

NAPLAN

2016 State report: Year 7



For all Queensland schools

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Preface

The purpose of the National Assessment Program is to collect information that governments, education authorities and schools can use to determine whether Australian students are reaching important educational goals. As part of that program, the Literacy and Numeracy tests are valuable sources of information about literacy and numeracy learning that can be used to inform educational policy and current educational practice.

The National Assessment Program — Literacy and Numeracy (NAPLAN) tests were developed using the nationally agreed *Statements of Learning for English* and *Statements of Learning for Mathematics, 2005*. From 2016 however, the tests will 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 a student's ability to demonstrate the following skills:

- **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 to independently 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 independently reason mathematically.

This document reports the performance of Queensland students in Year 7 who sat the 2016 National Assessment Program — Literacy and Numeracy (NAPLAN) tests.

Who should use this report?

NAPLAN: State report will help teachers, principals and other school personnel understand, interpret and use the student performance information contained in the test reports. Class and school reports are supplied electronically on the secure section of the Queensland Curriculum and Assessment Authority (QCAA) website: <https://naplan.qcaa.qld.edu.au/naplan/pages/login.jsp>. 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.

Principals

Principals can use this document to help interpret their school reports and to provide information to the school community on aspects of the tests. The document provides information on how to access and interpret the online reports located on the QCAA's website.

Curriculum leaders, Heads of Department and Heads of Special Education Services

Queensland's performance on each of the Literacy and Numeracy strands is provided in this document. Curriculum leaders can use this information to interpret the class reports.

Classroom teachers

Classroom teachers can use information such as the item descriptors, state and national results

and the commentaries provided in this report to interpret their class reports. Teachers can compare the performance of their students on a particular item with Australian results. For example, 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. The results for such an item may provide information about the learning challenges associated with that concept but should not necessarily be cause for concern.

Parents/carers

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

Pre-service teachers

Pre-service teachers will find the information in the commentaries on overall student performance useful in gaining an understanding of what students know and can do in some areas of Literacy and Numeracy at Year 7.

Placing the tests in the assessment context

The NAPLAN tests are national instruments designed to contribute to a school's assessment program and to inform the teaching and learning cycle. It must be remembered, however, that the results from the 2016 NAPLAN tests represent only one aspect of a school's assessment program.

The results from a school's formal and informal assessment of students should be consistent with the NAPLAN test results. Principals and teachers should keep in mind that these were pencil-and-paper, point-in-time, timed tests. 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.

Marking and scoring the tests

Marking the tests

The tests are scored against nationally agreed marking guides. There are four guides, one for the writing task and one each for the open responses in reading, numeracy and spelling. These guides provide information on the acceptable forms of the correct answer.

For the Numeracy tests, students may provide a correct response in different forms. Professional officers review these results and decide how to score.

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, Writing, Reading and Numeracy tests are marked as either correct or incorrect.

Constructing scale scores

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.

To achieve this, raw scores are transferred to a common scale that reflects how difficult it was to achieve each score. 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 years of testing. This might mean, for example, that a raw score of 20 on the Year 3 Reading test is transformed to a scale score of 354. This will also represent the same achievement for a student with the same scale score in Year 5, and for a student with the same scale score for Reading in a previous year.

The single scale for all students in all year levels is centred on approximately 500. Scale scores also provide a basis for measuring and comparing students' abilities across years of schooling, for example, comparing a student's result in Year 3 in 2014 and Year 5 in 2016.

From 2017, the move toward a NAPLAN Online testing platform will commence, with the involvement of up to 115 Queensland schools in this first year of transition. Scaling processes involving both paper-based and online testing programs will continue to ensure comparability.

Using scale scores

The scale score can be used to compare the results of different students. 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.

The scales can be used to monitor the growth of groups of students over time. Principals and teachers should ensure that the compositions of the groups are the same. This enables the school to evaluate special programs that may have been put in place.

Understanding the data

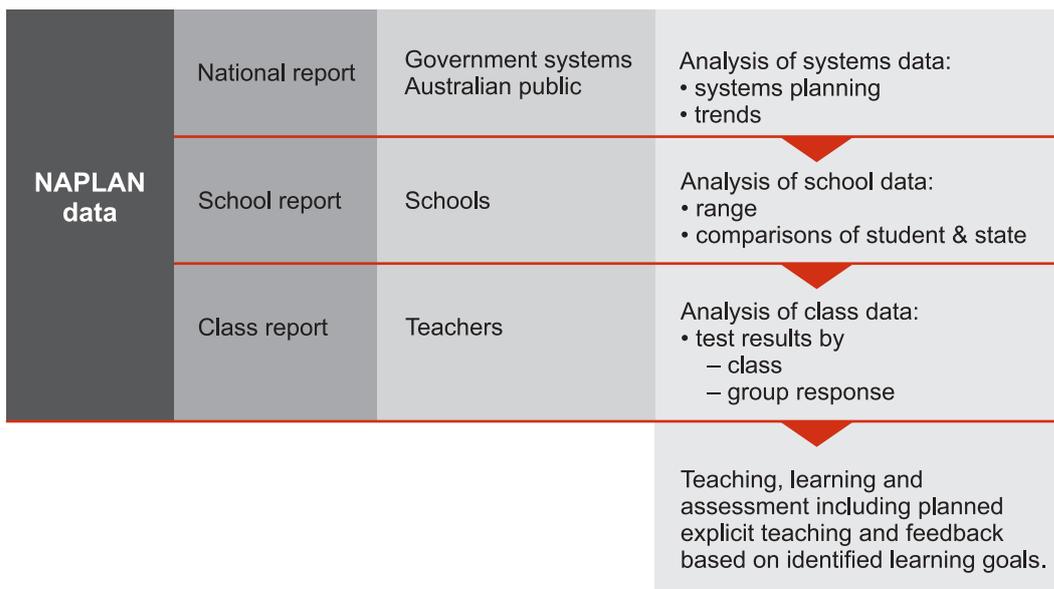
Which reports?

The *NAPLAN National Summary Report* and the NAPLAN National report provide nationally comparable data about student performance within the National Assessment Program. These reports provide states and territories with information about the achievement of their students in relation to their peers across the nation. Reports are available from the Australian Curriculum Assessment and Reporting Authority (ACARA) website.

This NAPLAN State report provides detailed information about student performance on each of the test items. It gives information about:

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

Together, these publications provide system-level information and are publicly available.



The NAPLAN School reports give information about a school's performance in each year level tested. 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 scale scores
- distribution of achievement bands
- school and state means
- participation of the group.

The shading shows the range of performance for the middle 60% of Queensland students together with the state mean, and positions a school's performance within the state.

The NAPLAN class reports show the performance of each student on every item. They show the items a student had correct and the errors made in each strand (with the exception of reading, where the answers are generally too long to record).

The report also gives the:

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

The NAPLAN school and class reports are available to schools from the QCAA secure website.

Using reports to improve teaching and learning

While the national and state reports provide the comparative data, it is the class reports that 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 in student learning.

An analysis of the distracters presented in multiple-choice items and the answers to the constructed-response items, other than those for reading, is available through the SunLANDA data analysis tool. This is available on the QCAA website and is designed to help schools with their analyses of class and school results. These results should be placed in a context with other school-based assessments.

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. Schools can:

- compare the facility rates (percentage correct) of items to see if their performance is consistent with the national and state results available in this document
- 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).
- form hypotheses about why students are making these errors, e.g.
 - How did students think about this aspect of 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 should then test these hypotheses to see whether they are valid or whether there is more to be thought about and investigated. Interpretation of these results allows teachers to 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.

Year 7 Writing

Writing prompt

YEAR 7 AND YEAR 9

The sign said

Write a narrative (story) about what happened to a character or characters after reading a sign.

You can use a sign on this page **OR** you can make up your own sign.

Think about:

- the characters and where they are
- the complication or the problem to be solved
- how the story will end.

Remember to:

- plan your story before you start
- choose your words carefully
- write in sentences
- pay attention to your spelling, punctuation and paragraphs
- check and edit your writing.



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Key messages

About the task

In 2016, the NAPLAN Writing test was based on the narrative genre. As was the case in 2015, 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, thirty 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 2016 prompt for Years 7 & 9 was titled *The sign said*. Students were asked, in the textual component of the prompt, to: *Write a narrative (story) about what happened to a character or characters after reading a sign*. Additional information was provided in the textual component of the prompt. This named the structural components, and further defined these elements, e.g. *the complication or the problem to be solved*. 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. Four photographic-like images were also provided to support the textual elements of the prompt.

The prompt was relatively open-ended, allowing students to base their writing on either one (or more) of the images provided, or composing their own narrative around a particular sign.

Markers for this Writing test were trained using the national narrative 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 ten 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 2016, referee marking continued, further ensuring marking reliability. There was also provision for appeal over individual Writing test scores, once test results were released. On appeal, a student's script is re-marked independently by two senior Writing test markers. An earlier version of the NAPLAN Narrative writing marking guide is available at www.nap.edu.au/NAPLAN/About_each_domain/Writing/index.html.

Performance

Anecdotal evidence from markers indicated that students in Years 7 and 9 were comfortable with the writing prompt, *The sign said*. A significant proportion of students elected to use one of the visual images provided, with *Wanted brave employee* and *Last fuel for 500 kilometres* proving to be the most common choices. Those students who diverged from the images provided on the prompt tended to write more challenging narratives, though this was not exclusively so. For instance, mysterious surroundings with warning signs proved effective frames for a number of storylines. One danger with this approach, however, was the predictability of the conclusions and climactic events.

The notion of narrative complication was better understood than in those scripts from Years 3 and 5 students, however the level of originality or degree of substance in the story plots was of concern. Characters, in general, were not well developed, and the need to layer the exposition of characters, even in such a relatively short text, was not fully realised. Many one-dimensional characters found themselves on road trips or in various forms of circus employment, and while the scenarios were plausible or credible, the responses or reactions by the characters involved lacked

genuine development. This would be a useful area for classroom activity — flesh out characters to show rather than tell the depth of their responses to situations, complications and encounters with other characters. Work on vocabulary development, use of figurative language and idiomatic expression in dialogue would support improvement in students' writing in the narrative genre.

Dialogue, in general, was not handled to any great effect. At a semantic level, it rarely provided a key to help unlock characters' emotions and motivations. Dialogue was often primarily used to progress the storyline, which is a legitimate if somewhat unsophisticated use of the device. At the basic skill level, conventions around punctuation of direct speech were often overlooked. The NAPLAN marking rubric deemed direct speech marks as 'other punctuation'. Therefore those students who elected to use dialogue but lacked understanding of the form tended to be precluded from higher punctuation scores, where control of the convention was required. Students need to be aware that the judicious use of verbs and adverbs in association with direct speech may also reveals a character's mood, intention and personality.

Students in Years 7 to 9 tended to respond with lengthier texts than in previous years where persuasive prompts were used. On the one hand, this allowed more capable writers to explore story, character and setting in more depth. On the other, some students misjudged timing, so that a number of scripts had an unfinished sense. This was costly in many of the criteria, including audience, text structure, ideas and cohesion.

The selection of the narrative genre for 2016 provided broad opportunities for students to explore sentence forms. More successful scripts adopted greater range in form through the use of fragments for effect, the embedding of clauses, and even simple sentence structures used selectively. Compound sentence forms, such as the *continuous and*, though more frequently used by students in the younger grades, still found their way into the scripts of older students, often demonstrating some lack of maturity in language control.

One aspect that was evident from the test was the need for students to *plan* effectively, even within the constraints of a demand writing task. In narrative, planning involves deciding on:

- the protagonist — problems, motivation, obstacles
- focus — characters, relationships, task, surprise
- how to solve the problem/surprise
- what unifying pattern/s will hold the text together — *cohesion* in the most powerful sense
- what will change by the conclusion for the character/s or for the reader?

Beyond the planning imperative, students need to adopt a clear *voice* which is individual, lively and authentic. Regular classroom writing should always be encouraged.

References

Australian Curriculum, Assessment and Reporting Authority 2013, *Australian Curriculum: English*, www.australiancurriculum.edu.au.

Queensland Curriculum and Assessment Authority 2013, *Hidden worlds*, www.qcaa.qld.edu.au/downloads/p_10/3579_wt_hidden_worlds.pdf.

Queensland Curriculum and Assessment Authority 2011, *Queensland's Literacy Test: A framework for describing spelling items*, www.qcaa.qld.edu.au/downloads/p_10/3579_describing_spell_items.pdf.

Writing task sample

Year 7 — The Birthday Surprise

The Birthday Surprise

Alex glanced out his dad's car window. It was his birthday and his parents had planned a surprise for him. His sister, Meagan, was sitting beside him, humming with excitement. He sighed. Alex hated not knowing things, and he was aching to find out what they were doing. Suddenly, a sign flashed past, so quickly that Alex could not be sure that it was there. It read 'Archerfield airfield'. Alex felt a thrill of fear, steadily growing as it gnawed at his stomach. The airfield could only mean one thing: heights. And he hated heights.

"Mum, are we going skydiving, by any chance?" he choked out, trying unsuccessfully to calm his breathing. He could see a distant grey patch, steadily getting closer.

"So you figured it out," she replied, smiling. His fears had been confirmed. Gripping the car handle tightly, he looked down at the floor. He tried again to relax, but every fibre of his body was tensed, awaiting the horror that was coming. The car squealed to a stop, rubbing against the worn concrete.

"All right, let's go!" Meagan said with unsurpassed excitement. Alex clambered out of the car, hyperventilating. The plane was already there, waiting for its last passengers. As he approached the flying vehicle, he felt nausea overwhelm him and he vomited onto the runway.

"Are you okay?" his mother asked worryingly.

"Fine," he spluttered, venting out the worst of the smell.

Fine? He was the opposite of fine. No amount of help would change that. As he climbed into the plane, he wished desperately that he was back home, relaxing.

The plane took off, the engines roaring. In no time at all, they were up to the right altitude, and were ready to jump. He had been strapped to one of the instructors, and had tightly closed his eyes. They jumped out ^{with} wind whistling all around them. . . .

After a few moments,

Alex slowly opened his eyes. There was an unexplainable beauty in front of him. ^{The land was all spread out beneath him, glittering from the long morning sun.} And as he drifted down, he realised that there had been nothing to fear at all. He smiled inwardly as their descent slowed to a stop, landing back on the concrete.

Year 7 Commentary — The birthday surprise

The story, *The birthday surprise*, affects the reader through the writer's precise choice of language as the full extent of the protagonist's phobia about heights is gradually revealed.

The writer carefully builds up then releases the tension by having an unrelenting focus on the protagonist.

The organisation of the story was coherent and controlled. The writer introduces a serious issue in the orientation. Alex has a fear of heights and this is compounded by the sign 'Archerfield airfield' because he suspects his birthday surprise might involve jumping out of an aeroplane. The body of the narrative shows how he deals with the situation when his suspicion is confirmed. The resolution is the epiphany that Alex experiences when he opens his eyes on the descent. This is very satisfying as it gives the title another level of meaning — the literal birthday surprise and the surprise he experiences as he unexpectedly conquers his fear of heights. The writing prompt of 'the sign' was integral to the story. The choice of the words 'Archerfield airport' was rather subtle as Alex had to deduce why the family were going there as it was part of his birthday 'surprise'.

The ideas are carefully crafted so that the theme of facing and overcoming one's fear is clear. The psychological subject of phobias was sensitively dealt with. The use of contrast was also effective as Alex's responses (*a thrill of fear ... gnawed at his stomach, trying unsuccessfully to calm his breathing, awaiting the horror, hyperventilating and felt nausea overwhelm him*) were in direct contrast to his sister's and mother's responses (*smiling, unsurpassed excitement*). Can Alex control his fear of heights in order to please his family? This was the struggle he had to face.

The character of Alex was successfully shown through convincing dialogue (stuttering to show his fear) and the associated verbs, e.g. *spluttered, choked*. Introspection was also used to show his escalating fear, e.g. *Alex hated not knowing things, Fine? He was the opposite of fine*. His reaction to his mother and sister also informed the reader about the type of person Alex was. He didn't reveal his suffering so as not to spoil the birthday surprise.

A sense of setting is strong throughout, e.g. *the worn concrete* of the tarmac suggests the hardness of the ground in contrast with the gentle descent, e.g. the landscape *spread out beneath him glittering in the morning sun, he drifted down*. The atmosphere is also built by sensory information such as the sense of hearing, e.g. *the engines roaring, wind whistling* and feeling, e.g. *every fibre of his body was tensed, fear ... gnawed at his stomach*. A satisfying sense of cohesion was achieved as Alex began on the *worn concrete* of the tarmac and returned to it at the end of the descent.

While there are some errors in the use of words, e.g. *flying vehicle, asked worryingly*, language choices do not sound forced and show an understanding of the symptoms of experiencing an uncontrolled fear. The writing is cohesive and well crafted. The writer demonstrated a command of the conventions of direct speech and used a range of well-developed sentences, e.g. the short simple sentence for focus: *It read 'Archerfield airfield'*, the use of a colon for emphasis: *The airfield could only mean one thing: heights* and the fragment to identify the most important problem in the narrative: *And he hated heights*.

The birthday surprise is a short but effective narrative which never loses focus on the single event of skydiving and after the epiphany, the protagonist Alex is a different character than he was at the beginning.

Year 7 Literacy

Language conventions

Spelling — Results and item descriptions

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

Proofreading — error identified

Item	Answer	Qld%	Aust%	Description
1	crunchy	90.6	90.5	Correctly spells a two-syllable word with the affricative <i>-ch</i> .
2	offering	91.3	91.8	Correctly spells a three-syllable word with the inflectional ending <i>-ing</i> requiring no change to the base word.
3	wrist	84.9	85.5	Correctly spells a one-syllable word with an initial silent <i>w</i> .
4	collar	69.5	70.5	Correctly spells a two-syllable word ending with <i>-ar</i> .
5	burrows	54.3	58.5	Correctly spells a two-syllable word with the diphthong digraph <i>-ow</i> .
6	envelope	52.0	55.2	Correctly spells a three-syllable word with the neutral vowel (schwa) represented by <i>-e</i> .
7	miserable	52.8	52.9	Correctly spells a three-syllable word with an elided syllable.
8	swollen	56.4	58.9	Correctly spells a two-syllable word with the double consonant <i>-ll</i> at the syllable juncture.
9	attracts	46.3	47.8	Correctly spells a two-syllable word ending in the plosive group <i>-cts</i> .
10	recruits	31.5	35.1	Correctly spells a two-syllable word with the long vowel digraph <i>-ui</i> .
11	brochures	30.5	31.6	Correctly spells a two-syllable word with the fricative <i>-ch</i> .
12	impatience	27.0	28.3	Correctly spells a three-syllable word with the ending <i>-ence</i> .
13	fiercely	11.5	12.8	Correctly spells a two-syllable word with the diphthong <i>-ier</i> .

Proofreading — error unidentified

Item	Answer	Qld%	Aust%	Description
14	detour	73.8	75.3	Identifies an error, then correctly spells a two-syllable word with the <i>r</i> -influenced diphthong digraph <i>-ou</i> .
15	graphic	76.0	74.9	Identifies an error, then correctly spells a two-syllable word with the final consonant <i>-c</i> .
16	symbols	60.0	62.0	Identifies an error, then correctly spells a two-syllable word with the short vowel represented by <i>-y</i> .
17	sketched	65.1	66.6	Identifies an error, then correctly spells a one-syllable word with the affricative trigraph <i>-tch</i> .

Item	Answer	Qld%	Aust%	Description
18	access	60.0	58.6	Identifies an error, then correctly spells a two-syllable word with double -cc representing two sounds at the syllable juncture.
19	passengers	52.6	54.7	Identifies an error, then correctly spells a three-syllable word with the schwa represented by -e.
20	futuristic	51.9	53.0	Identifies an error, then correctly spells a four-syllable word with the derivational suffix -istic requiring a change to the base word (drop -e).
21	obedience	41.5	41.9	Identifies an error, then correctly spells a four-syllable word ending with -ence.
22	determined	24.9	25.9	Identifies an error, then correctly spells a three-syllable word with the inflectional ending -d requiring no change to the base word.
23	exceeding	30.5	30.6	Identifies an error, then correctly spells a three-syllable word with -xc.
24	sponsored	17.7	20.0	Identifies an error, then correctly spells a two-syllable word with the schwa represented by -or.
25	exaggerated	22.8	22.5	Identifies an error, then correctly spells a five-syllable word with the double letter -gg at a syllable juncture.
26	businesslike	19.1	19.0	Identifies an error, then correctly spells a three-syllable word with -u sounding as the short vowel -i.
27	tolerant	7.9	9.3	Identifies an error, then correctly spells a three-syllable word with the single letter -l at a syllable juncture and the ending -ant.
28	amateur	8.8	11.0	Identifies an error, then correctly spells a three-syllable word with the schwa represented by -eur.
29	instantaneous	6.2	6.2	Identifies an error, then correctly spells a five-syllable word with the derivational suffix -aneous.
30	satellites	4.3	5.4	Identifies an error, then correctly spells a three-syllable word with the single letter -t at the first syllable juncture and the double letter -ll at the second.

Spelling — Key messages

Performance

For the most part, the Queensland facility rates were very close to the national results. Words such as *crunchy*, *graphic*, *access*, *exaggerated*, *businesslike* and *instantaneous* had equal or slightly higher results. However, the Queensland performance was 3 to 4% lower for the words *amateur*, *envelope*, *burrows* and *recruits*.

The first three items in the test had very high facility rates (proportion of correct answers) of over 85%: *crunchy*, *offering* and *wrist*. Students were also reasonably successful in spelling *collar*, a two-syllable word that ended with -ar. In the error-identified section of the test, Item 13, *fiercely*, had a very low facility rate of less than 12% as did the last four items in the error-unidentified section: *tolerant*, *amateur*, *instantaneous* and *satellites*, which, had facility rates of less than 10%. Here students tended to choose other words in the sentence and misspell them. Teachers need to check their class reports on SunLANDA to see what their students did.

Omission rates gradually increased throughout the test as the words became more challenging. The first four error identified items had an omission rate of only 1%. The other items in the error

identified section (Items 5 to 13) averaged an omission rate of 3%. This increased to an average of 9% in the error-identified section. The highest omission rate was for Item 29, *instantaneous* which had an omission rate of 13%.

Girls outperformed the boys in 25 of the 30 items, sometimes by as much as 13%: *collar*, *swollen* and *obedience*. Boys were as equally unsuccessful as girls in the last three items and slightly better in Item 24, *sponsored*. Interestingly, boys performed 15% better than the girls on Item 10, *recruits*, probably because of the more traditionally masculine military context of the word.

There were four common categories of error:

- errors creating plurals. The question of whether to double the consonant at the syllable juncture, as in Item 30, *satellites*, which required the students to identify the error, have a single letter *-t* at the first syllable juncture and a double letter *-l* at the second syllable juncture. Other examples of this common spelling error were: *swollen* (with double *-l* at the syllable juncture), *access* (with double *-cc* representing two sounds at the syllable juncture) and *exaggerated* (with double *-gg* at a syllable juncture — an especially difficult demand in a five-syllable word). Item 27, *tolerant*, was unusual in that it had two errors — students had to identify the errors then correctly spell a three-syllable word with a single *-l* at a syllable juncture and the ending *-ant*.
- errors in being able to spell a word correctly with a derivational suffix which changed a noun into an adjective. Item 29, *instantaneous*, required a spelling knowledge of the unusual suffix *-aneous* to be added to the base word *instant* (which remained unchanged). Item 20, *futuristic*, also required the derivational suffix *-istic*, requiring a change to the base word *future* (dropping the *-e*). Item 15, *graphic*, required a spelling knowledge of the suffix *-ic* which again changed the function of the base word *graph*, a noun, into an adjective, *graphic*.
- errors with derivational endings that changed an adjective into a noun. Two base words which required change when the suffix ending was added were Item 12, *impatience* and Item 21, *obedience*. In the first, the base word *patient* has had the prefix *-im* and the suffix *-ce* (drop the *-t*) added to create a noun—suffix ending (*patients* and *patience* are homophones and this created another level of difficulty for students). The consonant digraphs *-ti* or *-ci* in two-syllable words actually sound like a soft *-sh*, e.g. *station* or *relation*, and *ancient* or *sufficient* respectively. For the second item, *obedience*, students needed to be mindful of the base word *obedient* then drop the *-t* before adding *-ce* so that the word ended with *-ence*. Students more successfully managed to correct the two words with inflectional endings, *-ing* and *-d*, (*offering* and *determined*) by **not** making changes to the base words *offer* and *determine* when adding *-ing* and *-d* endings.
- errors involving identification of the silent consonants, consonant digraphs and consonant trigraphs. Students had mixed success with these. Students were very successful in placing the silent consonant *-w* in the one-syllable word *wrists*. There was a high facility rate for *crunchy* (affricative *-ch*, not *-tch*, is required) and *sketched* (affricative trigraph *-tch* is required in the one-syllable word). They were less successful with the fricative *-ch* in *brochures*.

The importance of derivational knowledge cannot be overemphasised as this relates to the third layer of meaning in the spelling system. The etymological origin of words often influences their pronunciation and spelling. This was the fifth type of error that was targeted in the test, such as in Item 6, where the schwa represented by *-e*, *envelope*, (from the Old French *enveloppe* meaning to wrap or cover), influences the sound of the word. Item 9, *attracts*, with the plosive group of consonants *-cts* might present difficulties to students who relied on sounding out the word and who were not familiar with that group of words based on the same Latin root, e.g. *detract*, *subtract* and *retract*. Students who recognised the Latin root in *attractus* (*-tractus* meaning to draw or to draw out) would have had a distinct advantage. Another example of this is Item 23, *exceeding*. This

word has its origins in the French *exceeder*, meaning to surpass and the Latin *excedere*, meaning to go beyond. This knowledge allows them to recognise the common *-xc* pattern in such words as *excited* and *exclaim*.

The sixth area targeted was understanding that vowels can have different sounds, and that *-y* can act as a vowel. There was the short vowel represented by *-y* in *symbols* and the long vowel digraph *-ui* in Item 10, *recruits*. Much harder for students was knowing that the letter *-u* in *businesslike* sounds like the short vowel *-i*. There were also several diphthongs or sliding vowels tested, e.g. *-ow* in Item 5, *burrows*, and *-ier* in Item 13, *fiercely*. There was the influence of the schwas or neutral vowels on sound, e.g. the middle *-e* in Item 19, *passengers* and the *-or* in Item 24, *sponsored*. Item 28, *amateur*, had a very low facility rate as it is a word of French origin. The original French pronunciation helps to account for the schwa which is represented by *-eur*. Item 7, *miserable*, has an elided syllable *-er* in the middle of the word.

Implications for teaching

Year 7 students should be developing their understanding of the orthographic system and be able to recognise when they need to draw on different layers of the system, which are:

- the sound/symbol and pronunciation layer
- the syllable/word function layer
- the meaning layer.

All layers were tested in the 2016 NAPLAN Spelling test.

Year 7 students need to build on their knowledge of the conventions for adding inflectional endings such as *-s*, *-es*, *-ed* and *-ing* to indicate tense or number. They need to progress from one- and two-syllable words to more difficult three-syllable words which do not always follow rules such as double the consonant or drop the *-e* before adding the inflectional ending. Students need to develop the habit of returning to the base word. One of the big challenges that students face when adding an inflectional ending which begins with a vowel, e.g. *-ed* or *-ing* is whether to double the final letter of the base word. If the word contains a single vowel followed by a single consonant, the final consonant is doubled, e.g. *skip* changes to *skipping* but *jump* (a word with a double consonant *-mp*) does not double the *-p*. The words in this year's test did not require change to the base word, e.g. *determined*, *exaggerated* and *offering*.

They will also need to learn the rules for adding suffixes to a base word and see repeated patterns of a particular type of spelling, e.g. adjectives that end with *-ient*, e.g. *obedient* and *impatient* need *-ce* added to the base word to make a noun and the *-t* dropped, thus the *-ience* is a common noun ending. Nouns that end with a vowel, e.g. *future*, require a change to the base word (drop the *-e*) before adding the adjective suffix *-istic*.

Students also need to be taught the influence of long vowels, short vowels, diphthongs (or sliding vowels) and schwas (or neutral vowels) on stressed and unstressed syllables in longer words. Consonant digraphs can have a range of sounds, e.g. *-ch* can sound soft like *-sh* in *machine* or a sound like *-ch* in *crunch*. The word *church* has an initial and terminal *-ch* which has slightly different sounds in the same word. The digraph *-ch* can also have a hard sound as in the words *charisma* and *Christmas*.

Students must continue to work on homophones. The common but troublesome ones like *its* and *it's*, *hear* and *here*, *there*, *their* and *they're* and *whether*, *wether* and *weather* can be learned with mnemonics and visual images. Students need to continue to work on the meaning layer of the spelling system. The error in Item 12, *impatients*, (correctly spelt *impatience*) may have tricked students because *patients* is a legitimate word. This demonstrates the need to focus on the meaning layer.

Etymology is the historical dimension of spelling. It reveals the links between words and ideas. As 70% of our words are from Latin or Greek roots, it is vital that students learn about these building blocks so that they can decode difficult words by recognising chunks of meaning inside words. When they know a word is from Old French, they will understand more easily why it is spelt the way it is, e.g. *amateur*, *lingerie*, *beautiful*, *ballet*, *biscuit*. Item 15, *detour*, comes from the Old French *detour* meaning a side track and the *r*-influenced diphthong diagraph *-ou* reflects the original French pronunciation as does the schwa in *-eur* in Item 28, *amateur*. Knowledge of Latin and Greek prefixes (e.g. *un-*, *super-*, *hyper-*, *auto-*, *bi-*, *epi-*) and suffixes (e.g. *-ant*, *-ent*, *-ance*, *-ence*, *-ion*, *-ment*, *-ation*, *-ly*) are very useful for understanding the grammatical function of a word as well as helping to reveal the meaning of a word.

Finally, an ongoing frustration for students is whether or not to double the consonant at a syllable juncture. When a word has more than one syllable, students need to think about open and closed syllables. Open syllables typically end with a long vowel sound, whereas closed syllables end with a consonant and have a short vowel sound. The doubled consonant at the syllable juncture changes the long vowel sound to a short vowel sound. For example, *Sumer* and *fury* have open syllable junctures with long *-u* vowel sounds whereas *summer* and *furry* have closed syllable junctures and a short *-u* vowel sound and an *r*-influenced short *-u* vowel sound. The word *exaggerated* (spelt *exaggerated* in the test) requires a doubling of the consonant *-gg* at the syllable juncture as it is an open syllable juncture with a long *-a* vowel sound.

Please refer to SunLANDA for detailed item analysis of the 2016 NAPLAN Language conventions test. This includes the most common errors made state-wide, which can be compared with the most common school errors. There are also teaching ideas designed to assist the development of the understanding and skills required for each item. SunLANDA is available to schools via the School Portal, or may be downloaded from the secure NAPLAN Portal accesses through the school BIC and Password. In addition, the item analysis is also available from the QCAA website, but does not include individual student performance through school or class reports.

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
31	B	88.9	89.6	Identifies the correct non-finite verb to complete a complex sentence.
32	C	83.4	83.4	Identifies the correct relative pronoun to introduce an adjectival clause.
33	B	89.5	90.3	Identifies an action verb in a complex sentence.
34	C	81.2	81.3	Selects the definite article to correctly specify a noun.
35	C	75.7	75.8	Identifies the correct use of paired commas in a complex sentence.
36	B	68.5	68.1	Identifies the need for a full stop to end a statement.
37	B	69.8	70.6	Selects the correct compound verb to complete a complex sentence.
38	C	67.6	69.7	Identifies a sentence which does not contain correct subject–verb agreement.
39	D	54.2	56.9	Identifies the sentence with the correct past tense irregular verb.
40	A	62.3	63.6	Identifies the correct use of commas to punctuate a list in a simple sentence.

Item	Answer	Qld%	Aust%	Description
41	A	55.7	57.2	Identifies the need for an apostrophe of contraction in a simple sentence.
42	B	60.7	63.7	Identifies the correct punctuation of two sentences.
43	D	60.4	61.3	Identifies the correct construction of a sentence with a non-finite clause.
44	C	44.3	46.3	Identifies the correct use of an indefinite article in a complex sentence.
45	A	65.9	64.8	Identifies the reference for a pronoun in a preceding sentence.
46	D	50.1	51.8	Identifies the correct use of parallel construction in a sentence.
47	C	51.4	50.8	Identifies the sentence containing an apostrophe of contraction.
48	A	43.1	42.3	Identifies the correct use of paired commas for embedded information.
49	C	48.6	46.9	Identifies the correct punctuation of direct speech with internal attribution.
50	D	43.8	43.9	Identifies the consistent use of tense with irregular verbs.
51	B	39.7	40.6	Identifies the main clause in a complex sentence.
52	C	40.7	41.1	Identifies a complex sentence containing an adjective.
53	A	45.2	43.3	Identifies a complex sentence containing an adverb.
54	C	34.0	35.4	Identifies the correct use of an adverb in a simple sentence.
55	D	36.7	37.3	Identifies reported speech in a complex sentence.
56	D	27.6	26.4	Identifies a word used as an adjective in a simple sentence.
57	C	23.1	23.5	Identifies the correct use of an apostrophe of possession in a simple sentence.
58	A	26.9	26.5	Identifies two words that can be contracted.

Grammar and punctuation — Key messages

The NAPLAN grammar and punctuation items test some sentence-level, and word-level skills. The test does not cover the curriculum. Instead, it tells how a large number of students perform on a small range of tasks. Standardised tests are able to suggest broad trends across a cohort. At the level of individual students, NAPLAN results can supplement classroom assessments.

For information about the full range of grammar knowledge Year 7 students should have, refer to the Australian Curriculum English. A more systematic and detailed scope and sequence of grammar topics for Year 3 students can also be found in *Grammar—Years 1 to 9* (QCAA 2007, https://www.qcaa.qld.edu.au/downloads/p_10/qcar_ss_english_grammar.pdf).

Notable in this year's test were questions about:

- parallel structure and consistent verb tense — Items 31, 33, 37, 38, 39, 46 and 50
- main and subordinate clauses — Items 35, 36 and 43
- sentence and clause boundaries — Items 34, 42 and 48
- the names and functions of the parts of speech — Items 33, 51, 52, 53, 54 and 56
- possession and contraction (apostrophe -s) — Items 41, 47, 57 and 58.

Performance

Like those in other year levels, the results of Queensland Year 7 students in grammar and punctuation are comparable with those of previous years.

The usual wide gap in performance in favour of females is present, although both sexes struggle with the hard items. This similarity of performance from year to year is partly an artefact of the test. The test constructors use trial data to limit the number of items that show large differences between boys and girls. Another test effect is that standardised tests require persistence and are less engaging for boys.

The facility rates were very low for the items on the test that involved possession and contraction, clause and sentence boundaries and metalanguage (grammar terminology).

As in all paper tests, the later items are hardest. Many lesser ability students must labour through items that they cannot answer and many fail to give any answer for these hard items. This may be lessened with the 'tailored' aspects of the NAPLAN Online test.

Implications for teaching

Grammar and punctuation is not a separate area but a component of reading and writing. Although NAPLAN tests grammar and punctuation at the level of single sentences, this is not the way to teach or assess these skills in the classroom. Rather, teach how a sentence fits into a wider text. The theme and purpose of the text in which a sentence appears governs choices about the sentence's pronouns, its verb tense, its order of components (subject, verb and object) and its elaborations.

There is scope, however, for short, focused lessons on the perennial conundrums of grammar that NAPLAN targets. For example, the dangling modifier (Item 43) is a common error that students can be shown how to spot and repair. It is one of the problems that can arise from an incomplete main clause or from inconsistency between the main and subordinate clauses.

The straightforward rule relating to the indefinite article (a/an) (see Item 33) would surely be well known if it was explicitly taught whenever a teacher discovers that a student does not know it. Yet students continue to flounder. Similarly, the rules relating to possession and contraction are simple and can be easily learned at an early stage of schooling in lessons on spelling and vocabulary. Correct use of apostrophes is basic literacy and, incidentally, it will improve a student's NAPLAN results on the Writing test and the grammar and punctuation test. Despite this, apostrophes continue to be a mystery to many students, perhaps because they are not taught.

But this test's focus on contractions does not mean that students should use contractions in their writing. On the contrary, students should learn how to turn contractions back into separate words, as this is more suitable for formal language contexts such as school English.

The low facility for the items that required students to know the names of parts of speech (e.g. adjective, adverb, contraction apostrophe) points to another area where explicit teaching is needed. Before teachers and students can talk about the more engaging challenges of constructing a rich and coherent text, they must be able to identify and name the building blocks of sentences and know how to use them.

Parallel structures (Items 37 and 46) are best studied as part of appreciating and learning from exemplary texts and how sentences can be crafted, balanced, given pace and rhythm and made to carry a step in a coherent set of steps leading through the text.

Testwiseness

To combat the problem of students facing many hard questions throughout the last part of the test, ensure students understand the more complicated formats and features of those more difficult items. Also, teach them techniques for maintaining persistence and being systematic.

Although NAPLAN is a test of written, standard, Australian English, it often uses example sentences that are from informal, spoken situations. Familiarity with diverse types of texts may help students to be more confident in viewing the NAPLAN items. Guide students through notable grammar and punctuation in a wide selection of reading materials, including texts that are challenging and divergent in form.

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.

A detailed scope and sequence of teaching grammar and punctuation can be found in *Grammar—Years 1 to 9* (QCAA 2007, https://www.qcaa.qld.edu.au/downloads/p_10/qcar_ss_english_grammar.pdf).

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>Penguins from outer space</i>				
1	B	95.4	95.1	Locates directly stated details in an information text.
2	D	89.8	89.3	Locates directly stated details in an information text.
3	A	78.2	76.4	Locates directly stated details in an information text.
4	A	85.2	85.1	Locates directly stated details in an information text.
5	D	92.8	92.7	Identifies the purpose of a graphic in an information text.
<i>Please do not feed native animals</i>				
6	D	81.2	80.7	Infers the meaning of a statement on a persuasive sign.
7	B	50.0	50.9	Identifies the purpose of a personal address to begin a persuasive sign.
8	A	35.3	31.4	Identifies an emotional appeal on a persuasive sign.
9	C	74.6	73.7	Interprets meaning on a persuasive sign.
10	D	68.2	71.2	Identifies the effect of information on a persuasive sign.
11	C	71.7	70.8	Identifies how an idea is represented visually by an image on a persuasive sign.
<i>Antarctica</i>				
12	A	90.0	90.4	Generalises from details in an information blog.
13	B	41.9	42.3	Infers what evidence supports a conclusion in an information blog.
14	D	70.7	72.1	Identifies the main purpose of a paragraph an information blog.
15	D	45.0	45.3	Identifies the meaning of a word in context in an information blog.
16	A	61.0	62.1	Identifies a fact in an information blog.
17	D	62.3	64.6	Identifies the purpose for the final sentence in an information blog.
<i>The stranger</i>				
18	C	70.9	70.6	Interprets the reason for a character's actions in a narrative extract.
19	B	38.6	39.9	Identifies cohesion through the use of word association in a narrative extract.
20	A	69.1	69.7	Interprets a character's actions in a narrative extract.
21	A	39.8	40.8	Interprets a character's actions in a narrative extract.
22	C	53.1	54.2	Infers a character trait in a narrative extract.
23	B	55.5	56.4	Interprets a literary description in a narrative extract.
24	D	75.6	76.2	Synthesises a narrative extract to identify the change in a character's reactions.

Item	Answer	Qld%	Aust%	Description
<i>Looking back</i>				
25	B	61.0	62.4	Identifies the device used at the beginning of a first-person narrative to engage readers.
26	C	59.7	59.7	Interprets a complex statement in a first-person narrative.
27	A	65.6	66.8	Interprets a word in context in a first-person narrative.
28	B	29.8	30.4	Interprets a character's reaction in a first-person narrative.
29	C	45.5	45.2	Synthesises a paragraph to identify its underlying purpose in a first-person narrative.
30	B	53.0	53.4	Identifies a character's reaction in a first-person narrative.
31	C	46.9	44.3	Identifies a metaphor as figurative language in a first-person narrative.
<i>Electric car world record smashed</i>				
32	A	71.5	71.3	Interprets the reason for the use of an emotive verb in a news article.
33	D	42.8	45.7	Interprets facts in a news article.
34	D	54.3	56.2	Interprets why the inclusion of a piece of information meets the purpose of a news article.
35	C	41.2	41.5	Locates a fact in a news article.
36	A	40.8	40.9	Identifies the purpose of direct quotations from a participant in a news article.
37	A	43.9	46.4	Interprets vocabulary in context in a news article.
38	B	35.5	36.1	Identifies the reason a person makes a statement in a news article.
<i>One man's trash ...</i>				
39	D	39.7	40.7	Identifies an economic construct in a persuasive text.
40	A	43.9	45.9	Identifies the argument in a paragraph of a persuasive text.
41	D	22.9	23.6	Infers a writer's point of view in a paragraph in a persuasive text.
42	A	15.2	15.1	Identifies a synonym for a word in context in a persuasive text.
43	C	45.4	47.1	Analyses how a word choice supports meaning in a persuasive text.
44	B	25.1	25.1	Interprets the use of a nominalisation as a cohesive device in a persuasive text.
<i>Antonio's mystery</i>				
45	A	31.2	31.7	Identifies background information about a character in a narrative.
46	B	57.6	59.3	Infers a character's attitude in a narrative as conveyed by their behaviour.
47	B	44.0	44.4	Assesses a character's feelings in a narrative conveyed by behaviour.
48	C	35.3	35.2	Interprets a character's action in a narrative.
49	C	43.3	43.5	Identifies a cohesive reference separated by several paragraphs in a narrative.
50	D	32.5	32.6	Identifies the purpose of an interpolated explanation in a narrative.

Key messages

As in 2015, the 2016 Year 7 Reading test consisted of 50 items based on eight reading magazine units spanning the genres of information (three texts, one of which was a blog and one a news article), persuasion (two texts, one of which was a sign) and imaginative-narrative (3 texts, one, a classic, which was difficult in language, one which was made difficult by gaps in the subject matter and one which was difficult in structure and subject matter). There were no short-response items for Year 7 this year.

Teachers can view school-specific performance information through the QCAA's SunLANDA program. SunLANDA is available on-line 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

It was pleasing to see that Queensland equalled the national mean for performance at or above the national minimum standard in reading (94.6%). There was an increasing level of difficulty across the reading test. The first four texts in the paper had a pattern of high to medium facility rates across most items. The high facility rate pattern of *Penguins from outer space* is typical of an entry-level text. The persuasive sign, *Please do not feed native animals*, had a mix of easy and difficult items. Students found Item 8 (which involved identifying an emotional appeal) very challenging. *Antarctica*, an information blog, had some unusual features for a contemporary genre. It too had a pattern of medium facility rates across most items. The first narrative on the test, *The stranger*, was done surprisingly well, considering that it was difficult in both subject matter and language. It was an extract from *The call of the wild* by Jack London, published in 1903. This continues the welcome trend of including extracts from published works which are widely accepted to be of literary merit. This practice has been common in the last five years in Year 9 and now seems to be moving to the earlier years.

The second half of the test progressed from a pattern of low facility rates for the narrative *Looking back* and the news article *Electric car world record smashed* to very low facility rates for the last two items, the persuasive text *One man's trash ...* and the third person narrative extract *Antonio's mystery*. The omission rate also increased from 1% generally to 2% for the last two texts. The last two items in *Antonio's mystery* had omission rates of 3%. Teachers need to remind students to turn to the last page to check for more items or to manage their time more effectively.

Students found the first-person narrative difficult as they had to make a lot of inferences to work out the missing parts of the narrative, such as what has happened, and does the character of Ollie understand what has happened to him or the extent of his injuries. The item that challenged students the most in *Looking back* was Item 28 which demanded that they interpret a character's reaction to hearing a sound and comprehending that it was his own name. Students who hadn't been able to infer that he had been unconscious would find this item difficult. Item 38 in *Electric car world record smashed* posed the most difficulty for students as they had to understand the overall purpose of the news article was to promote the electric car as a viable car for everyday use. Thus the item about attribution or the direct quote from Hayden Smith was to reinforce the car's commercial value. Students must be clear about the purpose of the parts of an information text as well as the main purpose of the text.

The persuasive text *One man's trash ...* had three items below the facility rate of 25%. These were Items 40, (inferring a writer's point of view), 41 (finding a synonym for a word used in context in a different way from the way it is usually used) and 44, which require students to realise that they had to refer backwards in the text, not forwards, to locate what *This marketing phenomenon* was

referring to. *Antonio's mystery* was difficult in subject matter and structure. Most students would have been unfamiliar with the apprenticeship system in medieval Italy, where Masters were all-powerful and apprentices were powerless. An understanding of the strict divisions in the class system would also have made Antonio's dilemma more horrible at the end of the text. The main challenge with the text was in structure. The protagonist is about to select a brush. This is followed by a long digression into past events and how he came to be painting this very important painting of the Duke's daughter. The narrative then returns to the present. The low facility rates for Items 48 and 49 show that many students did not re-read paragraphs one and two to remind themselves of the original situation.

Generally items that involved purpose, tone and character responses had lower facility rates than literal and lower inferential items. This is because they required higher-order reasoning and comprehension (that is, an understanding of the whole text as well as paying attention to subtle clues in the text which help them make the inferences).

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 item. 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 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 students 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 in order 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 confidently participate 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 share 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:

- modelling a love of books and reading
- finding authentic texts which appeal to pre-adolescent children
- providing a range of genres and a range of texts from classic or traditional texts to texts with post-modern 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 7 this is forgotten)
- talking about texts and authors respectfully and disagreeing with each other about their interpretations appropriately
- 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 e.g. Can this character be trusted? Is there a shift in tone in this text? Is the writer manipulating the reader unfairly?
- encouraging students to see connections between the text and their own knowledge and experience, between different things within the text and between this text and other texts in a similar genre or on similar subject matter
- encouraging boys to be active readers and make connections between the text and their own knowledge, experience and feelings

QCAA resources

QCAA 2015, *Beyond NAPLAN How to read challenging texts*, Beyond NAPLAN series, www.qcaa.qld.edu.au/downloads/p_10/naplan_read_challenging_texts.pdf.

Year 7 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. For the purpose of this report, the SUNLANDA strands of Number and Algebra, Functions and Patterns have been combined as Number and Algebra to reflect the Australian Curriculum strands.

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

Calculator-allowed paper

Item	Strand	Answer	Qld%	Aust%	Description
1	NA	D	79.3	80.4	Solves a multistep word problem involving multiplication and addition.
2	NA	A	82.6	83.2	Uses a ratio to solve a problem in context.
3	NA	C	76.7	75.4	Continues an additive sequence in a geometric context.
4	NA	15	82.5	82.4	Solves a word problem by dividing a three-digit number by a two-digit number.
5	MG	D	78.0	79.2	Determines the duration of an event using 12-hour time with a change from am to pm.
6	MG	C	78.4	76.3	Selects the correct measurement unit to measure the mass of a small item.
7	SP	C	62.6	61.5	Calculates probability as a fraction using a spinner.
8	NA	B	71.1	71.3	Adds and subtracts fractions and mixed numbers with related denominators.
9	SP	C	68.4	68.6	Interprets side-by-side column graph for categorical variables.
10	NA	D	71.6	72.6	Converts a fraction to a decimal using technology.
11	MG	B	62.5	62.3	Calculates the perimeter of a composite shape composed of pentagons.
12	NA	A	55.8	55.6	Reasons about properties of square numbers.
13	NA	C	58.0	58.9	Identifies the multiplicative rule used to create a sequence in context.
14	NA	45.25	65.1	65.9	Multiplies decimals to solve a problem.
15	NA	B	46.0	45.4	Estimates the cost of an item given the total and the cost of other items.
16	NA	A	51.2	49.6	Locates and represents positive and negative fractions and mixed numbers on a number line.
17	NA	D	56.7	57.9	Adds and multiplies large whole numbers to solve problems.
18	SP	B	43.8	44.9	Determines the probability of an event.
19	NA	C	45.2	47.1	Determines the best buy by calculating the least cost per gram of the item.

Item	Strand	Answer	Qld%	Aust%	Description
20	SP	20	28.5	31.4	Calculates the mean for a set of data in context.
21	NA	B	41.7	42.5	Solves a ratio problem that includes fractions and decimals.
22	MG	250	40.7	41.9	Converts from litres to millilitres.
23	NA	A	41.7	42.8	Determines the best buy by calculating the sale prices using fraction and percentage off the original prices.
24	MG	A	39.2	39.3	Describes the transformations used to move a shape on the Cartesian plane.
25	MG	A	27.4	28.3	Calculates the dimensions of a rectangular prism from its height and volume.
26	MG	135	37.1	37.8	Determines the size of an unknown angle using angles on a straight line.
27	NA	49	15.6	17.0	Recognises a pattern that involves addition of numbers with decimals in a context.
28	MG	D	26.4	29.1	Identifies corresponding angles.
29	NA	101	17.0	19.6	Uses reasoning and efficient strategies to solve a problem involving all four operations with whole numbers.
30	NA	12	10.1	12.2	Solves a ratio problem using multiplication.
31	MG	C	24.8	24.3	Describes the location of points on the Cartesian plane.
32	MG	6000	8.3	10.3	Calculates the area of a trapezium.

Non-calculator paper

Item	Strand	Answer	Qld%	Aust%	Description
1	MG	C	89.1	89.2	Uses compass directions to identify the correct cell on a map.
2	NA	B	85.9	86.5	Uses properties of even numbers to identify whether a sum will be odd or even.
3	NA	B	83.8	84.7	Calculates a fraction of a whole number where the answer is also a whole number.
4	SP	A	87.6	87.1	Identifies the number of animals in a data display, with a key of one to many.
5	MG	B	84.5	85.7	Converts a measurement of metres and centimetres to metres alone.
6	SP	80	65.9	67.4	Calculates the probability of a complementary event.
7	MG	A	71.7	72.0	Determines the coordinates of a point after a translation on the Cartesian plane.
8	SP	C	83.1	84.0	Identifies a dot plot given a data set in context.
9	SP	C	76.3	73.8	Interprets a graph to determine the total number of data points in a data set.
10	MG	D	64.4	66.5	Uses the properties of symmetrical shapes to determine the shape of an item screened along a line of symmetry.

Item	Strand	Answer	Qld%	Aust%	Description
11	NA	B	67.4	69.2	Identifies the third number in a pattern that results from subtracting 0.15 starting at 1.95.
12	MG	E	63.7	65.5	Calculates elapsed time from am to pm, by converting hours and parts of hours to minutes.
13	NA	3.1	60.4	62.6	Divides a decimal by a whole number in context.
14	NA	D	58.7	59.5	Solves a multistep problem involving a tally and multiplication.
15	NA	D	57.4	58.3	Selects an algebraic expression to describe a word problem.
16	SP	A	51.3	55.0	Identifies the outcome of an event where some cannot happen if the others happen.
17	NA	750	49.0	47.9	Multiplies a decimal by a power of 10.
18	MG	D	52.6	54.2	Determines the position of an image after a combination of a reflection and rotation.
19	NA	C	55.5	58.5	Selects the estimated cost of four items within a range.
20	NA	C	48.5	51.4	Compares two fractions with unlike denominators to say which is larger.
21	NA	A	66.7	67.4	Selects an algebraic expression to represent a word problem.
22	MG	B	41.2	40.4	Classifies triangles according to their angle properties.
23	NA	405	28.9	31.6	Extends a multiplicative pattern to give the next term in the sequence.
24	SP	6	39.1	39.2	Determines the difference in the observed and the expected frequency of an event.
25	NA	D	33.5	34.7	Divides a whole number by a fraction to solve a word problem.
26	MG	A	30.8	30.6	Calculates perimeters of rectangles from their side lengths.
27	NA	22.05	18.8	19.2	Calculates the sale price given the percentage off.
28	NA	36	26.7	26.6	Identifies a two-digit number that is a square number and is a multiple of two given numbers.
29	NA	16.6	21.3	23.1	Multiplies a decimal by a whole number.
30	MG	D	21.2	23.5	Compares the areas of rectangles after enlargements of both length and width.
31	NA	3	13.6	15.6	Solves a multistep problem involving prime numbers and factors.
32	MG	36	8.5	9.8	Determines the number of edges of a truncated cube.

Key messages

Performance

Student results for numeracy in Years 7 and 9 are reported as a single score. Where a student completes only one of the two numeracy tests, their numeracy score is an estimate of the score they may have received if they had completed both tests.

The numeracy tests consist of 64 items from three strands across two papers — a calculator-allowed (CA) and non-calculator (NC) — each with 32 items. Not all items on the calculator-allowed test required the use of a calculator. The distribution of the 64 items across the strands was as follows:

- 34 number and algebra
- 20 measurement and geometry
- 10 statistics and probability.

Approximately 70% of items were multiple-choice, with the remaining 30% requiring students to construct their answers. While the majority of students attempted to answer all items, a number omitted the more challenging items towards the end of the test. Many of these require a constructed response rather than selecting an answer from given options. These items are generally designed to differentiate student performance — to provide opportunities for higher performing students to demonstrate their ability to solve complex problems.

The percentage of students failing to answer constructed-response items on the non-calculator test ranged from 5 to 12%. The percentage was higher on the calculator-allowed test, where the range was from 7 to 17%. For the multiple-choice items, 3 to 4% of students failed to answer each item. Teachers need to ask students their reasons for omitting questions, as a non-response provides no information for teachers to improve on learning. For multiple-choice items, there should always be 100% completion.

This year 96% of Queensland Year 7 students scored at or above the national minimum standard. Across the two tests, there were 13 items where the Queensland facility rate was higher than the national rate with most of these in the number and algebra strand. These items tested a range of understandings such as: interpreting, calculating, presenting, reasoning and extrapolation.

The percentage of students who correctly answered items on the calculator-allowed test ranged from 82.6% to 8.3% (the final item on the test). This item required students to calculate the area of a trapezium. Sixteen of the 32 items were answered correctly by more than 50% of Queensland students, one more than the Australian cohort.

For the non-calculator test, the percentage of students answering items correctly ranged from 89.1% to 8.5% (on Item 32). This item required students to determine the number of edges of a truncated cube. Nineteen of the 32 items on this test were answered correctly by more than 50% of Queensland students. This is one less than the number across Australia.

There are some significant differences between the facility rates of the national cohort of Year 7 students and those of Queensland students. Queensland students performed equal to or above the national cohort on 7 items on the calculator-allowed test (3, 4, 11, 12, 15, 16, and 31).

On the non-calculator test, Queensland students performed above the national cohort on 6 test items; however, they were below the national rate by 3% or more on 2 items (16 and 19). The most concerning difference was 4.2% on Item 16 where students had to identify the outcome of an event where one cannot happen if the other happens.

When looking at the data for a 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 is not significant, but teachers may still investigate the reasons for the lower performance of students on items that test basic concepts which are fundamental to numeracy development.

Implications for teaching

Across the two Year 7 numeracy tests, 14 items had facility rates of less than 30%. Most of these were in the second half of the test paper and therefore among the most difficult items on the test. All of these 14 items were either presented as word problems which students had to decode before determining the mathematical operation required to solve them, or included a diagram.

A number of items in the test involved calculations for which students should have been able to use formulas (e.g. perimeter and area), rules or convert between units. Providing a student with a formula or rule does not help develop their understanding of a concept such as area. They need to be provided with opportunities to explore and understand the relationships. Some students may benefit from the use of hands on activities using concrete materials to explore these relationships.

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 subsequently to identify important information and what the question is asking
- circling or underlining clues
- sorting information into a useful form by drawing a diagram, or making a table or list.

These strategies would also help students to identify the mathematics they know or that they need to know to solve the problem.

Teachers should provide opportunities for students to solve problems from a range of real-life as well as purely mathematical contexts. Multistep problems 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 items included:

- ratio and fractions (CA, Item 21)
- fraction and percentage (CA, Item 23)
- data and multiplication (NC, Item 14).

Mathematics is sometimes taught as isolated 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.

To develop students' problem-solving abilities multiple opportunities for practice should occur. To assist students with the problem-solving process:

- teach students the word and language structure clues that provide information about what a question is asking

- discuss different strategies that can be used to solve a problem, e.g.
 - draw a diagram
 - guess and check
 - look for a pattern
 - write an equation
- model the conventions used in mathematics when writing expressions or equations
- give students word problems in different contexts and at different levels of complexity and ask them to identify the operations needed to solve these without performing the calculations
- provide students with arithmetical expressions and ask them to write word problems to match them
- use class discussions as an integral component of teaching problem-solving to provide opportunities for students to share and critique their strategies and for teachers to hear what students are thinking
- ensure students check their answers for reasonableness.

Across the two papers, 16 items relied on multiplicative thinking to obtain the answer. A sound knowledge of multiplication number facts, and the ability to extend these to larger numbers will support the development of problem-solving skills and save students valuable time as well as reducing the cognitive demand placed on them. This knowledge will also enable students to see the relationship between numbers.

Students' visual literacy influences their ability to make sense of the mathematical data presented with different representations — pictures, diagrams, tables, graphs, maps. Almost half the items across the two tests involved students reading and interpreting some form of diagram. A strategy to assist students with visual literacy would be to present students with a variety of diagram types to interpret the information in the diagram.

Please refer to SunLANDA 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 is available to all schools on the *School Portal* link on the QCAA website. Additionally, SunLANDA materials are available to State schools through *OneSchool*.

When looking at the data for a single test item, teachers can compare the grouped data for their class with that of the state or national cohort. This will enable them to judge the level of difficulty that their students experienced with that item. For some items, the differences between the national, state and class data may not be significant, but teachers may wish to investigate the reasons for the poor performance of students on items that assess simple content and skills fundamental to numeracy development.

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