
- Markers for this Writing test were trained using the national persuasive writing marker training package, delivered as part of ACARA's national assessment program. Markers were recruited and trained in accordance with national protocols. Registered Queensland teachers marked the NAPLAN Writing test scripts. All markers applied the 10 criteria and related standards from the marking rubric. Writing test scripts were marked on screen in all states and territories. Stringent quality-control measures were applied to the marking of student scripts, including a prescribed percentage of scripts to be double-marked, and the daily application nationally of control scripts for all markers. As part of the Queensland marking operation for 2017, referee marking continued, further ensuring marking reliability. There was also provision for appeal over individual Writing test scores after the results were released. On appeal, a student's script was re-marked independently by two senior Writing test markers.
- An earlier version of the NAPLAN Persuasive writing marking guide is available at: www.nap.edu.au/_resources/Amended_2013_Persuasive_Writing_Marking_Guide_-_With_cover.pdf

Performance

- There seems little doubt that the 2017 prompt was particularly suited to students in Years 7 & 9, with the content likely to be evident in a range of secondary learning areas such as English, Science and Humanities and Social Science. For the most part, students elected to focus on strongly environmental issues such as the excessive use of plastic, conservation of water, the renewable/non-renewable debate etc. Students who diverged from these more obvious responses were able to explore more abstract subjects such as time, love, relationships, memories etc., and generally, though not exclusively, wrote with greater proficiency. A small group of students successfully negotiated generalised territories such as writing a persuasive text purely on subjects like 'taking opportunities', without even providing more specific threads of information. In many cases though, this broader generalised approach ran out of substance. Undoubtedly this year, students were more acquainted with the topics of their choice, and could 'flesh out' arguments with plausible supporting detail. Some students' field knowledge, such as damage to the Barrier Reef and the need for its preservation, was truly remarkable.
- In most cases, students in Years 7 & 9 showed competence with the persuasive form. Introductions provided more natural orientation for the reader, with quite passionate statements of position often presented. For example:
 - *Clean, fresh and pure. This was what the air of the world used to be like. Now it has been tainted, riddled with large amounts of carbon dioxide and fumes from man-made products. The air is balancing on a fragile scale that has nearly been tipped. You need to care about the air.* (Year 9 student)

- As previously indicated, the body of texts tended to be more substantial and showed accurate use of credible information. The use of improbable data, quotation etc. was less evident than in 2015, the most recent Persuasive Writing test. Teachers should be wary of approaches to writing that suggest the inclusion of implausible data or dubious supporting evidence attributed to some 'invented' authority. Markers are trained to accept what is on the page at face value, but irrelevant or erroneous information does little to support a writer's point of view, particularly at the higher end of the writing spectrum.
- Though time in a demand writing task obviously affects the way in which student writing concludes, many responses included only a brief summation or re-statement of the text. Those students who, in conclusion, challenged the reader to fully consider the arguments presented produced highly effective closure to their writing, as the following extract demonstrates:
 - *In conclusion, it would be catastrophic to lose handwriting. In a way, it articulates who we are! Without it, we are blank and homogenous. It increases our finger strength, fine motor skills, is always at hand, and bolsters out creativity. More physical skill. More convenience. More creativity. Handwriting will always be a part of who we are.* (Year 7 student)
- There was a relative improvement in Writing test performance compared to 2016 (narrative genre) and 2015 (last persuasive genre tested.) Most notably, students in Years 7 & 9 performed strongly in the criteria of Audience and Ideas. The appropriateness of the prompt may have been a contributing factor here. However, there was some gain in other skills-related criteria, such as Spelling and Sentence Structure (Year 9). Field familiarity may have contributed to spelling improvement, and it appears that students are gaining a stronger grasp of the causal and conditional grammatical clause forms associated with the persuasive genre. There remains room for improvement in the criterion of Punctuation. The use of 'run-on' sentence forms, often associated with the use of 'splice commas' as breaks, is a significant factor. Much of this has to do with the shift from oral to written language modes. The formalities associated with writing, in test conditions and elsewhere, need constant attention in writing programs. Punctuation can easily become a casualty of contemporary communication forms if it is not dealt with through a rigorous and contextualised writing program, closely associated with reading good-quality published texts.

Sample script

Our world is a wonderfully diverse and multicultural place. The fact that so many individual, but undoubtedly connected, communities exist on such a small planet is truly extraordinary. However, many generations in the modern era have drifted far from their original cultures and languages. These languages hold much more meaning and life than anything else in the universe, and they must be preserved and continued forevermore. ~~My~~ Languages connect us with our cultures, and also provide many significant benefits.

Speech is often a great bridge between people within a multicultural community, but can also be a barrier. Individuals of the same background can often connect through their shared languages, and their relationships ultimately benefit. Organisations for ethnic groups and specific shops or businesses usually provide lots of speech-related activities or promotions. These actions provide a common ground for immigrants and people of similar backgrounds to come together and discuss their cultures.

On the other hand, the lack of such language skills results in a loss of culture. Subsequently, due to the gigantic part speech plays in the distribution and continuation of separate traditions, an overall decline in diversity is seen. By keeping and treasuring the original languages of one's culture, it can be ensured that we are all

DO NOT WRITE OUTSIDE THE BORDER

interconnected and our origins live on.

As globalisation continues on its dominating path, it is even more crucial to retain these languages. When studying and work opportunities arise in different countries, having prior knowledge about, or even being fluent in, another language is incredibly advantageous. More and more companies and occupations require communication with foreign countries nowadays, giving multi-lingual employees a benefit over others. Having these skills unlocks boundless opportunities, especially for those who speak both English and another language. With western influence seen all around the world today, being able to communicate to an English speaking country, as well as your origin country, can prove to be very helpful.

Furthermore, as a society that is increasingly in need of multicultural communication, languages must be cherished and held onto forever. In order to prevent cultures from disappearing and benefit growing globalization - don't waste it! Use and appreciate the linguistic skills you already have and make the right choice to continue them.

Commentary on sample script

- This excellent persuasive text explores the links between culture, communication and language. At first glance, the reader may think the text is predominantly an exposition on these subjects, but in fact, the writer gradually and carefully mounts the case for the retention of 'second' languages, culminating in the topic statement in the final paragraph, ...*don't waste it!*
- At the higher levels, Year 9 students begin to reflect on ideas and themes that extend beyond their personal experience. In this text, the writer explores topics of local and international significance, effortlessly transitioning between the personal and local (... *shops or businesses usually provide lots of speech-related activities or promotions*) to the global and abstract (*As globalisation continues on its dominating path, it is even more crucial to retain these languages*). In fact, it is the quality, breadth and relevance of ideas presented that distinguish this text from the norm.
- Structurally, all textual elements worked in a coordinated and deliberate fashion as the argument was built. The issue of loss of cultural identity due to the pressure to drift away from 'first' languages was outlined in the introductory paragraph, together with a clear position statement regarding the need to preserve such languages. The body of the text raises the notion of the assimilation into new cultural experiences for 'second' language speakers, together with the potential damage this may cause to the traditional cultures of migrants etc. The advantages of multilingualism, presented as another means of cementing 'first' languages, were also provided in a substantial body paragraph. The final paragraph reminded the reader of the territory that had been covered, with language choices indicating a more personal tone; ...*languages must be cherished, ...don't waste it, ...use and appreciate*.
- As indicated, the text is highly cohesive. The choice of text connectives and conjunctions strongly contributed to this, together with lexical chains that effectively linked the stages of the text. A number of the text connectives and themes had a highly 'adult' tone (*The fact that..., On the other hand, Subsequently, With Western influence seen..., Furthermore* etc.).
- The vocabulary was well-suited to the overall flavour of this text, a sophisticated, intelligent defence of ethnic speech and language. Nominalisation (*distribution, continuation, globalisation, communication* etc.) added authority. The writer's presentation was made more powerful by the use of germane adjectival or adverbial groups associations such as *wonderfully diverse, undoubtedly connected, truly extraordinary, gigantic part, dominating path, boundless opportunities* etc.
- Similar to other aspects of the text, the skills areas of spelling, punctuation, paragraphing and sentence structure were almost flawless — a truly remarkable example of a demand writing task.

Language conventions

Spelling

Results and item descriptions

- The percentage columns give the facility rate (percentage correct). These results are based on provisional data.

Item	Answer	Qld%	Aust%	Description
Proof-reading — Error identified				
1	microscope	93.17	93.3	Correctly spells a three-syllable word based on the Greek root micro-.
2	spectator	77.26	78.13	Correctly spells a three-syllable word with the ending -or.
3	saucepan	60.74	64.27	Correctly spells a two-syllable compound word with the vowel digraph -au-.
4	novelties	69.22	70.51	Correctly spells a three-syllable plural word requiring a final -y to -ie- change.
5	preferable	68.84	70.35	Correctly spells a multisyllable word with an elided syllable.
6	extremely	61.66	61.92	Correctly spells a three-syllable word with the suffix -ly.
7	observance	73.78	74.44	Correctly spells a three-syllable word with the suffix -ance requiring an -e drop.
8	indigenous	54.61	53.43	Correctly spells a multisyllable word with a schwa sound.
9	sanctuary	55.84	57.38	Correctly spells a multisyllable word with the ending -ary.
10	discipline	31.72	33.99	Correctly spells a three-syllable word with the consonant digraph -sc-.
11	invertebrate	26.08	30.94	Correctly spells a multisyllable technical word based on Latin roots.
12	herbivorous	22.64	24.59	Correctly spells a multisyllable word with an unstressed syllable.
Proofreading — Error not identified				
13	investment	70.71	74.49	Identifies an error, then correctly spells a three-syllable nominalisation.
14	monopoly	66.51	66.77	Identifies an error, then correctly spells a multisyllable word with Greek roots.
15	cooperate	64.07	66.63	Identifies an error, then correctly spells a multisyllable word with the prefix co- and the base word beginning with -o-.

16	suspicious	49.71	51.25	Identifies an error, then correctly spells a three-syllable word with an -ious ending.
17	initiation	37.19	40.24	Identifies an error, then correctly spells a multisyllable word with -ti-.
18	kayak	27.97	31.11	Identifies an error, then correctly spells a two-syllable word with an uncommon letter pattern.
19	haphazard	24.92	26.31	Identifies an error, then correctly spells a three-syllable word with an unaccented final syllable.
20	camouflage	17.57	17.2	Identifies an error, then correctly spells a three-syllable word with an uncommon letter pattern.
21	intrigue	20.13	21.72	Identifies an error, then correctly spells a two-syllable word with the ending -gue.
22	fluorescent	7.58	10.17	Identifies an error, then correctly spells a three-syllable word with an uncommon letter pattern.
23	miscellaneous	14.75	15.92	Identifies an error, then correctly spells a multisyllable word with a schwa sound.
24	plateau	8.6	10.36	Identifies an error, then correctly spells a two-syllable word with the uncommon letter pattern -eau.
25	resuscitated	10.33	10.9	Identifies an error, then correctly spells a multisyllable word with a schwa sound.

About the test

- The 2017 Year 9 test involved the following spelling features:
 - Schwa vowel ('uh'): 'Schwa' is a neutral vowel sound. Its spelling cannot be 'sounded out'. Knowing how to spell words with the schwa involves knowing:
 - the spelling of prefixes and suffixes, e.g. micro- (*microscope*), mono- (*monopoly*), -ment (*investment*), -or (*spectator*), -ous (*herbivorous*), -ance (*observance*), -ary (*sanctuary*)
 - vowel alternation patterns in affixed words, e.g. gene to *indigenous*, vertebral to *invertebrate*, disciple to *discipline*, miscellany to *miscellaneous*, cite to *resuscitated*, herbivore to *herbivorous*, prefer to *preferable*
 - the visual look of a stock of mature vocabulary words, e.g. *haphazard*, *camouflage*.
 - **Soft s:** The soft s sound was tested with the digraph sc (*discipline*, *resuscitated*, *miscellaneous* *fluorescent*) and with c alone (*saucepan*).
 - **'Esh' consonant ('sh'):** The 'sh' sound, spelled c and t, was tested in *suspicious* and *initiation*.
 - **Long and diphthong vowels** were tested in *extremely*, *intrigue*, *plateau* and *saucepan*.
 - **Affixes and inflections** were tested in *cooperate* (prefix com- assimilated as co-), *extremely* (suffix -ly added to a word ending in e), *sanctuary* (suffix -ary), *novelties* (plural inflection of a noun ending in y); *haphazard* (an adjective unrelated to the past tense inflection -ed), *herbivorous* (an adjective distinct from the plural noun herbivores).

Performance

- Queensland students' facility was a little lower than the national average on most spelling words, especially *invertebrate* and *investment*. Queensland was a little higher on *indigenous*.
- Attempts by students to 'sound out' letters is often evident, e.g. 'disapline', 'invertibrate' and 'monopaly'. This is an especially ineffective strategy for spelling words that contain the schwa or neutral vowel. The same tendency to spell phonetically is seen in student misspellings of the words with an s sound spelled sc, e.g. 'disapline', 'resusetated' and 'flouresent'.
- Full reports on student performance and error patterns on each item are published in the SunLANDA program and as PDF documents at <https://www.qcaa.qld.edu.au/p-10/naplan/test-reporting-analysis/test-item-analysis>

Implications for teaching

- The test results show Year 9 students' inappropriate use of 'sounding out' strategies. They need to learn the other ways that English spelling represents words.
- In particular, they have to know that suffixes and inflections have grammatical effects. It is not possible, for example, to use a past tense inflection, -ed, on an adjective such as *haphazard*. Affixes have stable spellings themselves and they have regular spelling effects on base words.
- Students need to build a mature vocabulary. Word study belongs in all their subjects, not just English. Students should learn:

the pronunciation of advanced words and their look on the page

the meaning of their component morphemes (word parts)

other words built from the same stem.

- In subject English, spelling lessons should focus on regular patterns, not on random 'hard' words. For example, the suffix -ous belongs with other suffixes that form adjectives, such as -y, -able, -acious, -ic, -al, -ish, and -est. From another angle, -ous words can be divided into those with a 'sh' sound, e.g. *suspicious*, and those without, e.g. *indigenous*. Exceptions, rarities and oddballs should be noted as well as the general patterns.
- Proofreading skills should be taught as an authentic writing skill. This will also help students read test questions carefully.

QCAA resource

- Teaching implications for each item are published in the item analysis documents available through the SunLANDA program or as PDF documents at <https://www.qcaa.qld.edu.au/p-10/naplan/test-reporting-analysis/test-item-analysis>

Grammar and punctuation

Results and item descriptions

- The percentage columns give the facility rate (percentage correct). These results are based on provisional data.

Item	Answer	Qld%	Aust %	Description
26	B	94.62	94.59	Identifies the correct tense of an irregular verb in a complex sentence.
27	C	88.96	89.46	Identifies a simple sentence requiring a question mark.
28	D	80.31	80.83	Identifies a word that cohesively links two parts of a compound sentence (pronoun reference).
29	C	89.16	89.38	Identifies correct use of commas for an embedded clause.
30	C	77.72	77.84	Identifies a sentence that correctly embeds a subordinate clause inside a noun phrase.
31	A	86.79	88.32	Identifies the correct use of an exclamation mark to end a simple sentence.
32	B	39.11	40.4	Identifies the correct connective to link two sentences.
33	A	54.54	58.04	Identifies two correct past tense verbs to complete a compound sentence.
34	B	70.51	72.43	Identifies the correct use of list commas in a sentence with prepositional phrases and embedded clauses.
35	B	68.74	70.85	Identifies a lexical cohesion error in a series of linked sentences.
36	B	58.82	61.09	Identifies an error in colon use.
37	011010 01 *	38.14	35.88	Identifies main and subordinate clauses in complex sentences.
38	A	58.2	56.51	Identifies the correct use of brackets in a simple sentence.
39	C	53.79	51.26	Identifies a compound sentence.
40	C	39.83	41.64	Identifies a sentence without a parallel construction error.
41	D	42.36	42.01	Identifies a word introducing an adverbial clause in a complex sentence.
42	D	63.96	65.82	Identifies that a verb and preposition correctly complete a sentence.
43	B	45.73	44.85	Identifies the sentence using a specified noun group as the grammatical subject.
44	A	35.47	39.27	Identifies the correct use of the apostrophes of contraction and possession.
45	D	58.39	59.89	Identifies the sentence which coherently combines

				information from three separate sentences.
46	D	41.92	44.3	Identifies two complex punctuation errors in a sentence.
47	A	42.07	26.12	Identifies the sentence with the highest modality.
48	C	29.7	29.01	Identifies the correct passive transformation of an active sentence.
49	D	5.62	5.49	Identifies a preposition in a complex sentence.
50	BD	47.59	48.53	Identifies two subordinate clauses that can be embedded to add detail about the subject of a sentence.

-
- * Answers in sequence: subordinate, main, main, subordinate

About the test

- The 2017 test covered similar skills to previous years of NAPLAN testing. In recent years, there has been an increase in the inclusion of metalinguistic terms, particularly in item stems/questions, and this knowledge or lack thereof impacts on student performance on a number of items in the NAPLAN grammar and punctuation component of the Language conventions test.

Performance

- The Queensland Year 9 students performed comparably with the national cohort on this component of the Language conventions test. Although they usually performed a little below, Queensland students exceeded national facility rates slightly on Items 37 (identifying main and subordinate clauses) and 39 (compound sentences). However, Queensland students outperformed the national mean by a very large 16% on Item 47 (modality). It may be that the inclusion of the concept of modality in Queensland work programs focusing on National Curriculum concepts has contributed to this unusual differential in performance.

Implications for teaching

- The teaching and assessing of grammar and punctuation should be:

developmental — covering increasingly mature skills

timely — taught when students need to learn

systematic — covering the features relevant to the levels of communication, from the whole- text level to the sentence level and down to groups of words.

- As indicated earlier, there remains a demand on students (and teachers) to be familiar with the metalanguage associated with grammar and punctuation. Many items use the linguistic label in the question/stem, e.g. *In which sentence is your new pup the **subject of the main clause**?* (43). *Which sentence is a **compound** sentence?* (39). In fact, 44% of items included some grammatical or punctuation terminology. Students unfamiliar with this terminology would have difficulty answering items of this type. Possibly the most abstract use of terminology was found in Item 48, which asked to change a sentence from 'active' to 'passive' voice. Only about one third of students were able to correctly answer this item, a nationwide characteristic.
- It needs reiterating how students also need an awareness of how grammar functions in different circumstances. Item 49, for instance, asked: *Which word in this sentence is a **preposition**?* Knowledge of the term *preposition* was clearly required, but students who could recognise the **function** being performed by the word in each of the options would have been in a

stronger position to answer successfully. Though the distractors *to, before and over* could sometimes act as prepositions in other contexts, in this item *with* was the only word that introduced a phrase.

- At a testwiseness level, students appeared to show a little more ‘endurance’ than in previous years with the lengthier punctuation items (Items 34 and 44), which required a close scan of options that bore great similarity in appearance, at first glance.
- The NAPLAN Language conventions test provides one just one ‘cut’ of language use. To improve literacy skills in grammar and punctuation, it is important to select reading materials appropriately, being careful to include texts that are challenging and sometimes divergent in form. The conventions of language are ideally best taught within appropriate contexts, through micro-lessons on very specific (and often problematic) language elements. The structure of the Australian Curriculum should ensure that knowledge and understanding of grammatical concepts and punctuation conventions are acquired in a systematic fashion. As in all learning, some basic language conventions (identifying parts of speech, clause structure, verb tense etc.) will need revisiting. Often, this is best achieved through students’ own writing, where more appropriate language choices can be brought to students’ attention.
- By Year 9, however, students also need to be aware of more sophisticated concepts such as modality (Item 47), parallel construction (Item 40), and passive voice (Item 48). A comprehensive language program at Year 9 should address these types of language forms.

QCAA resources

- Please refer to SunLANDA, which is available to schools via the School Portal on the QCAA website through the school BIC and password. The SunLANDA program displays the school’s results but also links to detailed analysis of every item on the NAPLAN test. The analyses include Australian Curriculum links, language resource texts and other QCAA materials. The item analysis is also available collected into PDF format on the NAPLAN pages of the QCAA website.
- Books by Beverley Derewianka and Sally Humphrey suggest ways of teaching that can often apply to older students. (Published by Primary English Teaching Association Australia.)

Reading

Results and item descriptions

- The percentage columns give the facility rate (percentage correct). These results are based on provisional data.

Item	Answer	Qld %	Aust %	Description
<i>Triathlon</i>				
1	D	99.04	99.28	Locates directly stated information in a simple information text.
2	C	96.47	96.72	Locates directly stated information in a simple information text.
3	A	97.76	97.95	Links directly stated information in a simple information text.
4	B	91.81	92.74	Identifies the purpose of a section of a simple information text.
5	B	95.53	95.95	Locates directly stated information in a table in a simple information text.
<i>Hunting</i>				
6	D	88.24	85.79	Identifies the reason for a character's actions in a fictional recount.
7	C	95.31	96.06	Interprets directly stated information in a fictional recount.
8	B	93.05	93.72	Interprets how a character is portrayed in a fictional recount.
9	D	93.28	94.44	Links directly stated information across sentences in a fictional recount.
10	B	49.85	50.99	Interprets the meaning of vocabulary in context in a fictional recount.
11	C	74.17	74.29	Identifies a character's role in a fictional recount.
<i>Sport bridges nations</i>				
12	C	80.95	82.43	Identifies the main idea of a persuasive text.
13	D	70.59	74.37	Locates directly stated information in a persuasive text.
14	B	84.86	87.32	Identifies the purpose of an example in a persuasive text.
15	A	49.84	56	Identifies the main argument of a persuasive text.
16	A	49.65	49.05	Identifies the style of writing in a persuasive text.
<i>Goblin sharks</i>				

17	C	71.6	72.43	Identifies the purpose of a photograph in an article.
18	B	70.01	69.98	Identifies the use of imagery in an article.
19	A	64.74	64.44	Interprets the meaning of vocabulary from context in an article.
20	ADE	67.38	68.69	Identifies the use of modal language in an article.
21	D	58.91	60.5	Interprets the meaning of a phrase from context in an article.
22	C	39.08	41.51	Links the meaning of a literary quote to information from an article.
23	B	33.76	33.33	Identifies the purpose of comparison in an article.
<i>Star struck</i>				
24	C	70.7	70.76	Identifies a central theme of a detailed first-person narrative.
25	C	68.38	66.76	Analyses the effect of an introductory sentence in a detailed first-person narrative.
26	B	75.03	77.11	Interprets a pronoun reference across paragraphs in a detailed first-person narrative.
27	D	64.28	67.07	Interprets the meaning of vocabulary in context in a detailed first-person narrative.
28	D	43.99	45.24	Interprets the meaning of figurative language from context in a detailed first-person narrative.
29	A	50.57	52.92	Analyses the effect of figurative language in a detailed first-person narrative.
<i>Seeing stars</i>				
30	D	47.03	46.98	Identifies the use of a metaphor in a detailed information text.
31	B	75.29	76.55	Interprets the meaning of vocabulary from context in a detailed information text.
32	A	59.29	61.3	Analyses the author's perspective implicit in a sentence from a detailed information text.
33	BF	41.54	44.84	Interprets directly stated information in a detailed information text.
34	5;2;4;1;3	17.47	19.49	Analyses the flow of an argument in a detailed information text.
<i>Star struck and Seeing stars</i>				
35	D	62.26	65.93	Applies a character's perspective to a scenario across two texts on a similar theme.
36	CD	33.97	36.45	Identifies similar information across two texts on a similar theme.
<i>Should students have a job while they are studying?</i>				
37	B	63.27	63.6	Interprets the meaning of a phrase from context in a

				discussion.
38	A	26.42	25.18	Analyses the use of a persuasive device in a discussion.
39	D	52.47	54.3	Identifies an author's perspective in a discussion.
40	C	47.34	49.81	Analyses the use of a persuasive device in a discussion.
41	A	63.15	68.85	Interprets the main argument in a paragraph from a discussion.
42	C	25.8	28.04	Identifies the purpose of introductory paragraphs in a discussion.
43	B	16.16	17.02	Identifies the tone of a discussion.
<i>The sword of Damocles</i>				
44	B	56.88	58.82	Interprets the meaning of vocabulary in context in a complex myth.
45	A	56.24	59.04	Analyses a character's motivations in a complex myth.
46	C	49.79	51.08	Interprets the meaning of a simile in context in a complex myth.
47	D	50.6	52.41	Interprets the reason for a character's actions in a complex myth.
48	A	48	50.39	Contrasts the meaning of a literary quote with a moral from a complex myth.
49	BDE	23.46	24.8	Identifies moral lessons in a complex myth.

About the test

- This year's Reading test consisted of 49 items based on eight reading magazine units spanning the genres of information, fictional recount, persuasion, first-person narrative and myth. There were no short-response items. However, this year's test included four items which required multiple responses (see Items 20, 33, 36 and 49). It is important to note that this type of item does not reward partial accuracy. As in previous years, there was also an item that required students to indicate how information is sequenced in a text (see Item 34).
- Teachers can view school-specific performance information through the QCAA's SunLANDA program. SunLANDA is available online through the School Portal on the QCAA home page. State schools can also access this content through OneSchool. SunLANDA displays the performance of classes, subgroups, and individuals within the school and compares the school's performance with that of the state and nation. Most importantly, hyperlinked to each item are the analyses and teaching ideas to help teachers and students with this type of question.

Performance

- 90.8% of Queensland students performed at or above the national minimum standard for reading, compared to a national average of 91.8%.
- As expected, the level of difficulty increased across the test, with early units having much higher facility rates than later units. Generally *Triathlon* and *Hunting* presented very few challenges for students. However, Item 10 proved to be an exception with a facility rate of 49.85%. The facility rate remained relatively high for the next unit *Sport bridges nations*, with the

exception of the last two items. In both instances, students were required to focus on the author's intent, by identifying the author's position and the style of the article. The next unit, *Goblin sharks*, required students to make more inferences and interpretations, with Items 22 and 23 proving the most demanding. For Item 22, students had to make intertextual links between an introduced quotation and the stimulus text. Item 23 asked students to consider again the author's intent. In this case, students were asked why comparison and contrast had been used in the text.

- The next two texts, *Star struck* and *Seeing stars*, dealt with similar subject matter. Item 34 from *Seeing stars* proved to be one of the most difficult items in the test with the second lowest facility rate (17.47%). The difficulty of this item was because students needed to sequence five arguments in the order in which they appear in the text. All five arguments had to be correctly sequenced for the response to be considered correct. Item 36 referred to both texts and asked the students to identify two topics that appear in both texts. As this is a simple literal recall question, the low facility rate (33.97%) might be due to the large number of options provided.
- Although *Should students have a job while they are studying?* seemed quite a simple text, some items proved a challenge for most students. Item 43 had the lowest facility rate (16.16%) of all the items. Students experienced difficulty choosing a suitable adverb that described both writers' styles. It is possible that students were not familiar with the word *candidly* (the key) and so they could not apply this concept. That the word *objectively* was the most popular response suggests that students mainly chose words with which they were familiar.
- With the exception of Item 44, the items on the unit *The sword of Damocles* often required students to make high-level inferences. This unit also included a multiple-response item (Item 49). Like other such items in this year's test, the facility rate for this item was low (23.46%).

Implications for teaching

- As a general note, all items involving purpose, main idea, theme or tone of the text in whole or part challenge students because they have to understand the whole of the text in order to answer the question. The big challenge for teachers is to get students to annotate texts in the classroom and discuss them in groups so that they can see how all the parts of the text contribute towards the meaning of the whole. This is the time to discuss the patterns in the text (e.g. cause and effect), identify connections between ideas in the text, the two or three main parts of the text and how the parts contribute to the overall meaning. All of this should occur before they begin a close study of the text. Students will handle the distractors in the items much better if they are clear about the subject matter and the purpose of the text before they proceed to the items.
- Teachers need to encourage students to read for pleasure and recreation to extend their knowledge of themselves and the world around them. Reading develops empathy for characters and people in difficult situations. Students also need to be able to participate confidently in a close study of a text, to check for fallacies and persuasive techniques, and to identify emotive language and literary techniques. World citizens need to be discerning and capable readers and confident speakers and writers about those texts.
- The complexity of the reading process is made visible when students discuss texts and how they arrive at their personal understanding of the text. Teachers are the facilitators of this process, not the leaders. Their focus should be on:

finding authentic texts which appeal to adolescent children

providing a range of genres and a range of texts from classic or traditional texts to texts with postmodern elements

promoting higher-order questioning of texts (both set texts for special study and unseen texts for close study)

reading aloud to students to promote reading for pleasure (sometimes at Year 9 this is forgotten)

developing an awareness of how the parts of the text combine to create a whole through both semantic (links between the ideas) and syntactic (grammatical links) cohesion

encouraging students to make inferences as they read (an informed guess backed by evidence or a statement about the unknown based on the known)

encouraging the link between reading and writing by asking students to regularly write analytical paragraphs about an aspect of what they have read (which includes a controlling central idea) in response to the question, e.g. Can this character be trusted? Is there a shift in tone in this text?

encouraging students to look deeper into a text by drawing on analytical skills, e.g. explore gaps and silences, consider writer bias, look at contradictions within the text, look for themes, hidden purposes and so on and reread the text from another perspective (e.g. a contemporary, feminist, eco-critical perspective)

encouraging adolescent boys to be active readers and make connections between the text and their own knowledge and experiences.

Numeracy

Results and item descriptions

- The numeracy strands are abbreviated as follows: *Number and algebra* (NA); *Measurement and geometry* (MG); *Statistics and probability* (SP). All items are worth one score point.
- The percentage columns give facility rates (percentage correct). These results are based on provisional data.

Item	Strand	Answer	Qld%	Aust%	Description
• Calculator-allowed items					
1	MG	B	89.48	89.98	Converts a time from the 24-hour system to the 12-hour system, using am/pm notation.
2	NA	B	68.73	68.77	Solves a simple rate problem in context, using technology.
3	SP	D	85.88	87.34	Interprets a two-way table to solve a problem.
4	SP	C	89.25	90.07	Describes probabilities using fractions, decimals and percentages.
5	NA	C	64.68	68.28	Subtracts fractions with related denominators in context.
6	NA	B	67.28	68.67	Calculates the total profit for different sales.
7	NA	F	73.24	72.37	Describes the rule to continue a multiplicative sequence.
8	MG	B	73.14	71.52	Determines the coordinates of a point after a translation on the Cartesian plane.
9	MG	C	84.2	84.33	Determines the front view of an isometric drawing made of cubes.
10	SP	C	47.23	52.75	Determines the probability of an event from past trials.
11	MG	400	63.2	63.82	Converts between common metric units of capacity to solve a problem in context.
12	NA	B	60.82	63.45	Identifies the correct representation of decimals on a number line.
13	MG	B	67.67	68.83	Converts metric units of length.
14	NA	D	64.91	65.8	Identifies the sketch of a linear graph using the coordinates of two points in context.
15	MG	80	57.65	57.8	Uses the angle properties of a quadrilateral to calculate the size of a missing angle.
16	MG	C	52.39	55.35	Uses the area of a rectangle and the length of one side to determine the length of the other side.
17	SP	B	66.95	69.01	Identifies a method for gathering information involving one numerical and one categorical

					variable.
18	NA	A	39.57	42.56	Rounds to the nearest hundredth.
19	SP	D	51.34	54.57	Interprets information from a column graph which does not start at zero.
20	NA	0.057	56.28	60.26	Represents the numerical form of a decimal that is given in context.
21	NA	A	57.49	60.42	Chooses equivalent expression to factorise a given algebraic expression.
22	NA	C	32.29	32.15	Determines the gradient of a line on the Cartesian plane.
23	MG	A	37.79	40.49	Calculates a partial perimeter in metres from dimensions provided in millimetres.
24	SP	7	34.86	36.36	Solves a problem with an 'and' condition using a Venn diagram.
25	MG	A	61.06	63.84	Calculates a scale factor that involves a change of units.
26	NA	20	21.41	25.34	Calculates the percent increase using technology.
27	MG	A	39.81	40.27	Identifies the image of an object after a reflection and a rotation.
28	MG	D	20.96	22.42	Converts from square centimetres to square millimetres.
29	NA	450	54.89	57.28	Interprets the graph of a linear equation to solve a problem.
30	NA	5.85	36.05	37.64	Solves a rate problem in context involving multiplying and dividing decimals by whole numbers.
31	MG	D	36.2	39.66	Uses a timetable and time duration to determine a departure time.
32	NA	E	25.95	28.99	Determines an algebraic expression for length given two variables.
33	NA	337.5	23.53	27.66	Calculates the simple interest earned.
34	SP	91.3	14.06	19.39	Determines a probability from collected data and expresses it as a percent.
35	NA	82	13.12	18.03	Solves a multi-step problem expressing one quantity as a percentage of another.
36	NA	10	19.27	23.08	Identifies a value of a denominator that satisfies an inequality expressed with fractions.
37	MG	2572.5	13.19	15.32	Calculates the area of a trapezium.
38	SP	AD	10.21	13.59	Interprets and compares data in two stem-and-leaf plots.
39	MG	7935	18.74	21.26	Calculates the volume of a triangular prism.

40	NA	32	12.13	15.09	Solves a problem using algebra involving percentage and ratio.
<ul style="list-style-type: none"> • • Non-calculator items 					
1	NA	E	71.63	75.65	Calculates the percentage of one quantity in relation to the whole.
2	NA	B	51.06	51.61	Expresses a 5-digit number in scientific notation.
3	NA	13	57.41	60.42	Solves a division word problem that involves interpreting the remainder.
4	NA	C	68.17	69.8	Uses a direct proportion relationship and ratio to solve a problem in context.
5	NA	2334.75	43.52	46.23	Subtracts decimals using mental and written strategies.
6	NA	C	38.33	38.89	Evaluates an expression using order of operations.
7	NA	50	22.17	25.92	Calculates fractions of quantities where the result is a whole number.
8	NA	288	12.49	16.02	Evaluates the sum of numbers expressed as powers of positive integers.

About the test

- The Numeracy test consisted of 48 items from three strands across two tests — a Calculator-allowed paper (CA) with 40 items and a Non-calculator paper (NC) with 8 items. Not all items in the Calculator-allowed paper required the use of a calculator. The distribution of the 48 items across the strands was:

26 Number and algebra

14 Measurement and geometry

8 Statistics and probability.

- All items in the Non-calculator paper were from the Number and algebra strand.
- Approximately 63% of items were multiple-choice, with the remaining 37% requiring students to construct their own answers. While the majority of students attempted to answer all questions, many students omitted the more challenging items towards the end of the Calculator-allowed paper. Most of these required a constructed response rather than selecting an answer from given options. These items are designed to differentiate student performance — to provide opportunities for higher performing students to demonstrate their ability to reason mathematically.
- The percentage of students providing no answer to constructed-response items in the test ranged from 2% to 20% (for the final item of the Calculator-allowed paper, i.e. Item 40). This item had many steps to be completed. It required students to interrogate several pieces of written information regarding the mass content of a cereal blend, translate this information into mathematical relationships, and form an equation (or an equivalent relationship) to be solved to determine the fat content in 200 grams of the cereal.

Performance

- Student results for Numeracy in Year 9 are reported as a single score.
- The percentage of students who correctly answered Calculator-allowed items ranged from 90% (Item 1) down to 10% (Item 38). Item 38 required students to interpret and compare two stem-and-leaf plots. Twenty-one of the 40 items were answered correctly by more than 50% of Queensland students.
- For the Non-calculator items, the percentage of students answering items correctly ranged from 72% (Item 1) down to 13% (Item 8). Item 8 required students to evaluate the sum of numbers expressed as powers of positive integers. Four out of the eight Non-calculator items were answered correctly by more than 50% of Queensland students.
- There were some significant differences between the facility rates (percentage of correct responses) of the national cohort of Year 9 students and those of Queensland students. Queensland students performed equal to or above the national cohort on three items in the Calculator-allowed paper (Items 7, 8 and 22). They were 4% or more below the national rate on 4 items (10, 33, 34 and 35). Two of these items were from the Number and algebra strand and two were from the Statistics and probability strand. The largest difference was 5.5% for Item 10, where students had to determine the probability of an event from the relative frequencies of past trials.
- On the Non-calculator paper, Queensland students performed below the national cohort on all eight items, however this differential was small. It was only in Item 1 where the difference of state/national performance was greater than 4%. Item 1 involved calculating the percentage of one quantity in relation to the whole.
- Regarding gender differences in Queensland students for either paper, male students performed better than female students on 60% of the Calculator-allowed items and males out-performed females on 75% of the Non-calculator items.
- In particular, Queensland male students out-performed female students on 24 of the 40 items in the Calculator-allowed paper. For nine of these items (2, 5, 10, 11, 12, 13, 18, 23 and 26) the difference was 5% or greater, with the most significant difference being 10% (for Items 11 and 12).
- In the Non-calculator paper, male students out-performed female students on six of the eight items, with a difference of 5% or greater on three items (1, 4 and 7), with Item 1 having the largest difference of 9%. However, female students out-performed male students by more than 5% on Item 5, which involved finding the difference (i.e. subtraction) between two amounts of money set in a context.

Implications for teaching

- Across the Year 9 Numeracy test, 13 items had facility rates of less than 30%. Most of these were in the latter parts of each paper which were the more difficult items in the test.
- Two of these items (36 in the CA paper and 8 in the NC paper) were purely mathematical, involving the interpretation and use of mathematical symbols and conventions. Item 36 involved a fractional inequality with an unknown in the denominator to be determined. Item 8 presented a sequence of numbers each expressed in index form where the students were required to add the first four terms together. Both of these items required a constructed response.
- Other difficult items were those presented as word problems that described real-world contexts often including diagrams or tables. Students had to interpret the presented information before determining the mathematical procedure(s) required to solve them. Many students found

word problems particularly challenging. It seems that reading, interpreting and deciding what to do may be part of the difficulty. Understanding relies on familiarity with mathematical and everyday language used in a mathematical context. Teachers should encourage the use of strategies such as:

reading the whole question more than once, the first time to get a general idea of what it is about, and subsequent readings to identify important information and what the question is asking

circling or underlining key information

sorting information into a more useful form by drawing a diagram or making a table or list.

- These strategies may also help students to identify the mathematics they already know or that they need to use to solve the problem. Teachers should also provide opportunities for students to solve problems from a range of both real-life and purely mathematical contexts.

- Multi-step problems also proved challenging, particularly where students needed to apply different mathematical understandings from either the same strand or across different strands, or across different representations (word, visual, symbolic). For example, challenging multi-step items included:

repeated use of percentage and discounts (CA Item 35)

comparisons of two graphical displays (CA, Item 38)

percentages, proportions and algebraic relationships (CA, Item 40)

repeated fractions of a quantity (NC, Item 7).

- Mathematics is sometimes taught as isolated number concepts. Teachers should consider combining mathematics from multiple strands. This will enable students to make connections between different areas of mathematics. Results also suggest that students may have had difficulty deciding on a strategy to solve problems and then checking the reasonableness of their answers. Problem solving should be taught in a range of situations, from simple to complex, and familiar to unfamiliar.

- Students' visual literacy influences their ability to make sense of the mathematical data presented with different representations — pictures, diagrams, tables and graphs. Approximately half the items across the two papers involved students reading and interpreting some form of visual display. A strategy to assist students with visual literacy would be to present students with a variety of diagram types to interpret the information presented. Even questions without visual stimulus may be conceptualised by drawing diagrams or using models.

- A number of items in the test involved calculations for which students should have been able to use formulas (e.g. simple interest calculation, perimeter, area of a trapezium, volume of prisms and area conversion). Providing a student with a formula or rule does not on its own help develop their understanding of a concept. Students need to be provided with opportunities to explore and understand the relationships. Some may benefit from the use of hands-on activities using concrete materials and models to explore relationships and help develop an understanding of why a formula is a general rule that works in all cases.

- Many CA items involved applications of percentages such as percentage increase, simple interest, probability, sales and discounts. Percentage as a concept continues to challenge students. They need to understand that a percentage is merely a representation of a fraction or part of a whole expressed in hundredths, showing a proportional relationship between two quantities. As percentages are used extensively in the retail and banking sectors, the use of contexts from everyday situations, e.g. discounts, interest rates, probabilities and population statistics, will enable students to see the relevance and usefulness of percentages. Students should also be able to recall the percentage equivalents of common fractions as an aid to

checking calculations and for estimation purposes. Teachers should not assume that students know how to perform percentage calculations with a calculator. Percentages on a calculator should be explicitly taught to students using both the percentage button if present and without a percentage button.

QCAA resources

- Please refer to SunLANDA Online for a detailed analysis of individual test items, including teaching ideas designed to assist with the development of the understanding and skills required by each item. SunLANDA Online is available to all schools on the School Portal link on the QCAA website. Additionally, SunLANDA Online materials are available to State schools through OneSchool.
- When looking at the data for any single test item, teachers can compare the grouped data for their class with that of the state or national cohort. This will indicate the level of difficulty that students experienced with that item. For some items, the differences between the national, state and class data may not be significant, but teachers may still investigate possible reasons for any performance issues of students on items that test basic concepts that are fundamental to numeracy development.