

# NAPLAN

2016 State report: Year 5



*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 5 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 5.

# **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.

NAPLAN data	National report	Government systems Australian public	Analysis of systems data: <ul style="list-style-type: none"> <li>• systems planning</li> <li>• trends</li> </ul>
	School report	Schools	Analysis of school data: <ul style="list-style-type: none"> <li>• range</li> <li>• comparisons of student &amp; state</li> </ul>
	Class report	Teachers	Analysis of class data: <ul style="list-style-type: none"> <li>• test results by               <ul style="list-style-type: none"> <li>– class</li> <li>– group response</li> </ul> </li> </ul>
			Teaching, learning and assessment including planned explicit teaching and feedback based on identified learning goals.

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 5 Writing

## Writing prompt

YEAR 3 AND YEAR 5

Characters



Objects



# Imagine

Imagine if a character found an object that made something amazing happen.

Write a narrative (story) about the adventure.

You can use the characters and objects on this page **OR** you can make up your own.

**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 and 5 and another for Years 7 and 9. The test conditions and administration remained the same as in previous years. That is, 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 3 and 5 was titled *Imagine*. Students were asked, in the textual component of the prompt, to imagine if a ... *character found an object that made something amazing happen*. They were asked to ... *write a narrative (story) about the adventure*. 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*. Eight coloured images, four each of characters and objects, surrounded the textual element of the prompt.

The prompt was relatively open-ended, allowing students to base their writing on any combination of the images provided, or composing their own *adventure* around invented characters or objects.

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 teachers marked the NAPLAN Writing test in Queensland. 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. The NAPLAN Narrative writing marking guide is available at [www.nap.edu.au](http://www.nap.edu.au).

## Performance

Anecdotal evidence from markers indicated that students in Years 3 and 5 were comfortable with the writing prompt, *Imagine*. The eight images provided were widely adopted by students as the basis for their narratives. There was a significant trend for students to 'tour the stimulus', particularly at Year 3. This approach has occurred in earlier NAPLAN Writing test prompts where multiple images were displayed. Those students who diverged from the images provided on the prompt tended to write more challenging narratives.

As to be expected for these age levels, many students adopted fairly straightforward recounts of events, or where complications did exist, they were often not substantial; i.e. the complications did not drive the narrative forward with any great degree of potency. Many narratives centred around the magical, with fantastic situations involving genies, bizarre creatures, portals, transformations and re-transformations. Conclusions often involved reversion to the status quo in the characters' lives, with the amazing experience completed.

Students in Year 3, and to a lesser extent in Year 5, wrote in fairly straightforward sentence forms, with compound sentences common. The use of 'and' or 'and then' detracted from student performance. The NAPLAN Narrative Writing test rubric rewards complexity in sentence form. That is not to say that simple sentences cannot be used to effect, nor the judicious use of sentence fragments. However, students should be encouraged to explore the range of sentence structures. One advantage of including complex sentences with adverbial and adjectival clause structures is that it allows the writer to expand on story elements through more detailed description. Additionally, thematic positioning of an adverbial clause can shift the direction of a story naturally and authentically. An enhanced use of conjunctions and text connectives strengthen the cohesive structure of the narrative.

In terms of length of text, students in Years 3 and 5 tended to write more than the persuasive texts of previous years. Though this was encouraging, markers also would have liked to have seen tighter scripts, with greater precision in vocabulary. Students who were able to make use of a well-chosen adverb, adjective or nominal group could write with fewer words but with more demonstrable control of language.

The early development of a writer's voice, even in a demand writing task such as NAPLAN, should not be underestimated. Regular classroom writing should be encouraged to address this aspect of student writing in the early years and beyond.

## References

Australian Curriculum, Assessment and Reporting Authority 2013, *Australian Curriculum: English*, [www.australiancurriculum.edu.au](http://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](http://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](http://www.qcaa.qld.edu.au/downloads/p_10/3579_describing_spell_items.pdf).

## Writing task sample

Year 5 — *Imagine*

"Ready to hear a story, Jack?" said Grandpa. "OK" said Jack.

"In a land far, far away, was a long-nosed man" said Grandpa. "This particular long-nosed man was rowing in a small, mouldy old boat at twilight. As the man rowed a little further, the misty fog that was covering the water cleared enough for him to see a shadowy silhouette. The man cautiously rowed closer."

"As he approached this shadowy place, he saw a small cavern opening, big enough for him to make a tight squeeze through. He docked his horrid boat, and took out his lantern. He just managed to make it through that tremendously small hole.

As he took one minuscule step, he heard a ghastly 'crack'. As he shone his lantern down on the spot where he had stepped, a cold tremor ran straight through his

body. He looked down and saw something he would have never imagined that he would find... "What?" asked Jack. "Bones" said Grandpa. "No!" said Jack, aghast. "Human bones" said Grandpa. "Now, let's continue with our tale... The man felt a sensation he had never felt before. He realised he should have never come here. But he carried on anyway."

"As he walked further, he found a table, carved from rock. On the table there was a strangely shaped lamp, and a dusty, leather-bound book, with worn parchment pages. As he approached the book, it opened mysteriously by itself. As the man gazed at the pages, he saw an incantation. At the moment he had set eyes on that word, he was somewhat magically forced to say it. His brain screamed for him to not say it, but he still did. 'Kohomara', he said, loudly

and deadly. Behind him, he heard a clicking noise. The roof of the lamp opened, and he saw something brain-racking. A horrid monster came whizzing out, and ate him."

"He too, had suffered the terrible wrath of the monster, like all of the victims before him!" finished Grandpa.

"Wow" said Jack. "What a great tale!" "I know," said Grandpa, his eyes twinkling.

## Year 5 Commentary — *Imagine*

*Imagine* has charm, complexity and intertextual connections. There is a framing story in which Grandpa interacts with his grandson, Jack. This story-within-a-story frame is familiar from Rudyard Kipling's '*Just so stories*', which are told by the narrator to their 'best beloved' child. In *Imagine*, Jack will learn a thing or two about the art of storytelling from Grandpa. The intrusions of the frame characters into the story raise the tension and hint at their personalities and their relationship. Another intertextual comparison can be made with magical tales of lamps, books and monsters such as those in the '*Arabian Nights*'. The writer makes good use of these story elements suggested by the images on the test's stimulus page.

The story encourages the reader to reflect on how a '*great tale*', as Jack says, can capture a listener. Jack is initially blasé about Grandpa's offer, but when Grandpa pauses for effect, Jack prompts him excitedly. Finally, Jack says '*Wow*'. Grandpa's enigmatic response with '*his eyes twinkling*' shows he is satisfied that Jack has learned the power of story. Brief though it is, this 'frame story' is the most important. The characters are fresh and interesting while the tale itself is intentionally stereotyped.

The name of the long-nosed man may play on the idea of 'nosiness'. He realises that he *should never have come* to the scary cave yet he *carries on anyway*. He ignores the warning signs such as the *shadowy silhouette* [sic] lurking about a *shadowy place* and the *human bones* (which leave Jack *aghast*). The story has a brooding atmosphere. It creates the typical scenery and paraphernalia of folktale magic and mystery by skilful noun groups: *a strangely shaped lamp; an incantation; misty fog, a ghastly 'crack', and a dusty, leather-bound book, with worn parchment pages*. The adjectives are precise and well-matched to an exciting *tale*, e.g. *one miniscule step, a horrid monstrosity and a terrible wrath*. The use of words linked to sound gives immediacy, e.g. *a ghastly 'crack', his brain screamed, "Alohomora", he said loudly and clearly and whizzing out*. Particularly effective is *Behind him, he heard a clicking noise*. This small noise conveys that he is locked inside the tomb-like space.

The recount of events is skilfully broken by an authorial comment on how they affect the Long-nosed man. He feels a strange sensation and knows he should flee. The monster or genie in the lamp is gaining control over him and will destroy him. There is a possible pattern in the repetition of the adverb '*never*': *He saw something that he would have never imagined that he would find; felt a sensation he had never felt before; He realised he should have never come here*.

There are weaknesses in textual features. While there is good use of verb tense (e.g. *would never have*), there is too much repetition of a particular adverb clause structure, i.e. the plot nearly always advances with an '*as*' clause, in the same position in the sentence, e.g. *As he took, As he shone his lantern, As he walked further, As the man gazed*. The student needs to learn a greater variety of connective words and subordinate clauses.

Paragraphs are focused and effective but the rule about a new speaker needing a new paragraph is not observed. There are some punctuation errors associated with direct speech.

This writer correctly uses challenging words even when their spelling is not under control, as in the cases of *monstrosity* and *silhouette*. Another admirable thing about this writing is the writer's distinct '*voice*'. This student enjoys telling this ghastly tale as much as the character of Grandpa enjoys terrifying Jack.

# Year 5 Literacy

## 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
Proofreading — error identified				
1	teaspoon	90.0	91.1	Correctly spells a two-syllable compound word with a long vowel digraph <i>-ea</i> .
2	supermarket	86.0	88.2	Correctly spells a four-syllable word with the etymological element <i>super-</i> .
3	blanket	86.0	87.7	Correctly spells a two-syllable word with the plosive <i>-k</i> .
4	crunchy	84.5	85.1	Correctly spells a two-syllable word with the affricative <i>-ch</i> .
5	wrist	66.6	68.1	Correctly spells a one-syllable word with an initial silent <i>w-</i> .
6	departments	65.8	68.1	Correctly spells a three-syllable word with the medial consonant <i>-t</i> .
7	sparkling	57.9	60.0	Correctly spells a two-syllable present participle with the plosive <i>-k</i> .
8	straight	51.5	52.1	Correctly spells a one-syllable word with the diphthong pattern <i>-aigh</i> .
9	shelves	50.1	49.9	Correctly spells a one-syllable word with the inflectional ending <i>-es</i> requiring a change to the base word ( <i>f</i> to <i>v</i> ).
10	limbs	42.5	46.5	Correctly spells a one-syllable word with the terminal silent letter <i>-b</i> .
11	envelope	33.4	37.8	Correctly spells a three-syllable word with the schwa represented by <i>-e</i> .
12	probably	28.5	32.0	Correctly spells a three-syllable word with a medial schwa.
13	attracts	21.0	24.4	Correctly spells a two-syllable word ending in the plosive group <i>-cts</i> .
Proofreading — error not identified				
14	splashes	74.7	75.2	Identifies an error, then correctly spells a two-syllable word with the inflectional ending <i>-es</i> requiring no change to the base word.
15	detour	49.8	54.0	Identifies an error, then correctly spells a two-syllable word with the <i>r</i> -influenced diphthong digraph <i>-ou</i> .
16	machine	54.0	58.6	Identifies an error, then correctly spells a two-syllable word with a fricative <i>-ch</i> .
17	sketched	47.9	49.6	Identifies an error, then correctly spells a one-syllable word with the affricative trigraph <i>-tch</i> .
18	mouths	55.8	58.7	Identifies an error, then correctly spells a two-syllable word with the inflectional ending <i>-s</i> requiring no change to the base word.

Item	Answer	Qld%	Aust%	Description
19	untied	31.1	33.5	Identifies an error, then correctly spells a two-syllable word with the inflectional ending <i>-d</i> requiring no change to the base word.
20	passengers	31.9	36.3	Identifies an error, then correctly spells a three-syllable word with the schwa represented by <i>-e</i> .
21	surveyed	20.3	23.7	Identifies an error, then correctly spells a two-syllable word with the diphthong <i>-ey</i> .
22	obedience	19.4	21.5	Identifies an error, then correctly spells a four-syllable word ending with <i>-ence</i> .
23	calendar	16.1	18.7	Identifies an error, then correctly spells a three-syllable word with the ending <i>-ar</i> .
24	naturally	11.9	14.6	Identifies an error, then correctly spells a four-syllable adverb ending in <i>-ly</i> .
25	determined	11.4	13.1	Identifies an error, then correctly spells a three-syllable participle used as an adjective.

## Spelling — Key messages

### Performance

The spelling component of the *Year 5 Language conventions* test showed that most students in Year 5 are developing their knowledge of both the within-word stage of spelling development (how the sounds of words are coded and the letter patterns that represent those coded sounds) and the syllables and affixes stage of development (using different syllable patterns and knowing the conventions for adding affixes). This year there was a strong emphasis on:

- inflectional endings to indicate tense and number, e.g. *determined* (a past participle acting like an adjective), *splashes* (a present tense verb with a singular subject) and *mouths* (a plural noun requiring no change to the base word)
- consonant patterns creating different sounds in items such as *sketched* (trigraph *-tch*), *crunchy* (*ch* not the *trigraph -tch* is required) and *machine* (*ch* sounds like *sh*)

Of the 25 items, there was only one, *shelves*, which had a slightly better facility rate in Queensland than nationally.

There was a low omission rate for the error-identified spelling items, averaging between 1% and 2%. For error-unidentified items, this climbed much higher, from 4% to 9% for Item 25, *determined*. An analysis of gender differences shows that girls outperformed boys on 22 of the 25 items and girls were more than 10% higher for the words *sparkling*, *straight* and *mouths*. Male and female performances were equal on two of the items, *attract* and *machine* and boys outperformed girls by 1% in one item, *detour*, probably because it was linked to a context in which they were interested.

Queensland Year 5 students performed very well on the less-challenging items, with facility rates of over 75% for the words *teaspoon*, *supermarket*, *blanket*, *crunchy* and *splashes*. In contrast, there were low facility rates (25% to 49%) for *limbs*, *envelope*, *probably*, *sketched*, *untied* and *passengers*. There were also six items with facility rates of less than 25%. These were the last five items on the test (*surveyed*, *obedience*, *calendar*, *naturally* and *determined*) as well as Item 13, *attracts*, which was located in the error-identified section of the test.

Teachers should be aware that students may show their spelling ability more directly in a dictation test. For example, although only 11% of students spelled *naturally* correctly in the test, many more would spell it correctly in a dictation test — the NAPLAN item had the very effective four-syllable distractor, ‘competitor’.

There were seven different types of errors identified in the items:

- errors that required a prefix or suffix (three items) with varied impacts on the base word spelling. In Item 2, *supermarket*, students had to recognise the Latin prefix *super-* meaning above, over or beyond. So a supermarket is a place which exceeds the normal level of a ‘market’ because it has combined specialty shops in one location. The two word parts, *super* and *market* do not change their spelling simply because they have been merged into a single word. Sounding out the word is not the relevant way to spell it, as the student error patterns show (e.g. ‘suparmarket’).
- errors with inflectional endings added to a noun or verb to indicate tense or number (six items). Item 9, *shelves*, required the students to change the *f* in the base word shelf to *v* before adding *-es* to indicate plural number. Item 13, *attracts*, required the students to make the present tense second person form of attract by adding *-s* to the base word *attract*. Item 19, *untied*, required an *-e* dropping before adding the past tense inflection *-ed*.

Two items tested knowledge of homophones. Item 8, *straight*, appeared as *strait* (meaning a body of water between two land masses), had a diphthong or sliding vowel pattern of *-aigh*. Because homophones look right, they are often overlooked by students, especially when they occur in the error-unidentified section, such as the word *untied* which was written as *untide*. This shows that spelling requires students to think about meaning first. Many students lack the understanding of which meaning is associated with the particular spelling pattern.

- errors with silent consonants at the beginning or end of a word (two items). These were Item 5, *wrist*, (a silent *w* at the beginning of the one-syllable word) and Item 10, *limbs*, (a silent *-b* at the end of the word). In addition to silent consonants, many words have silent consonant digraphs such as *-ch*, *-gh*, *-kn*, and *-th*. In Item 6, *departments*, the medial consonant *-t* is not stressed in the same way as in the base word *depart*. Students need to move beyond the phonetic spelling of words and remind themselves of the spelling of the base word.
- errors involving the etymological origin of words, which often influences their pronunciation and spelling. Students had low facility rates for words that retain their base word spelling despite changing their pronunciation after adding or removing affixes. Item 11, *envelope*, (from the Old French *enveloppe* meaning to wrap or cover), has a schwa represented by *-e* that could be easily spelled by recalling other words based on ‘*envelope*’ such as ‘*enveloping*’.

Item 12, *probably*, also has a medial. It is derived from the Latin root *probabilis* meaning to prove. Students need to recall related words such as probate and probable. Item 23, *calendar*, has its origin in the Latin *calendarium* which was an account book recording debts which were due on the first day of the Roman month.

- errors with consonants represented by different letters. The hard */c/* sound is represented with letter *-k* in Item 7, *sparkling*, and Item 3, *blanket*. The digraph *-ch* represents a slightly different sound in Item 4, *crunchy*, than in Item 16, *machine*.
- errors with the representation of long vowels: long */e/* as *-ea* in Item 1, *teaspoon*; long */a/* as *-aigh* in Item 8, *straight* and *-ey* in Item 21, *surveyed*.

## Implications for teaching

Year 5 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. The layers involved in the orthographic system 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 5 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 multipart words involving different patterns of sound, stress and spelling. 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*.

They will also need 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 *-al* add *-ly* to the base word, e.g. *naturally*, *accidentally*, *generally*; adjectives that end with *-y* change the *-y* to *-i*, e.g. *happily*, *funnily*, *sunnily* and adjectives that end in *-e* drop the *-e* before adding *-ly*, e.g. *probably*, *advisably*.

Students also need to be taught the relation between long vowels, short vowels, diphthongs (or sliding vowels) and schwas (or neutral vowels) and the patterns of stressed and unstressed syllables in multi-component 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*, each having a slightly different sound 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* and *weather* can be learned with the help of mnemonics and visual images. Students need to continue to work on the meaning layer of the spelling system.

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 more easily understand why it is spelt the way it is, e.g. *lingerie*, *beautiful*, *ballet*. Item 15, *detour*, comes from the Old French *detour* meaning a side track and the *r*-influenced diphthong *-our* reflects the original French pronunciation. 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.

Please refer to SunLANDA for a detailed analysis of individual test items. This includes the most common errors made statewide, 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 all schools on the QCAA website.

## Grammar and punctuation — Results and item descriptions

The percentage columns give the proportion of correct answers (facility rate).

These results are based on provisional data.

Item	Answer	Qld%	Aust%	Description
26	B	98.5	98.4	Selects an adverb of place to modify the verb in a simple sentence.
27	B	91.4	91.5	Selects the correct modal verb to complete a simple sentence.
28	C	86.9	87.1	Selects the subject–verb contraction that best fits the meaning and structure of a complex sentence.
29	C	84.8	85.5	Identifies the verb which agrees in tense and number with the subject in a simple sentence.
30	B	85.1	85.8	Identifies an action verb in a complex sentence.
31	D	80.3	81.2	Identifies that a proper noun needs a capital letter.
32	D	77.9	77.9	Recognises the correct sequence of tenses in a complex sentence.
33	B	69.6	68.3	Identifies the need for a full stop to end a statement.
34	C	72.8	72.6	Selects an adverb to correctly complete a complex sentence.
35	B	66.8	67.3	Identifies the correct use of a reflexive pronoun in a complex sentence.
36	B	65.7	65.7	Recognises the correct compound subject to replace a plural pronoun in a simple sentence.
37	C	54.7	55.0	Selects a sentence with the correct subject–verb agreement.
38	A	56.6	57.1	Identifies the correct use of commas to punctuate a list in a simple sentence.
39	A	44.3	46.1	Identifies the need for an apostrophe of contraction in a simple sentence.
40	D	57.0	55.3	Identifies the correct use of commas to punctuate a list with compound elements in a simple sentence.
41	B	41.0	42.9	Identifies the sentence which combines information using an adjectival clause.
42	C	44.2	45.4	Identifies the correct use of an indefinite article in a complex sentence.
43	C	49.6	49.3	Identifies a redundant word that can be omitted from a sentence.
44	B	39.6	41.9	Identifies the sentence with the correct subject-verb contraction.
45	B	42.5	39.8	Identifies a verb in a simple sentence.
46	A	50.8	50.1	Identifies the reference for a pronoun in a preceding sentence.
47	C	41.0	39.8	Identifies the sentence containing an apostrophe of contraction.
48	D	28.5	28.0	Identifies reported speech in a complex sentence.
49	B	29.1	27.9	Recognises an adverb of time in a simple sentence.
50	D	25.4	23.5	Identifies a word used as an adjective in a simple sentence.
51	D	33.3	31.5	Identifies a compound sentence.

## Grammar and punctuation — Key messages

The NAPLAN grammar and punctuation items test sentence-level, clause-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 can however suggest broad trends across a cohort. At the level of individual students, NAPLAN results can supplement classroom assessments and guide teachers in what important points of grammar and punctuation need revisiting.

For information about the full range of grammar knowledge Year 3 students should have, refer to the Australian Curriculum English. A more systematic and detailed scope and sequence of grammar topics for Year 5 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](https://www.qcaa.qld.edu.au/downloads/p_10/qcar_ss_english_grammar.pdf)).

Notable in this year's test were questions about:

- **sentences:** recognising different types of sentences, e.g. statement, command, exclamation and question and sentence boundaries (Item 33) and the difference between reported speech and direct speech (Item 48)
- **clauses:** distinguishing between simple, compound and complex sentences (Items 51), identifying the correct sequence of time between the main and subordinate clause (Item 32) and identifying a meaningful relationship between the main and subordinate adjectival clause (Item 41)
- **words for meaning:** identifying redundancy (Item 43) and possessive case, especially the difference between possessive case and contractions (Item 47)
- **parts of speech:** identifying names (Items 30 *verb*, 45 *verb* and 50 *adjective*), recognising the function (Items 26 *adverb*, 34 *adverb*, 35 *reflexive pronoun*, 42 *indefinite article*, and 49 *adverb*) and matching a pronoun with its reference (Items 36 and 46)
- **verbs:** identifying the correct subject–verb agreement in tense and number (Items 29, 33, 34 and 46), sequence of tense across clauses (Item 32), contractions (Items 28, 38 and 47) and selecting a modal verb (Item 27)
- **punctuation:** for capitalising (Item 31), and for listing (Item 40)

### Performance

Like those in other year levels, the results of Queensland Year 5 students in grammar and punctuation were just below with the Australian mean scale and above other similar state jurisdictions such as Tasmania, South Australia, Australian Capital Territory and Victoria. The only states above the national mean scale were Western Australia and New South Wales.

**Gender differences:** The usual wide gap in performance in favour of females is present with the exception of one item (Item 45, *identifying a verb*) although all students struggled with the hard items. The two items with the greatest gender disparity were Item 43 (*identifying redundancy*, 10%) and Item 31 (*identifying the proper noun needing a capital letter*, 8%).

**Omission rates:** The omission rate was very good overall and very low for the first 17 items (0%–1%). It increased slightly (2%–4%) for the last item. Year 5 students seem to stay more engaged in the testing process and not lose heart as some other years did. This shows that testwiseness may be a factor and familiarity with the test structure may have reassured students to persevere.

**Facility rates:** Students performed very well on the first 6 items (over 80%) but only achieved facility rates of less than 50% on the last ten items. This indicates that focused teaching on the

following areas would be of benefit to students. The facility rates tended to be lowest for the items that involved parts of speech and being able to identify them from their name or function, e.g.

- *identifying indefinite article* Item 42: 45% facility rate
- *identifying a pronoun*: Item 46: 50% facility rate
- *identifying an adverb of time*: Item 49: 29% facility rate
- *identifying an adjective*: Item 50: 25% facility rate
- *identifying correct subject-verb agreement in a contraction*: Item 44: 39% facility rate and *when to use an apostrophe for a contraction and possessive case*: Item 47: 41% facility rate

Other areas with low facility rates were:

- *identifying simple, compound and complex sentences*: Item 51: 33% facility rate
- *identifying reported speech*: Item 48: 28% facility rate.

It is very clear from the above statistics that students need exposure to the metalanguage of grammar and punctuation, e.g. past tense, adjective, pronoun, noun, capital letter.

## 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 as this will influence choices about the sentence's pronouns, its verb tense, its order of components (subject, verb and object) and its elaborations. Most importantly, teach meaning, as some words are not always necessary (redundancy) and sometimes the arrangement of word groups in a sentences compromise meaning (misplaced or unattached phrases).

It is advised to revisit things that NAPLAN targets, e.g.

- **types of sentences**: Simple, compound and complex and the difference between the main clause and subordinate clauses within a compound or complex sentence.
- **verbs**: Tense, agreement with the subject in number and person, modality (the degree of obligation or frequency), the correct sequence of verb tenses across clauses, e.g. perfect tense to the past-perfect tense and contractions (both forming and breaking into component parts for more formal language). It is a great gift for a student to have the rules governing contractions and possession clear in the early years before this error becomes set as an incorrect pattern which they sometimes will carry right through schooling.
- **parts of speech**: Even in the early years, students need to learn the metalanguage of grammar and punctuation so that they can identify and understand why a sentence is ungrammatical, not just because it 'sounds wrong'. The low facility rates for the items that required students to know the names of parts of speech (e.g. adjective, adverb, verb, noun) as well as language features (e.g. reported speech, direct speech, contraction, apostrophe) point to an important 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.
- **irregular indefinite articles**: These do not conform to the rule of using *-an* before a word that starts with an vowel or *-h*. This can be seen with words beginning with *-h* and *-u*.
  - 'H' words sometimes require *-an*, e.g. *an hibiscus* and sometimes *-a*, e.g. *a house*
  - 'U' words that sound like *-uh* conform to the usual rule of changing the article *-a* to *-an*, e.g. *an unusual idea*, *an umbrella*. However words beginning with *-u* that sound like *-yoo* do not

follow the usual rule of -an before a word starting with a vowel, e.g. *a unicorn, a uniform, a unilateral decision*.

- **punctuation:** Students need direct teaching on when to use commas (not just to put one in if it sounds like a pause), e.g. how to use commas with listing (Items 38 and 40) and with direct speech.
- **capitalisation:** Many Year 5 students are still unsure of sentence boundaries and when to capitalise for a new sentence. The test indicates that students also struggled with capitalising common and proper nouns (Item 31).
- **the role of conjunctions in subordinate clauses:** Relative pronouns (e.g. *that, which, who, whose* and *whom*) and conjunctions express the logical relationship between two clauses (Item 41). Students need to learn that readers can locate action in time quite precisely by the words writers use, e.g.
  - subsequent action is shown by *since, then, after that, afterward, next, finally, as soon as*
  - prior action is shown by *at first, until, then, earlier, before, until*
  - concurrent action is shown by *whenever, as, while*
  - subsequent action may be signalled by *by and by, without delay*
  - prior action may be signalled by *prior to that, previously*
  - concurrent action may be signalled by *meanwhile, at the same time*.

Understanding the precision of these words will help students answer sequencing questions as well as give them the repertoire to improve their writing. Students also need to learn more effective ways of signalling relationships.

Many of the points above need to be taught and then revisited more than once. Students need practice in proofreading so that they are able to proofread their work and recognise errors in grammar, weaknesses in style or inappropriate grammar for a specific genre. It is also important to expose students gradually to exemplary texts and point out how a sentence can be crafted, balanced, given pace and rhythm and contribute to the tone or meaning of the whole text.

## Testwiseness

To combat the problem of students facing many hard questions throughout the last part of the test, it is important to ensure students understand the more complicated formats and features of those more difficult items. Students would also benefit from being taught 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](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>Brain freeze</i>				
1	D	83.2	82.8	Locates directly stated information in a simple information text.
2	B	94.3	94.1	Connects information across sentences in a simple information text.
3	A	84.1	83.7	Locates directly stated information in a simple information text.
4	A	81.3	80.5	Recognises the purpose of a simple information text.
<i>Bamboozled!</i>				
5	D	95.7	95.9	Locates a fact in an information text.
6	A	81.2	81.4	Interprets a detail in an information text.
7	B	93.8	93.7	Interprets a detail in an information text.
8	A	72.5	72.1	Locates a fact in an information text.
9	C	83.0	83.4	Interprets information to make an inference in an information text.
10	A	95.5	95.6	Locates a fact in an information text.
11	B	77.3	77.2	Identifies the main purpose of an information text.
<i>Library magician</i>				
12	C	68.0	65.8	Interprets a detail in a narrative.
13	C	71.3	69.5	Identifies a key idea in a narrative.
14	A	87.1	87.5	Interprets character in a narrative.
15	B	92.3	92.4	Interprets a detail in a narrative.
16	D	77.3	78.2	Analyses use of exclamation marks in a narrative.
17	D	52.6	53.2	Analyses figurative language in a narrative.
18	C	88.0	88.3	Interprets a character in a narrative.
19	B	76.2	77.4	Identifies onomatopoeia in a narrative.
<i>Please do not feed native animals</i>				
20	D	67.3	68.6	Infers the meaning of a statement on a persuasive sign.
21	B	33.0	34.2	Identifies the purpose of a personal address to begin a persuasive sign.
22	A	28.7	25.8	Identifies an emotional appeal on a persuasive sign.
23	C	60.1	59.2	Interprets meaning on a persuasive sign.
24	D	64.2	67.0	Identifies the effect of information on a persuasive sign.
25	C	54.7	54.1	Identifies how an idea is represented visually by an image on a persuasive sign.

Item	Answer	Qld%	Aust%	Description
<i>The stranger</i>				
26	C	61.2	60.7	Interprets the reason for a character's actions in a narrative extract.
27	B	27.8	28.5	Identifies cohesion through the use of word association in a narrative extract.
28	A	54.3	55.7	Interprets a character's actions in a narrative extract.
29	A	31.7	32.5	Interprets a character's actions in a narrative extract.
30	C	31.1	32.2	Infers a character trait in a narrative extract.
31	B	43.4	44.7	Interprets a literary description in a narrative extract.
32	D	58.2	59.1	Synthesises a narrative extract to identify the change in a character's reactions.
<i>Reviewing 'Curious children'</i>				
33	A	47.3	48.2	Interprets a writer's opinion in a book review.
34	B	48.2	47.7	Identifies the purpose of the statements at the end of a book review.
35	B	51.8	52.5	Identifies a shared belief between two book reviews.
36	B	38.5	40.7	Identifies a statement matching the point of view expressed in a book review.
37	WR	5.2	5.3	Interprets an evaluative comment by a reviewer in a book review.
38	D	30.2	30.6	Infers the purpose of a symbolic summary at the end of a book review.

## Key messages

In 2016 the Year 5 Reading test consisted of 38 items which were based on six reading magazine units spanning the genres of **information** — two texts, *Brain freeze* (the simplest) and *Bamboozled!* (with more complex information to inform and persuade); **persuasion** — a persuasive sign, *Please do not feed native animals*; **book review** — two reviews of the same novel, *Reviewing 'Curious children'*, with similarities and differences; and **imaginative narrative** — two texts (one being a classic with difficult language and subject matter). There was one very challenging short-response item for year 5 in the unit *Reviewing 'Curious children'* which had an omission rate of 11%.

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 93.4% of Queensland students performed at or above the national minimum standard, compared to 93.0% nationally. There was an increasing level of difficulty across the reading test. The first three texts in the paper had a pattern of a high to medium facility rates across most items. The high facility rate pattern of *Brain freeze* is typical of an entry-level text, with three of the four items being simple literal recall question types. Even though the text *Bamboozled!* had a mix of recall and inferential questions, the facility rates for most questions was

high because of the simple nature of the text. The first narrative text, *Library magician*, was handled very well by students even though the blurring of reality and fantasy might have confused some students. The item with the lowest facility rate was item 17, where students had to interpret figurative language.

The last three texts had patterns of low facility rates to very low for the last text, *Reviewing 'Curious children'*. Compounding this was the higher omission rate on all items in this unit (2% whereas the four previous units had a pattern of 1% omission rate). The persuasive sign, *Please do not feed native animals*, had a mix of textual and context-based inferential questions. Students found items 20 and 22 particularly difficult. Item 20 asked them to interpret the purpose of the sign — that the animals can take care of themselves so please don't feed them. This may have been because of the use of sophisticated techniques such as modality which had the effect of softening and disguising the intended criticism of those who do feed animals. Item 22 asked them to identify the statement *Please be a friend* as an emotional appeal which disguises a strong judgment of those who do. Reading tone and purpose are always very challenging for students.

The second narrative on the test, *The stranger*, was surprisingly well done, considering the fact it was difficult in subject matter and language. It was an extract from *The call of the wild* by Jack London and was published in 1903. Item 27, which had a very low facility rate, required students to identify cohesive threads in the text which operated through high-level vocabulary where the phrase *threat and overture of friendliness* in one sentence was matched to *menacing truce* in the next sentence. All the items were text-based or context-based inferential questions where they had to picture the action of a domesticated dog making repeated assertive but patient advances to a smaller unhealthier wolf that constantly retreated until Buck wore him down. Buck achieved his aim to escape to the wild in the company of wolves. This shows the importance of visualising a text as one reads in order to detect patterns in the narrative and to understand character motivation.

The last text was a very difficult text for this age group because of structure (two separate book reviews on the same book), subject matter (lots of confusion over who the people named were: Sattler, the author; Forsyth, the negative reviewer; and Saxby, the positive reviewer), and language, especially in the Forsyth review. This misunderstanding of the vocabulary used was really obvious in the short-response question, where not only did students have to understand the meaning of *identity crisis* (an adult concept), they also had to match this with the phrase *lack of commitment to the conventions of either genre*. More than half the students thought the reader rated the novel with the stars rather than the book reviewer, which seems to indicate that they are unfamiliar with this convention that reviewers use to visually rate novels (Item 38).

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

## Implications for teaching

This year as usual, Year 5 students demonstrated a high capacity to answer literal (recall and translation) type questions. Unfortunately, there were only nine questions of this type out of 38 on the paper, and of these, seven were in the first two units in the test. This demonstrates the importance of giving students strategies to help them make inferences as they read, i.e. to make statements about the unknown based on the known.

As a general note, all questions 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 read a variety of texts, annotate them in the classroom and discuss the ideas in the texts 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, contrast, comparison), identify connections between ideas in the text as well as 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 questions much better if they are clear about the subject matter and the purpose of the text **before** they proceed to the questions. The QCAA website provides teacher advice on specific strategies for annotating and discussing challenging texts with a focus on helping students make inferences.

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 draw attention to 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 becomes apparent when students discuss texts and share how they arrive at their personal understanding of the text. Students need to experience using extracts in which not everything in the text is clear (e.g. sometimes a character's motivation is not clear), and students should not panic if the subject matter is not completely accessible).

Teachers are the facilitators of this process of annotating and discussing texts. They are not the leaders. Teachers should focus on:

- modelling a love of books and reading
- finding authentic texts which appeal to children of that age
- 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
- talking about texts and authors respectfully and disagreeing with each other about their interpretations appropriately (*Where is your evidence for that?*)
- 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 (i.e. an informed guess backed by evidence from the text)
- 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. This will assume increasing importance as students approach secondary schooling
- encouraging students 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](http://www.qcaa.qld.edu.au/downloads/p_10/naplan_read_challenging_texts.pdf).

# Year 5 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 facility rates (percentage correct). These results are based on provisional data.

Item	Strand	Answer	Qld%	Aust%	Description
1	NA	B	91.6	92.5	Solves a money problem by multiplying and converting from cents to dollars.
2	SP	47	88.7	88.6	Counts tally marks in a table.
3	NA	B	89.6	90.5	Identifies a number greater than 324 but less than 342.
4	MG	D	88.7	88.8	Identifies the three-dimensional object that can be made from a net.
5	NA	15	84.6	84.7	Calculates the mass of an object on a balance scale using subtraction or addition.
6	NA	B	88.0	88.3	Represents the word form of a four-digit number.
7	NA	C	76.9	76.9	Selects a word problem which matches a given multiplication number sentence.
8	MG	C	80.1	80.2	Identifies the shape that can be divided into two squares.
9	NA	D	81.9	83.6	Solves an addition word problem involving simple two-digit numbers using partitioning.
10	MG	C	85.4	84.2	Uses compass directions to identify the correct cell on a map.
11	NA	B	82.0	82.2	Uses properties of even numbers to identify whether a sum will be odd or even.
12	SP	A	74.6	74.3	Identifies the number of animals in a data display, with a key of one to many.
13	MG	C	68.4	69.2	Classifies angles as less than, equal to, or greater than 90 degrees.
14	SP	C	71.1	70.9	Identifies the dot plot that correctly displays the given data.
15	MG	B	62.3	65.0	Uses subtraction to measure liquid volume in millilitres.
16	NA	A	65.4	68.7	Solves a word problem by adding three amounts of money and subtracting to calculate change.
17	MG	D	69.8	70.5	Uses the array structures to determine the square with the largest area shaded.
18	MG	D	63.7	65.7	Compares the masses of four objects using graphical displays of balance scales.

Item	Strand	Answer	Qld%	Aust%	Description
19	NA	D	64.7	66.0	Calculates how many dollars in a collection of twenty-cent coins.
20	SP	B	57.0	57.9	Chooses the most likely outcome on a spinner where each event is not equally likely.
21	MG	C	58.7	59.6	Calculates the perimeter of a composite shape based on squares.
22	SP	C	58.5	57.6	Interprets a graph to determine the total number of data points in a data set.
23	MG	D	54.4	56.7	Uses the properties of symmetrical shapes to determine the shape of an item screened along a line of symmetry.
24	NA	B	55.6	57.1	Identifies the third number in a pattern that results from subtracting 0.15 starting at 1.95.
25	MG	E	50.2	52.7	Calculates elapsed time from am to pm, by converting hours and parts of hours to minutes.
26	NA	D	53.7	53.9	Solves a word problem using clues about place value.
27	NA	A	51.6	52.1	Adds and subtracts unit fractions, with related denominators, to make a whole.
28	NA	A	47.1	47.8	Identifies an addition number sentence related to the given subtraction number sentence.
29	NA	C	57.0	55.8	Locates the fraction $\frac{1}{4}$ on a number line.
30	NA	D	35.5	36.8	Solves a multistep problem involving a tally and multiplication.
31	SP	A	40.4	44.1	Identifies the outcome of an event where some cannot happen if the others happen.
32	NA	A	36.8	40.4	Solves a problem using division and interprets remainder.
33	MG	A	40.5	41.4	Uses a graphical representation of a ruler to measure length in cm not starting at 0.
34	MG	D	38.2	39.3	Determines the position of an image after a combination of a reflection and rotation.
35	NA	405	15.3	18.2	Extends a multiplicative pattern to give the next term in the sequence.
36	NA	762	14.3	17.0	Determines the cost of an excursion from budget details.
37	NA	B	25.0	26.3	Identifies the decimal equivalent to a given fraction.
38	MG	A	18.0	19.3	Calculates perimeters of rectangles from their side lengths.
39	NA	22.05	3.7	5.5	Calculates the sale price given the percentage off.
40	NA	8	10.1	12.2	Applies proportional reasoning to a multiplication problem.

## Key messages

### Performance

The Year 5 numeracy test covers concepts and skills from across the strands. This year there were 21 number and algebra, 12 measurement and geometry and 5 statistics and probability items. Approximately 85% of the items were multiple-choice, with the remaining requiring students to construct their answers. The majority of students attempted to answer all items including the more difficult items at the end of the test.

This year 95% of Queensland Year 5 students scored at or above the national minimum standard. There were also several items where the Queensland facility rate was higher than the national rate with most of these in the statistics and probability strand. These items tested a range of understandings such as calculating, visualising and interpreting.

The number of Queensland students answering the items correctly ranged from 91.6% for the first item through 3.7% for Item 39. Over 70% of the items were answered correctly by more than 50% of students. The numeracy skills demonstrated by more than 80% of Year 5 students included:

- solving a money problem by multiplying and converting (number and algebra)
- counting tally marks (statistics and probability)
- identifying a number between two numbers (number and algebra)
- calculating mass (measurement and geometry)
- using compass directions (measurement and geometry).

These items were early in the paper, where the less challenging items are placed. The items became more challenging as students progressed through the test. Some of the more difficult items were answered correctly by less than 29% of Year 5 students. These more challenging items provide students with opportunities to apply their existing knowledge and skills in different contexts and are used to differentiate student performance. For example, Item 40 involves interpreting a word problem relating to the number of sheep in a paddock. It required comprehension of the problem, the selection of the applicable operation and visualisation to ascertain the number of black sheep.

Queensland students performed equal to or above the national cohort on 6 items — (Items 2, 10, 12, 14, 22 and 29). They were 3% or more below the national rate on 3 items (Items 16, 31 and 32). Common to these items is the interpretation of a word problem.

Surprisingly, Item 39, a seemingly straightforward two-step problem, was particularly challenging for students (a facility rate of 3.7%). This item required students to interpret a word problem to subtract a common percentage amount (10%) from a given price to find the sale price. Using visualisation with students with this type of item may assist in obtaining the correct answer.

### Implications for teaching

Teachers should include problem-solving into their mathematics lessons to assist students to become familiar with solving problems related to the mathematics they are learning at the time rather than dealing with problem-solving as a separate concept. Including problem-solving strategies into mathematics lessons routinely may help students link the language of problems to the mathematical thinking and reasoning required to solve them.

The items with the lowest facility rate (Items 39 and 40) required students to solve a word problem. Students found it challenging to identify the processes needed to solve problems. This is particularly evident in multistep problems with a high literacy demand. Students may need practice

in both identifying the key words in questions and using a range of effective problem-solving strategies. They also need to be able to check the reasonableness of their answers.

From a review of incorrect responses, it seems that many students may have answered only part of the given problem. Problem-solving involves starting with a plan or process and using a variety of methods — either learned or well-reasoned — in a logical manner to find a solution. One of the challenges in teaching problem-solving to young children is to ensure they understand the nature of the problem. Teachers can build students' skills in problem-solving by focusing on interpreting problems and identifying the mathematics required as well as using different curriculum areas as the basis for a problem. However, students also require opportunities to make their own decisions about how to solve a problem.

One suggestion to address this issue is the Polya's *Four phases of problem-solving*:

- understand the problem — what is unknown? what information is given? draw a diagram, introduce suitable notation
- devising a plan — find the connection between the data and the unknown, obtain a plan of the solution
- carrying out the plan — check each step as you go, can you prove that each step is correct
- looking back — examine the solution obtained, check for reasonableness of answers.

Teachers should review the way they engage students in problem-solving and look for ways to encourage a classroom environment that supports the sharing of problem-solving strategies and solutions. Teachers could also extend their more mathematically able students with non-routine problems that use knowledge and skills from all strands of numeracy.

Visualisation is an important skill in numeracy. More than half the items on the paper required interpretation of a diagram, table or graph, and another three items included diagrams that were not required to answer the question. It is, therefore, important that students have the skills to interpret graphics and the strategies and mathematical content knowledge to solve a range of problems. Teacher-led class discussions about mathematical diagrams will help students develop the skills and experience required to interpret them and to create diagrams to solve word problems.

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*.

## Diagnostic probe — Addition and subtraction

Questions	Sample responses	Comments
<p><b>Write the fact family for:</b> 36 + 45</p>	$36 + 45 = 81$ $45 + 36 = 81$ $81 - 45 = 36$ $81 - 36 = 45$	<p>Students demonstrate the links between the two computations.</p> 
<p><b>Write 10 different ways you can calculate 99</b></p>	<p>Responses can include all types of computations, not just addition and subtraction.</p> $44 + 55$ $100 - 1$ $\frac{1}{2}$ of 198 10% of 990	<p>Students demonstrate their partitioning skills. Students may provide only addition solutions, but subtraction and other computations are also okay.</p>
<p><b>What is the difference between 48 and 19?</b></p>	29	<p>Students link the word 'difference' with subtraction or missing addend.</p>
<p><b>What do you need to add to 58 to make 112?</b></p>	54 Or any combination of addition $50 + 4$ $2 + 50 + 2$	<p>Missing addend type. Do they use addition or subtraction and does it matter? Teachers should note students who are confused and who add both numbers. They will provide 170 as a response.</p>
<p><b>Solve this problem</b> Sarah thought of a number less than 20 and doubled it. She then subtracted 5. Her answer was 21. What number did Sarah think of at the start?</p>	13	<p>Draws on the student's ability to use the inverse relationship to work backwards from the answer.</p>
<p><b>Write the numbers that would complete these computations</b>  <math>12 + ? = 26</math>  <math>13 + ? + 19 = 36</math>  <math>78 = ? + 54</math>  <math>43 - ? = 15</math></p>	14 4 24 28	<p>Students demonstrate how they can move between addition and subtraction to solve these computations. The next step is to embed them into single- and two-step problems.</p>

Questions	Sample responses	Comments
<p><b>Solve these problems</b>  Elizabeth received \$28 doing chores all term.  She wanted a toy worth \$15.  How much money would she have left over after buying the toy?</p> <p>The ages of two sisters added together make 64.  One sister is 29.  What is age of the other sister?</p>	<p>\$13</p> <p>35 years old</p>	<p>Single-step problems</p>
<p><b>Solve these problems</b>  Jim and Kate picked a total of 42 pears.  Kate picked 8 more pears than Jim.  How many pears did Kate pick?</p> <p>My shopping included a loaf of bread at \$2.95, 3L of milk at \$4.50 and a bag of potatoes at \$3.75.  I had a \$20 note.  How much change will I receive?</p> <p>Laura buys a cap and a bag.  The total cost is \$25.  The bag costs \$5 more than the cap.  What is the cost of the cap?</p>	<p>25 pears</p> <p>\$8.80</p> <p>\$10</p>	<p>Two-step problems</p> <p>Teachers may wish to demonstrate various problem-solving techniques that may help solve these types of problems.</p>

## Diagnostic probe — Multiplication and division

Question	Sample response	Comments
<p><b>Draw pictures to show each of these</b></p> <p><math>3 \times 5</math> <math>12 \div 4</math></p>		<p>Students answering these types of questions will demonstrate some conceptual understandings.</p> <p>Students may only demonstrate 'groups of'.</p> <p>Teachers may want to prompt the students to demonstrate other ways of showing the multiplication and division concept, i.e. arrays.</p>
<p><b>Answer these number facts</b></p> <p><math>0 \times 10</math></p> <p>21 divided by 3</p> <p><math>4 \times 6</math></p> <p>45 divided by 9</p>	<p>0</p> <p>7</p> <p>24</p> <p>5</p>	<p>Number facts (start with 0, 1, 2, 5, 10 before introducing 3, 4, 6, 7, 8, 9).</p> <p>Recall of number facts will help students solve problems.</p> <p>Students can relate known facts to larger numbers, for example <math>4 \times 6 = 24</math> so <math>4 \times 60 = 240</math>.</p>
<p><b>Write the fact family for:</b></p> <p><math>3 \times 6 = 18</math></p>	<p><math>3 \times 6 = 18</math> <math>6 \times 3 = 18</math> <math>18 \div 6 =</math> <math>18 \div 3 =</math></p>	<p>Relating multiplication and division facts.</p> <p>Knowing the inverse relationship will help students with seeing different ways of solving problems.</p>
<p><b>What do these arrays show?</b></p> <p>OOOO OOOO OOOO</p> <p>OOOOOOO OOOOOOO</p>	<p>3 rows of four 3 fours or 4 threes</p> <p>two rows of seven seven 2s or two sevens</p>	<p>Understanding another model of multiplication.</p>
<p><b>Solve these</b></p> <p>48 <u>  </u> <math>\times 2</math></p> <p>35 <u>  </u> <math>\times 4</math></p> <p>134 <u>  </u> <math>\times 5</math></p>	<p>96</p> <p>140</p> <p>670</p>	<p>Students use known facts to solve multiplication with larger numbers. Teachers may need to watch students solve these problems to observe the strategies used.</p>

Question	Sample response	Comments
<p><b>Solve these problems</b> Sarah is three times older than her sister. Her sister is 9. How old is Sarah?</p> <p>A BBQ was held for 36 people. Each person ate 3 sausages. How many sausages were eaten?</p>	<p>27 years old</p> <p>108 sausages</p>	<p>One-step problems</p>
<p><b>Solve these problems</b> Biscuits are sold in packs of 10. Max wants to give one biscuit to each of his 27 classmates. What is the least number of packets that Max needs?</p> <p>Jake was selling cupcakes and had 4 trays with 10 cupcakes on each tray. It was too squashy so he found one more tray and placed the cupcakes evenly in the 5 trays. How many cupcakes are now on each tray?</p> <p>Use each of these 4 numbers to make the number sentence true. 0, 2, 4, 5</p> <p>??? x ? = 2010</p>	<p>3 packets</p> <p>8 cupcakes</p> <p><math>402 \times 5 = 2010</math></p>	<p>Multistep problems</p>



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