

# NAPLAN

2015 State report: Year 7





# Contents

Preface.....	1
Placing the tests in the assessment context .....	2
Marking and scoring the tests .....	2
Marking the tests .....	2
Calculating raw scores .....	2
Constructing scale scores .....	2
Using scale scores .....	3

## Understanding the data

Which reports? .....	4
Using data to improve teaching and learning .....	5

## Year 7 Writing

Writing prompt.....	7
Key messages.....	8
About the task.....	8
Performance .....	8
References .....	9
Writing task sample .....	10

## Year 7 Literacy

Language conventions .....	13
Spelling — Results and item descriptions .....	13
Spelling — Key messages.....	14
Grammar and punctuation — Results and item descriptions .....	17
Grammar and punctuation — Key messages.....	18
Reading.....	20
Results and item descriptions.....	20
Key messages .....	21

## Year 7 Numeracy

Results and item descriptions.....	24
Key messages .....	26



# 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 are developed using the nationally agreed *Statements of Learning for English* and *Statements of Learning for Mathematics, 2005*. These statements describe essential skills, knowledge, understandings and capabilities that all young Australians should have had the opportunity to acquire by the end of Years 3, 5, 7 and 9. From 2016, the tests will 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 2015 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 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 2015 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 2013 and Year 5 in 2015.

## **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 data provide states and territories with information about the achievement of their students in relation to their peers across the nation. These data are available from the 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 generally 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 showing the range of performance for the middle 60% of Queensland students, together with the state mean, locates a school's performance relative to that of the state.



The NAPLAN *Class reports* show the performance of each student on every item. They show the items a student had correct, including 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 data 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. These 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

### Simply the best

Choose:

- the best movie, TV show or performance you have seen
- or
- the best book you have read.

Write to persuade a reader that they should see or read what you have chosen to write about.

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

**Remember to:**

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



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# Key messages

## About the task

In 2015, the NAPLAN Writing test used two prompts for the first time, one for Years 3 & 5, and another for Years 7 & 9. Besides this difference, the test conditions and administration of the test remained the same as in previous years, i.e. teachers delivered the same spoken instructions and read the text aloud to students. Working independently, students had to plan, compose and edit a written response. Students were allowed five minutes to plan, 30 minutes to write their script, and a further five minutes to edit and complete the task. Three pages were provided for students to write a response.

The 2015 prompt for Years 7 & 9 was entitled *Simply the best*. Students were asked, in the textual component of the prompt, to choose the best movie, TV show, performance seen, or book read. They were then asked to persuade a reader that they should see or read what was chosen. Additional information was provided in the textual component of the prompt. This named the structural components, and further defined these elements, e.g. *Start with an introduction. An introduction lets a reader know what you are going to write about*. Other notes were also provided in relation to the conventions associated with this type of writing task. A series of silhouetted images of various cultural activities, books, and film shots surrounded the textual component of the prompt. As was the case in 2013 and 2014, the prompt was relatively open-ended, allowing students to base their writing on a topic of their own choice within the persuasive genre.

Markers for this Writing test were trained using the national persuasive writing marker training package, delivered as part of ACARA's national assessment program. Markers were recruited and trained in accordance with national protocols, applied consistently across all states and territories. Registered teachers mark the NAPLAN Writing test in Queensland. All markers applied the 10 criteria and related standards from the marking rubric. Writing test scripts were marked on screen in all states and territories. Stringent quality-control measures were applied to the marking of student scripts, including a prescribed percentage of scripts to be double-marked, and the daily application nationally of control scripts for all markers. As part of the Queensland marking operation for 2015, referee marking was expanded to further ensure marking reliability. There is also provision for appeal over individual Writing test scores, once test results are released. On appeal, a student's script is re-marked independently by two senior Writing test markers. The NAPLAN Persuasive writing marking guide is available at [www.nap.edu.au/NAPLAN/About\\_each\\_domain/Writing/index.html](http://www.nap.edu.au/NAPLAN/About_each_domain/Writing/index.html).

## Performance

In contrast to the performance of Years 3 and 5 students, there was little change in the Writing test performance for the older cohorts of Years 7 and 9. A possible prompt effect exhibited in Years 3 and 5 leading to improved performance was not replicated in the upper grades. Other conditions (genre, time, test protocols) remained constant from 2014.

The prompt did allow students to select a topic of personal interest with which they had some knowledge and familiarity. In fact, few students had difficulty in finding a subject on which their text could be based. Issues tended to emerge with respect to the application of genre to the subject matter. So, students typically introduced their subject (e.g. favourite book or film) in an opening paragraph, stated broadly why the book/film/performance should be read/viewed, then proceeded to provide information regarding plot, characterisation, cinematographic features etc. The danger here was that students were flirting with informative rather than the persuasive genre. Conclusions tended to focus on simple restatements of main points referred to in the body of the text. Often, there was a very close parallel between the wording of the introduction and conclusion; on occasions, almost identical wording.

Some students, particularly Year 9 students, adopted a 'review' type response, tending to provide information rather than persuasive argument defending their choice of book, film etc. Typically, this information was sandwiched between an introduction and conclusion which reflected some persuasive elements. So these student scripts were deemed to be 'on genre', though their final scores were impacted by the absence of persuasive elements used **consistently** throughout their texts. Because the Writing test is an 'on demand' assessment, student responses frequently lacked detail about books, films and performances. So, a student may have been able to write with some fluency about generic features of their chosen subject, but lacked substance in supporting the arguments provided. Exceptions to this were cases where students clearly felt passionate about their topic, knew fine-grained details of the book or film, and were able to reflect this passion for the work in a clearly persuasive fashion.

A small number of students adopted a text type that blended narrative and persuasive genres. Introductions provided something like a narrative or recount of an experience, leading in to the persuasive text proper. For instance, an introduction may have referred to an attendance at an evening performance of a play or musical, followed by a description of the scene, any emotional response and so on. Features of the performance were then related in a persuasive body of text. There are risks in following this style, not the least of which is that the principal genre for the task may not be clearly developed, or not be outwardly apparent to the marker.

On a more positive note, students in Years 7 and 9 showed that they are reading novels, enjoying films, and attending other cultural events. For many, this is an enjoyable experience on which they could readily reflect. Students generally wrote, on average, lengthier responses than in 2014, the prompt possibly having an effect in this regard. The 2015 test may also have suited students of a more academic persuasion, though students of varying ability levels were able to produce sound written responses on topics they were personally interested in.

At this level, Years 7 and 9, students should be able to demonstrate control of the persuasive genre. The simple textual structure of introduction, body consisting of two to three paragraphs, and conclusion can sometimes inhibit the capacity of many students to more effectively persuade readers to their points of view. That is, the textual 'form' can become more dominant than the language purpose of actually **persuading**. Students who show greater command of the logical and textual features of persuasive writing, particularly how this might play out in the **body** of the text, where persuasive tools such as condition, causation, comparison and supporting evidence are employed effectively, are rewarded through the NAPLAN marking rubric and in persuasive writing more generally.

## 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 7 — Glass Menagerie

### Simply the Best

Far too rarely do we see a theatre performance that truly stays with us.

The Glass Menagerie by La Boite Theatre is the best performance I have ever seen. The acting, content and story were simply astounding.

Firstly, the acting in the play was perfect. The actors were so expressive and focused that it was easy to forget it was a play. The audience were pulled in and held from start to finish, loving and hating the fractured characters. There wasn't a single moment they weren't enthralled by the dark and very real world of The Glass Menagerie.

In addition, the storyline of The Glass Menagerie was hauntingly beautiful. It was a gritty almost-but-not-quite love story. The characters had bought into the American Dream, only to find it was a shiny facade that hid a rotten world. A once-beautiful mother, a crippled, naive daughter and a son that just wanted to get away however he could; that was what the family had become.

Furthermore, the content was marvellous. The lighting added to an eerie not-quite-right atmosphere. The costumes transported you back in time, to a place where few

were rich and none were happy. The set was surreal. Though it was simple, it contrasted satisfyingly against the complex and unhealthy dynamic between the characters. But the highlight of everything was the glass menagerie itself, the eponymous box filled with clear, perfect treasures where everything else was murky. Each animal was of inimitable craftsmanship.

To conclude, The Glass Menagerie was as beautiful and fragile as crystal. La Bette took Tennessee Williams' masterpiece and breathed a new meaning into it. The Glass Menagerie is the best production I have ever seen because it is comprised of excellent acting, a perfect storyline, and great props, lighting and set to top it all off.

## Year 7 — Glass Menagerie

<b>Audience</b>	<b>6</b>
<p>While this is not typical of Year 7 scripts, it shows that a high standard is possible. The student writes in the authentic style of a theatre review to persuade the reader of the high quality of this production and the play itself. By convention, a glowing review implies a recommendation to go.</p> <p>The strong sense of the reviewer's personal feelings is an expected feature of this text type.</p>	
<b>Text structure</b>	<b>4</b>
<p>The introduction reveals the purpose. The statement about the play being <i>astounding</i> is not specific enough to be a main idea.</p> <p>The sections within the body are given relatively unhelpful signpost words <i>Firstly</i>, <i>In addition</i> and <i>Furthermore</i>. The actual sequence of topics found in the script is as follows: the acting; the audience response; the story and themes; and the design and its contribution to the play's theme. The text should be tightened by making each subtopic relate to a main idea that is stronger and more specific.</p> <p>The brief but well-crafted conclusion includes the idea that <i>the production breathed new meaning into the play</i>. This would have functioned very well as a better main idea to unify the text.</p>	
<b>Ideas</b>	<b>5</b>
<p>The student discusses the relevant elements of a theatre production. Her judgments about the quality of these elements are, in part, well explained and elaborated. Not all assertions are adequately backed up. For example, the assertion in the conclusion that the production was <i>fragile</i> suggests, but fails to explain, a link between the glass symbolism in the play and the production's design.</p>	
<b>Persuasive devices</b>	<b>4</b>
<p>The writer's personal appreciation of the play is foregrounded and this is an effective device. Her precise and specialist language (e.g. <i>fractured characters</i>, <i>unhealthy dynamic</i>) makes it evident that the writer's opinion is expert and well-considered.</p> <p>The rhetorically structured sentences maximise the force of the ideas they contain.</p>	
<b>Vocabulary</b>	<b>5</b>
<p>Despite the precise and sophisticated vocabulary, there are some clichés (e.g. <i>hauntingly</i>). There are some misuses which show where a teacher could help the student to improve, e.g. <i>the highlight of everything</i> is a confused idiom; <i>content</i> should refer only to the play's subject matter, not to the lighting and costume design as well; the phrase <i>truly stays</i> (in the first sentence) lacks substance because the contrary idea of 'false staying' is not cogent. The student says the story and the other features are <i>simply astounding</i> (third sentence) but she actually means that the <i>high quality</i> of these features is astounding.</p>	
<b>Cohesion</b>	<b>4</b>
<p>The script uses vocabulary and grammar to keep a close focus on topics and subtopics. To a lesser extent, the script establishes relationships between the topics and subtopics.</p>	
<b>Paragraphing</b>	<b>3</b>
<p>Paragraphing enhances the flow of ideas. Each paragraph has a well-elaborated thesis sentence.</p>	
<b>Sentence structure</b>	<b>6</b>
<p>Sentences maintain a reflective and analytic tone and convey complex ideas and relationships.</p> <p>The student needs more control of prepositions, e.g. <i>is comprised of</i> should be 'is composed of' or 'comprises'; <i>contrasts against</i> should be 'with'; <i>by La Boite Theatre</i> should be 'by the La Boite Theatre Company'.</p>	
<b>Punctuation</b>	<b>5</b>
<p>Punctuation is diverse and useful, e.g. phrasal adjectives with hyphens (<i>once-beautiful</i>).</p>	
<b>Spelling</b>	<b>6</b>
<p>There are no errors and many words indicating mastery of derivational spelling (e.g. <i>eponymous</i>).</p>	



# Year 7 Literacy

## Language conventions

### Spelling — 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
Proofreading — error identified				
1	highway (hiway)	90	90.1	Correctly spells a compound word with a long vowel <i>i</i> spelled <i>-igh</i> .
2	shoulder (sholder)	85.9	86.4	Correctly spells a word with the long <i>o</i> vowel spelled <i>-ou</i> .
3	traditional (traditionel)	80.2	78.7	Correctly spells a word with the suffix <i>-al</i> .
4	onion (onyon)	75.7	78.1	Correctly spells a word with the consonant <i>y</i> represented by the vowel <i>-i</i> .
5	prey (pray)	78.5	79.9	Correctly spells a homophone with the long <i>a</i> vowel spelled <i>-ey</i> .
6	crate (craite)	75.8	76.6	Correctly spells a one-syllable word with the long <i>a</i> vowel spelled <i>a-e</i> .
7	pumpkin (pumkin)	72.4	75.3	Correctly spells a two-syllable word with the consonant <i>p</i> at the closed syllable juncture.
8	bought (bort)	75.3	74.5	Correctly spells a one-syllable word with the <i>or</i> diphthong spelled <i>-ough</i> .
9	penguin (pengwin)	67.1	71.1	Correctly spells a two-syllable word with the consonant <i>w</i> represented by the vowel <i>u</i> .
10	weighed (wayed)	66.6	67.7	Correctly spells a homophone with the long <i>a</i> vowel spelled <i>-eigh</i> .
11	honeycomb (honeycoam)	50.4	56.2	Correctly spells a word with the final silent letter <i>b</i> .
12	lifeguards (lifegards)	64.7	64.4	Correctly spells a word with the hard <i>g</i> consonant spelled <i>-gu</i> .
13	orbit (orbet)	61.3	58.4	Correctly spells a word with the schwa ( <i>ɪ</i> ) in the final unaccented syllable.
14	precipitation (precipitasion)	52.3	49.4	Correctly spells a word where the suffix <i>-ion</i> creates consonant alternation (precipitate/precipitation).
15	salmon (sammon)	46.8	52.7	Correctly spells a two-syllable word with the silent letter <i>-l</i> at the syllable juncture.
16	queue (quewe)	30.2	29.5	Correctly spells a one-syllable word with the long <i>u</i> vowel pattern <i>-eue</i> .

Item	Answer	Qld%	Aust%	Description
Proofreading — error unidentified				
17	predictable (predictible)	67.8	66.1	Identifies a mistake then correctly spells a word with the suffix <i>-able</i> .
18	helicopter (helecopter)	48.2	52.7	Identifies a mistake then correctly spells a word with the etymological element <i>heli-</i> .
19	experience (expirience)	46.7	46.6	Identifies a mistake then correctly spells a multisyllable word with an <i>r</i> -controlled vowel ( <i>er</i> ).
20	interfere (intafere)	41.9	41.9	Identifies a mistake, then correctly spells a word with the prefix <i>inter-</i> .
21	categories (catagories)	26.2	26.7	Identifies a mistake, then correctly spells a word in which the prefix <i>cata-</i> is spelled <i>cate-</i> .
22	successful (successfull)	46.8	45.8	Identifies a mistake then correctly spells a word with the suffix <i>-ful</i> .
23	heavily (heavally)	30.6	32.2	Identifies a mistake then correctly spells a word with the suffix <i>-ly</i> , requiring a change to the base word (change <i>y</i> to <i>i</i> ).
24	achieved (acheived)	37.5	39	Identifies a mistake, then correctly spells a word with the long vowel digraph <i>-ie</i> .
25	explanation (explaination)	44.4	45.7	Identifies a mistake, then correctly spells a word with the element <i>-ation</i> creating a vowel alternation with spelling change (explain/explanation).
26	relevant (relavent)	22.9	23.3	Identifies a mistake then correctly spells a word with a schwa ( <i>e</i> ) in the middle and the <i>-ant</i> form of the suffix <i>-ent/-ant</i> .
27	noxious (noxous)	26.7	26.6	Identifies a mistake then correctly spells a word where <i>xi</i> represents the <i>sh</i> sound.
28	contradicted (contrredicted)	20	18.4	Identifies a mistake then correctly spells a word with the prefix <i>contra-</i> .
29	foliage (folige)	12.7	14.6	Identifies a mistake then correctly spells a word with the suffix <i>-age</i> .
30	maritime (maratime)	6.4	8.9	Identifies a mistake then correctly spells a word derived from the Latin <i>mare</i> , the sea (marine/marinate/maritime).

## Spelling — Key messages

### Performance

For the most part the Queensland facility rates were very close to the national results. Words like *traditional*, *bought*, *orbit*, *predictable*, *noxious* and *precipitation* had slightly higher results. However, the Queensland performance was notably lower for the words *honeycomb*, *salmon*, *penguin* and *helicopter*.

Items that required knowledge of how suffixes are added to stems or base words had notably low facility rates — *foliage*, *noxious*, *successful* and *heavily*. The low facility rate for these words is partially accounted for by the fact that students had first to find the error and then correct it. In the case of the first three words, students chose and misspelt other words in significant numbers so interpreting the results for these words needs to take that into account. Teachers should check their class reports of SunLANDA to see what their students did.

In the *foliage* item, significant numbers of students thought *dense* and *canopy* were incorrect. The challenge for this word was not so much in the spelling of the suffix *-age* but in the spelling of the middle syllable where students were given the correct spelling *fo-li-age* but which many changed in their attempts at correction, e.g. *folage* (11% of students made this error), or *foilage* (4% made this error). This suggests that students find the middle syllable more difficult to spell than the suffix. Precise pronunciation will help students to identify and spell the syllables in this word. Spelling the unstressed middle syllable is a general problem evident in the spelling of other words such as *categories*, *contradict*, *maritime*, *relevant*. It is one of the major challenges for Year 7 students.

Similarly, students chose *excessive* and *awareness* rather than the target word *successful*. Spelling this word correctly requires students to add the suffix *-ful* to the base word without any change. They need to know that the suffix is spelt *-ful*. Many students who spelt this word incorrectly knew this. They corrected the spelling of the suffix but introduced another error into the word. Typically the error was to drop one of the double letters in the base word, *success*. Students also did this in misspelling other words. This represents the second spelling challenge facing Year 7 students — understanding syllable boundaries. They need to understand the common syllable patterns, e.g. *vc/cv*, both with the doublet as in *suc/cess* or where the consonants are different as in *pump/kin* or *win/dow*. They need to understand the role that the vowel plays in open and closed syllables.

The *vc/cv* doublet is usually the first syllable pattern that students master. It is particularly important that they understand how and why these patterns work when they come to the NAPLAN spelling items. In these items, words with doublets are often used both as target words and distracter words in the sentences. When students don't understand how the syllables work, they are tempted to randomly either add a letter as they did to misspell *cannopy*, or to delete a letter, as they did in misspelling *successful* or *heavily*.

The third group of words that challenged Year 7 students were those where students needed to add a suffix. The conventions for adding inflectional endings that students learnt in the early years are used for adding affixes. Students would benefit from direct teaching of how to apply these principles. For example, 30.6% of Queensland students, 32.2% nationally, were able to correct and spell *heavily*. Almost all the students who were unable to spell it correctly identified *heavily* as the misspelt word but failed to realise it was a base word+suffix and that they needed to change *y* to *i* and then add the adverb-forming suffix *-ly*. Instead, students attempted to 'sound-it-out', producing errors like *heavilly* (14%), *heavaly* (10%), *heavelly* (7%) or *heavely* (5%). Student errors reveal that students often abandon advanced spelling strategies and revert to matching sounds to letters.

Other aspects of suffixes that students need to know include the link between words ending in *-ent* and *-ant* and the suffixes *-ence* and *-ance*. Unfortunately, in the case of words ending in *ent/ant*, such as *relevant*, students need to just learn the word, paying attention to the syllables and articulating clearly as they do so. The word *relevant* had two errors, one in the middle syllable and the other with the *-ant* ending. Adding the adjectival form to *-ible/-able* — *ibly/-ably* — is a similar link that students should know,

Students across Australia found the word *noxious* difficult to spell. Students were drawn to other words such as *conservation* and *eradication* as the error. However, when they did recognise *noxious* as the word containing the error, they failed to recognise the error. The suffix is often preceded by a soft blend such as *ci*, *ti* and more rarely *xi* which combine to represent the *sh* sound, e.g. *atrocious*, *delicious*, *ambitious* and *gi* as in *religious*. Students can use the signpost of the *-ous* suffix as an indication to check the blend preceding the suffix.

Words that required knowledge of Greek and Latin prefixes such as *maritime*, *contradicted*, *categories* and even *helicopter* also presented difficulties as students reverted to basic sound-it-out strategies. As students develop their spelling abilities they need to be able to spell using larger

chunks of meaning or structure. For each of the previous words, the results would have been far higher if students had recognised the meaning units such as *contra*.

## Implications for teaching

### Test effects

Often, students seem to allow themselves to be influenced by the printed misspelling of the target word instead of spelling the word using their normal practices.

- To avoid the distracting effect of the printed misspelling, students should identify the target word, then cover up the misspelling and then write the target word using their knowledge of spelling patterns and word components.
- Standardised test results cannot substitute for assessments that assist teaching and learning. For teaching purposes, teachers should use measurements such as dictation tests, audits of student writing, and records of conferences with students.

### Strategies

Teachers should teach strategies such as these:

- Analysing syllables and stress patterns. Use this strategy for phonetically coded multisyllable words.
- Applying knowledge of 'rules' for inflections and affixes. Use this for words containing grammatical components.
- Applying knowledge of classical and foreign word elements. Recall visual memories of the written form of mature vocabulary words. Use this for specialist and academic vocabulary.

### Content

Spelling lessons should not be about random words but words that exemplify the separate layers of the spelling system and that suit secondary students' stage of learning these codes.

Students should study:

- mature vocabulary words with 'within-word' letter patterns. These include diphthongs, vowels in homophones and vowels in accented syllables (e.g. *highway*, *shoulder*, *prey*, *crate*, *queue*, *weighed* and *achieved*)
- words with 'syllable and affix' spelling patterns. For example, 'open and closed' syllable junction spelling is tested by the words *orbit*, *onion*, *penguin*, *pumpkin*, *honeycomb*, *lifeguards* and *salmon*
- challenging verbs and tense inflections (e.g. *bring/bought*) and suffixes attached to Latin elements (e.g. *nox+ious*, *relev+ant*, *foli+age*) and to base words (e.g. *tradition+al*, *predict+able*, *success+ful*). Students need to know that adding suffixes usually leaves the spelling of the stem unchanged (*precipice* to *precipi-tate*) but that there are exceptions such as *explain/explanation*, *vigour/vigorous* and *pronounce/pronunciation*
- words spelled according to 'derivational relations'. Certain Greek and Latin elements recur and are spelled the same regardless of sound, e.g. *maritime* is related to *marine*, *helicopter* to *helix*, *contradicted* to *contrary*, *categories* to *catalogue*, *interfere* to *interstate*. Similarly, the tested word *experi+ence* is closely related to the word *experi+ment* and both carry the meaning of 'from a test'. The *peri-* element sounds different in the two words but its spelling is constant because the meaning origin is constant.

## Grammar and punctuation — Results and item descriptions

The percentage columns give the relative proportion of correct answers (facility rates). These results are based on provisional data.

Item	Answer	Qld%	Aust%	Description
31	D	93.8	94.1	Identifies a sentence requiring a question mark.
32	A	87	88	Identifies the correct verb tense to complete a complex sentence.
33	B	89.8	90.1	Identifies the correct use of a preposition.
34	D	87.7	86.5	Identifies the sentence containing a description (using adjectives).
35	B	85.6	86.7	Identifies an infinitive that completes a sentence.
36	D	79.8	80.1	Identifies the main clause that correctly completes a complex sentence.
37	B	80.6	79.8	Identifies correct punctuation of attributed direct speech.
38	C	78.9	79.2	Identifies the correct use of a comma after an introductory dependent clause.
39	C	79.9	80.5	Identifies the sentence that correctly combines information.
40	A	77.1	78.4	Identifies the correct use of brackets to enclose the explanation of an acronym.
41	C	78.4	78.3	Identifies the sentence that uses a contraction correctly.
42	B	60.4	61.8	Identifies a sentence containing an adjective.
43	A	73.1	73.8	Identifies the correct use of clause and list commas.
44	D	60.8	63.9	Identifies a command.
45	A	58.7	59.9	Identifies the sentence that uses correct capitalisation of proper nouns.
46	C	61	61.8	Identifies the incorrect use of a possessive apostrophe.
47	B	51.9	54	Identifies the correct synonym for a modal verb.
48	C	59.3	61.2	Identifies the correct suffix that changes a verb to an adjective.
49	B	51	49	Identifies the correct use of commas to separate words interrupting a main clause.
50	B	39	40.7	Identifies the correct use of hyphens for a compound adjective.
51	A	39.5	40.4	Identifies correct punctuation of attributed direct speech.
52	D	39.2	33	Identifies a compound sentence.
53	D	40.1	40.7	Identifies a sentence with correct verb tense.
54	B	29.6	32.5	Identifies the correct use of an adverb.
55	A	30.4	31	Identifies a sentence with a dangling modifier.
56	D	33.1	33	Identifies the grammatical functions of words in a context sentence.
57	B	26.2	27.2	Identifies the noun from a list of words with the same base.
58	D	14.4	14	Identifies the correct use of dashes to mark off a qualifying phrase.

## Grammar and punctuation — Key messages

### Performance

Queensland Year 7 facility rates were higher than the national results for

item 52 (identifying a compound sentence)

item 34 (identifying a sentence containing a description)

item 37 (punctuating direct speech)

item 49 (on clause separation commas).

Queensland performance was lower than the national one for most other items, notably:

- item 44 (distinguish a command from a statement)
- item 54 (avoid using an adjective as an adverb)
- item 48 (recognise an adjective-forming suffix).

### Implications for teaching

#### Formal and informal English

The low facility on item 54 is a reminder that students need to learn that standard English, which is used in formal contexts and in most writing, differs from informal English. Students may need explicit teaching of the differences.

#### Grammatical terms

Many questions on this test required knowledge of the names of grammatical features (Items 44, 48, 53, 56 and 57). The low facility rates on these items suggest that many students need to learn the grammatical terms related to sentence modes, parts of speech, suffixes, prefixes and so on. Better knowledge of grammatical terms will allow students to discuss language issues effectively.

Teaching of formal grammar should be embedded in teaching functional communication. Students are likely to engage with grammar and punctuation if they can see that it helps them to understand and enjoy mature texts and to use the techniques of writers to improve their own writing.

#### Assessment for teaching

Teachers should assess and intervene when students' communication aims are being retarded or frustrated by their lack of grammar and punctuation knowledge.

NAPLAN results cannot give teachers detailed assessment information. Instead, for baseline and post-lesson assessment, teachers could

- audit student writing
- audit student reading for fluency and comprehension
- set exercises related to specific lessons.

#### Content of lessons

The teaching and assessing of grammar and punctuation should be

- developmental (because it covers increasingly mature skills) but timely (taught when students need to learn) and
- systematic (covering the features relevant to the levels of communication, from the whole text level to the sentence level and down to groups of words).

Comprehensive and specific information about what to teach from Years 1 to 9 is given in the draft scope and sequence for teaching grammar (and punctuation), available from the QCAA at: [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)

Teachers can also refer to the following:

1. Books by Beverley Derewianka and Sally Humphrey suggest ways of teaching that can often apply to older students. (Published by Primary English Teaching Association Australia).
2. Topics for teaching Year 7 grammar and punctuation are suggested in the Australian Curriculum English:
  - Recognise and understand that subordinate clauses embedded within noun groups/phrases are a common feature of written sentence structures and increase the density of information (ACELA1534)
  - Understand how modality is achieved through discriminating choices in modal verbs, adverbs, adjectives and nouns (ACELA1536)
  - Analyse how point of view is generated in visual texts by means of choices, for example gaze, angle and social distance (ACELA1764)
  - Investigate vocabulary typical of extended and more academic texts and the role of abstract nouns, classification, description and generalisation in building specialised knowledge through language (ACELA1537).

# Reading

## Results and item descriptions

The percentage columns give the proportion of correct answers (facility rates). These results are based on provisional data.

Item	Answer	Qld%	Aust%	Description
The pygmy				
1	A	96.5	95.9	Infers a reason for a photograph.
2	B	89	88.9	Infers the significance of a map.
3	D	88.9	87.8	Interprets directly stated information.
4	C	91.6	91.1	Locates directly stated information.
5	B	95.1	94.5	Locates directly stated information.
6	A	79.2	81.1	Infers correct location of an additional fact.
The mission				
7	A	79.7	80.1	Infers meaning from a paragraph context.
8	A	83.5	82.6	Interprets the meaning of figurative language.
9	C	55.8	56.2	Interprets a character's response.
10	C	72.7	72.9	Interprets the meaning of a clause.
11	D	72.6	73.6	Identifies a change in a character's attitude.
12	C	39.8	39.3	Infers a character's role.
The Minotaur				
13	A	68.9	70.4	Infers a character's role.
14	D	33.6	34.4	Infers the meaning of a group's reaction.
15	C	29.1	29.4	Infers the background to an action.
16	B	37.3	36.7	Interprets the meaning of an expression.
17	B	56.8	56.6	Infers a character's motivation.
18	A	44.3	47.4	Identifies the specific purpose of brackets.
The honey bee mystery				
19	B	65.7	67.7	Locates directly stated information.
20	D	50.9	53.5	Integrates directly stated information.
21	D	46.4	47.2	Synthesises the main idea of a paragraph.
22	A	38.1	39.1	Identifies the purpose of a sentence.
23	C	67.2	66.6	Infers the reason for an action.
24	D	47.8	48.4	Infers meaning from an idiomatic phrase.
25	A	63.9	67.5	Infers the purpose of a concluding sentence.



Item	Answer	Qld%	Aust%	Description
Hard running				
26	D	74.9	77.6	Identifies a source of tension between characters.
27	C	41.7	41.8	Infers the meaning of an idiom.
28	B	34.1	33.6	Infers the meaning of a word from context.
29	B	59.1	58.6	Infers the meaning of figurative language.
30	*	44.8	46.3	Locates and interprets vocabulary.
31	A	53.4	55.9	Interprets a character's motivation.
A way forward				
32	D	17.9	18.3	Interprets change in pronoun use.
33	B	55.7	56.1	Evaluates a character's stance.
34	A	41.7	42.7	Interprets the meaning of a phrase.
35	C	54.7	55.2	Infers the meaning of a sentence from context.
36	D	48.7	48.4	Synthesises information across a text.
37	B	37	36.9	Infers a perception of a character.
Gliding through the deep				
38	C	46	46.8	Interprets an explanation.
39	D	53.4	54.2	Interprets directly stated information.
40	D	24.5	25.5	Interprets the meaning of a statement.
41	A	47.7	49.8	Infers the purpose of a paragraph.
42	C	36.6	37.1	Integrates information to make an inference.
43	B	33.2	34.2	Synthesises information to make an inference.
Peer pressure — a positive perspective				
44	C	35.2	35.4	Synthesises information to make a judgment.
45	B	36.3	36.7	Identifies a synonym from context.
46	B	56.4	59.5	Identifies the main purpose of a paragraph.
47	A	34.8	35.8	Infers the meaning of a phrase from context.
48	C	28.4	29.1	Interprets information to make an inference.
49	B	50.1	50.2	Identifies a writer's tone.

\* Item 30: Response identifies the sense of hearing AND one of the following: shrieked, grinding, tearing, swish, thump or crashing.

## Key messages

### Performance

In 2015, Year 7 students were asked to complete 49 items as part of the Year 7 Reading test. Only one of the items, item 30, was not in multiple-choice form. For item 30, students were required to identify one of the five senses, and provide an example from the text provided, *Hard running*. Of the eight units in the test, two would be broadly identified as persuasive (*A way forward*, *Peer pressure*), three informative (*The pygmy marmoset*, *The honey bee mystery*, *Gliding through the deep*), and three imaginative (*The mission*, *The minotaur*, *Hard running*), though some of the stimulus texts, such as *The minotaur*, clearly crossed genres. It is a point worth noting that the

hybrid generic text is commonplace in NAPLAN Reading tests.

The performance of Queensland students in the Year 7 Reading test indicated improvement, both in terms of 2014 performance for Queensland students, and relative to the national mean score in the Year 7 Reading test, 2015. One pleasing aspect of this improvement was student performance in items based on narrative (imaginative) texts, with students performing near to, or above the national mean on 13 of the 18 items. Items based on imaginative stimulus material have not previously been a strong point for Year 7 Queensland students. Overall, relative distance from the national mean on the Reading test items was small. There were only 6 items where the difference in Queensland student performance was more than 2% lower than the national mean. These items, 18, 25, 26, 31, 41 and 46, did show an interesting correlation in type, with the item descriptors for items 25, 41 and 46 requiring students to identify a writer's **purpose** in a sentence or paragraph, and items 26 and 31 based around **character/s**, either identifying a character's motivation, or accounting for the tension existing between characters.

In terms of gender, there has been a historical trend of girls out-performing boys in Year 7 Reading items, and this remained the case in 2015, though the gap appears to be narrowing, with quite small differences on many items. Girls still outperformed boys on about 70% of the items. Some interesting results were noted on items 10, 20, 26 and 28, where gender differences were marked. Item 28, based on the narrative excerpt *Hard running*, asked students to find a synonym for the word *onslaught*. 44% of boys selected the correct option, *assault*, with only 23% of girls making this choice. Many girls selected the word *disruption*, instead, perhaps selecting the less 'aggressive' meaning. The nature of the reading and viewing materials to which students are exposed and the broader interests of boys and girls may also have played a role here.

In item 20, on the other hand, 56% of girls selected the correct response, compared to 47% of boys. Item 20, based on the information text *The honey bee mystery*, required students to unpack a set of information presented in a list. The task required logical analysis, steps of trial and error, and a degree of persistence. The latter skill is frequently evidenced in the performance of girls on NAPLAN Reading test items.

Facility rates for items based on the final two units, *Gliding through the deep* (informative) and *Peer pressure — a positive perspective* were generally lower, Australia-wide, than other units in the Year 7 test for 2015. The performance of Queensland students reflected this trend, but results were generally aligned with national means. The difficulty in items from these units was generated by a number of factors including the use of technical language, nominalisation, the inclusion of a number of main idea/purpose items requiring higher order evaluation, and length of texts. Queensland Year 7 students should be commended on their performance on these quite challenging texts and items located at the conclusion of the paper.

## Implications for teaching

As has been the case in previous years, Queensland Year 7 students have demonstrated capacity in literal comprehension. Extracting information from texts, the 'right there' type question is an area of some proficiency for Queensland students.

It appears that simpler inferencing, particularly where the inference is predominantly drawn from the text itself, is also an improving skill for Year 7 students, as demonstrated by performance in the 2015 NAPLAN Reading test.

Comprehension strategies directed towards higher-order comprehension still require additional attention in class and school programming. These areas of comprehension include:

- identifying the main idea or writer's purpose in a text, or segment of a text
- understanding what may constitute a character's role, motivation or mood in a narrative text, and how this may change

- recognising how language can be used on many levels (figuratively) to enrich a text and encapsulate meanings or a writer's intent
- identifying strands or cohesive patterns in a text that contribute to main ideas, themes, tones etc.
- developing understanding of the way in which the grammatical choices the writer makes shape textual form and therefore semantic relationships.

Two recent papers located on the QCAA website deal with some of these areas, providing some specific strategies targeting higher order comprehension.

[https://www.qcaa.qld.edu.au/downloads/p\\_10/naplan\\_read\\_challenging\\_texts.pdf](https://www.qcaa.qld.edu.au/downloads/p_10/naplan_read_challenging_texts.pdf)

[https://www.qcaa.qld.edu.au/downloads/p\\_10/naplan\\_use\\_reading\\_data.pdf](https://www.qcaa.qld.edu.au/downloads/p_10/naplan_use_reading_data.pdf)

# Year 7 Numeracy

## Results and item descriptions

The numeracy strands are abbreviated as follows: Algebra, function and pattern (AFP); Measurement, chance and data (MCD); Number (N); Space (S). All items are worth one score point.

The percentage columns give the proportion of correct answers (facility rates). These results are based on provisional data.

### Calculator-allowed paper

Item	Strand	Answer	Qld%	Aust%	Description
1	S	B	80.8	80.7	Uses a scale to estimate a distance on a map.
2	S	B	88.4	88.3	Identifies a solid with half the volume of a given solid.
3	N	D	78.3	78.5	Calculates an amount using unit costs.
4	S	B	72.9	73.3	Uses geometric properties to identify a 2-D shape.
5	N	C	78.8	77.1	Determines the fraction of a collection.
6	MCD	B	74.7	75.2	Uses a grid to compare the areas of triangles.
7	N	C	74.1	74.9	Identifies a factor of a two-digit number.
8	MCD	E	63.5	63.2	Interprets a histogram to find the frequency of several categories.
9	S	A	77.7	77.4	Identifies the mirror image of an object.
10	N	B	61	62.4	Expresses a quantity as a percentage.
11	AFP	A	58.7	57	Identifies an equivalent expression that involves squares, multiplication and division.
12	AFP	B	59.8	58.1	Identifies a rule connecting pairs of numbers in an additive pattern.
13	N	A	46.8	48.9	Orders different representations of fractions in ascending order.
14	MCD	D	48	47.6	Calculates a finishing time given the start time and duration.
15	AFP	D	53.6	53.2	Identifies the number expression that represents a word problem.
16	S	C	39.4	39.8	Calculates the size of an angle in an isosceles triangle.
17	MCD	D	44.7	45.4	Calculates the probability of an event.
18	MCD	C	51.4	52.1	Uses properties of a square to determine its side lengths.
19	N	5 062 043	47.2	47.4	Solves a multistep problem involving large numbers, addition and subtraction.
20	AFP	B	63.9	64.1	Solves a problem involving an unknown number.
21	AFP	29	17.9	21.4	Solves a word problem involving division with a remainder.

Item	Strand	Answer	Qld%	Aust%	Description
22	AFP	A	40.1	39.1	Finds the value of an unknown in an equation involving simple fractions.
23	MCD	D	27.4	30	Selects the numerical expression to calculate the area of a composite shape.
24	N	C	39.5	40.4	Solves a word problem involving a rate — distance per hour.
25	MCD	C	29.4	30.7	Interprets a table of data that involves overlapping categories.
26	S	D	20.2	21.6	Solves a problem involving compass directions and measure of turn.
27	S	40	20.4	21.3	Calculates a length from a scale drawing.
28	N	350	13.3	16.2	Uses proportional reasoning to solve a problem involving two percentages.
29	AFP	12	13.9	16.7	Solves a multistep word problem involving the difference between whole numbers.
30	MCD	B	34.8	34.9	Interprets a diagram and text to calculate the volume of a box.
31	N	A	9.4	10.6	Determines the scale factor required for an enlargement.
32	S	120	6.7	8.2	Applies geometric properties of shapes and angles to calculate the size of an angle.

#### Non-calculator paper

Item	Strand	Answer	Qld%	Aust%	Description
1	S	C	83.5	84.1	Identifies a 3-D object from its net.
2	N	B	86.6	86	Matches a diagram to the representation of a length that includes a fraction of a metre.
3	AFP	A	87.4	88.3	Solves an equation with a missing value.
4	S	D	80.8	80.9	Determines the number of hidden cubes in a 3-D stack.
5	N	A	70.6	72.5	Solves a money problem involving multiplication and subtraction.
6	AFP	B	76.1	75.7	Calculates a missing value in an additive pattern presented in a table of values.
7	MCD	A	66.2	66.2	Uses estimation and reasoning to identify a right angle.
8	N	1000	67.1	69.1	Calculates a fraction of a quantity.
9	MCD	A	61.3	62.1	Selects the most likely event from 2 spins of a spinner.
10	S	B	71.5	72.8	Identifies the missing part of a symmetrical design.
11	S	D	69.9	69.5	Identifies an incorrect face in a net.
12	N	C	62.5	64.8	Subtracts four-digit numbers to approximate the age of an object.
13	MCD	A	47	49.7	Interprets data in a pie graph.
14	N	C	55	56.1	Calculates a percentage discount.

Item	Strand	Answer	Qld%	Aust%	Description
15	AFP	C	50.2	50.7	Determines the value of a symbol in an informal equation.
16	MCD	B	56.2	56.6	Identifies the expression to solve a measurement problem.
17	S	D	49	47.8	Identifies a final compass point from given directions.
18	N	B	48.6	49.7	Calculates a unit price to determine the best buy.
19	MCD	C	42.1	43.4	Solves a problem involving measurement and proportional thinking.
20	AFP	B	50.8	52.6	Identifies a future term in a repeating shape pattern.
21	MCD	A	33.4	35.4	Solves a length problem.
22	N	C	43.4	44.4	Estimates a cost using a rate of cents per minute.
23	AFP	6	28.3	30.7	Solves a problem involving sharing a quantity.
24	MCD	E	18.6	20.2	Calculates the perimeter of a composite shape.
25	N	20	23.7	25.8	Solves a multistep problem involving a unit cost and total.
26	MCD	D	22.1	24.7	Calculates the probability of an event involving factors.
27	S	3	18.7	21	Solves a problem involving scale, division and interpreting a diagram.
28	N	11; 13	11.9	15.5	Determines two odd numbers that are factors of a three-digit number.
29	MCD	D	18.7	20	Interprets a timetable.
30	AFP	D	14.9	16.2	Identifies equivalent number expressions.
31	S	6	11	11.6	Determines the number of faces of a prism.
32	N	18	3.7	5.4	Solves a multistep problem involving multiplication.

## Key messages

### Performance

Student results for Numeracy for 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 had they completed both tests.

A significant difference between the raw scores achieved by an individual student on the two tests may warrant investigation.

While the majority of students attempted to answer all test items, a significant number omitted the more difficult items towards the end of the test, particularly items for which they were required to construct an answer rather than select a correct response 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 record an answer for constructed-response items on the calculator-allowed test ranged from 4% to 16%. This was higher than the omit rates on the non-calculator test which ranged from 3% to 14%. While the omit rates are not as high in Year 7 as in Year 9, teachers will need to ask students their reasons for failing to answer questions, as a non-response provides no information for teachers to use to improve learning.

A number of items are common to both the Year 7 non-calculator test and the Year 5 Numeracy test. These 'link' items are for equating purposes and are intended to reflect differences between the two groups of students. The difference between the facility rates on these items should indicate that students at Year 7 have a significantly improved understanding of the relevant mathematical concept.

There were 10 items that appeared on both the Year 7 non-calculator test and the Year 5 Numeracy test. Five of these (5, 7, 12, 17, 27) were answered correctly by 10% more of the Year 7 students than the Year 5 students. On two Space items (1, 4) the differences were 2.1% and 7.1%. Item 3, which required students to solve an equation with a missing value, was answered correctly by 82.9% of Year 5 students and 87.4% of Year 7 students. Approximately 9% more Year 7 students than Year 5 students were able to solve a problem involving measurement and proportional thinking (19). For item 24, in which students had to calculate the perimeter of a composite shape, Year 7 students outperformed their Year 5 counterparts by 6.5%.

On the calculator-allowed test, Year 7 male students outperformed female students on 21 of the 32 items with the difference being 5% or more on 5 items (10, 13, 21, 24, 28). Female students had a higher facility rate on 10 of the 32 items with the largest difference being 4% on items 5 and 11.

The males also outperformed the female students on 19 of the 32 items on the non-calculator test. For 7 of these items, the difference was 5% or more with the greatest difference being 8% on items 8 (calculating a fraction of a quantity), 14 (calculating a percentage discount) and 16 (identifying the expression to solve a measurement problem). On this test, female students outperformed male students on 9 items, with the greatest difference being 5% on items 1 (identifying a 3-D object from its net) and 20 (identifying a future term in a repeating shape pattern). However, there is no pattern to these differences at the state level. The items on which one group has outperformed the other are not all from the same strand, do not test the same concepts or involve the same mathematical process. It may be worth examining school and class data to see if there are any significant differences in your school.

## Implications for teaching

Across the two tests, there were 19 items on which the facility rate for Queensland students was less than 30%. All these items occurred in the second half of the tests, which means that they were intended to be more difficult than the items that preceded them.

Grouping these items by the concept assessed shows 4 related to expressions, equivalence or equations; 4 related to rate, ratio, percent or proportion (all of which require multiplicative thinking); and 3 dealt with measurement — length, volume, mass area or time. Of the remaining items, two related to multiplication and division, while each of the others related to a different concept.

Thirteen of the 64 test items were in some way related to the concepts of expressions, equivalence or equations. Not all were difficult and they included items in which students had to identify the expression that represents a rule or a word problem (CA 12, CA 15, CA 23, NC 16), identify equivalent or non-equivalent numerical expressions (CA 11, NC 30), solve a numerical equation or calculate the value of an unknown in a numerical or symbolic equation (CA 22, NC 3, NC 15). The four remaining items (CA 20, CA 29, NC 23, NC 32), identified as being from the Algebra, function and pattern strand, are word problems for which students could have written an algebraic representation to help them calculate their answer.

Almost two-thirds of the students were able to solve a problem involving an unknown number (CA 20). Whether they did this by writing the equation or by using a 'guess and check' strategy is something that teachers would need to ask students. However, as problems become more difficult

with more variables, students will need to be able to use more efficient strategies. Often, the major stumbling block that students experience when faced with a word problem, especially one that has a number of steps, is translating the problem into a number sentence or algebraic equation. To be able to represent a problem algebraically, students need to be able to recognise the relationships between the quantities or values in the problem. Teachers need to help students to do this by talking through a problem and explaining the thinking and reasoning involved in establishing the relationships. Going directly to writing equations means that students do not recognise the reasoning that needs to come before this. Teaching students how to use diagrams or tables to establish relationships will also help improve problem-solving skills. Begin by presenting students with a variety of problems, progressing from single- to multistep, and asking them to identify the steps needed to find a solution without the pressure of calculating it. Progress by asking students to develop the equations needed to solve problems, first in words then using mathematical symbols. Once again, begin with simple single-step problems and progress to more complex ones. *Thinkboards* are a useful way of having students represent problems in different ways and enable teachers to see a student's level of understanding. Students should also be encouraged to estimate solutions to problems and to explain the reason for this estimation. The ability to translate items CA 29, NC 23 and NC 32 into algebraic equations would have assisted students to solve these problems quite quickly and easily as the numbers involved are 'friendly'.

Of the 4 items on the tests with facility rates less than 30% that related to the concepts of rate, ratio, percent and proportion, three involved scale. In items CA 27 and NC 27, students were given diagrams that contained some of the relevant information while other important information was included in the text. As with all problems, these two items required careful reading. Students need to be taught how to annotate diagrams and shown how having all the relevant information in the one place aids problem solving. The other aspect of these two items and also of the third item involving scale — CA 31 — is that students need to understand what scale means and how to work with ratio. For item CA 31, students also needed to understand the relationship between the area of a square and the length of its side. The fourth item in this set (CA 28) involved percentage and was answered correctly by only 13.3% of students. An earlier percentage item on this test (CA 10) had a facility rate of 61%. The difficulty for students in this problem was recognising that the two given percentages were parts of the same whole — the target amount — and that the difference between these was the percentage of the dollar amount given in the problem. To build students' conceptual understandings of percentage:

- use contexts that are familiar to students. Provide opportunities for students to engage with percentages
- connect percentages to fractions — common and decimal — as this knowledge is useful for calculations, comparisons and checking needed in everyday situations (e.g. discounts, cost increases) greater than 100 and less than 1
- explicitly teach students to use the percentage key on their calculator.

Students found item NC 24, in which they were required to calculate the perimeter of a composite shape, the most difficult of the items related to length, volume, mass area or time. This item also appeared on the Year 5 test. The facility rate for Year 7 students was 18.6% and for Year 5 it was 12.1%. As this was a multiple-choice item, there was no likelihood of students confusing area and perimeter which may have been the case had it required a constructed response. The difficulty students encountered was identifying the missing measurements and including these in the calculation of perimeter. They need to be able to interpret all types of information graphics and to identify and calculate missing information. (Students also needed this ability to interpret and annotate diagrams to answer item CA 32.)

Item 23 on the calculator-allowed test, another multiple-choice item involving a composite shape, also included a diagram. To answer this item correctly, as well as knowing how to calculate the



area of a rectangle, students needed to 'see' that this shape could be divided into rectangles or extended to make a larger rectangle. Providing students with diagrams of composite shapes with some dimensions marked and asking them to calculate the ones that are missing may help develop their ability to interpret diagrams. Dividing composite shapes into simpler figures in order to calculate area may also be helpful.

The style of the timetable in item CA 23 may have been unfamiliar to the many students who answered this question incorrectly. It is important that students are exposed to a variety of timetables — both print and electronic — including those that are not common in their geographical location. The other item related to the measurement of time was on the calculator-allowed test (CA 14). Students had to calculate a finishing time when given a start time and a duration. Fewer than 50% of students answered this item correctly with almost 30% of students using the conversion rate of *100 minutes in an hour* and a further 23% of students failing to recognise that the duration extended from am to pm.

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 for each item. SunLANDA is available to all schools on the QCAA website. These materials are also available to Education Queensland 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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