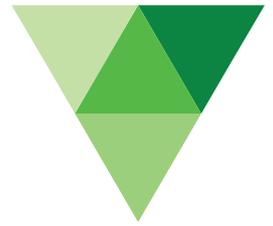


NCEA | Taumata Mātauranga ā-Motu Kua Taea

# NCEA Review 2018

## Literacy and numeracy requirements for NCEA

1. A brief history of NCEA
2. Themes in NCEA literature
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**NZQA requires each qualification registered on the New Zealand Qualifications Framework to be regularly reviewed so that the qualification remains useful and relevant and continues to meet the needs of the learners, industry and stakeholders for which it was developed. NCEA is scheduled to be reviewed by December 2018.**

**This paper describes the development of the literacy | te reo matatini and numeracy | pāngarau assessment requirements for NCEA | Taumata Mātauranga ā-Motu Kua Taea<sup>1</sup> and potential issues that have arisen for some learners.**

## Focusing question

**What literacy and numeracy requirements, if any, should apply to NCEA?**

## Background

Literacy and numeracy skills have been core requirements within NCEA since its introduction. These skills are becoming more important in the modern workplace and in everyday life, with literacy also being a significant factor in academic achievement.<sup>2</sup>

Prior to the introduction of NCEA, English was a mandatory subject in School Certificate. From 2002 until 2012, the requirements to achieve NCEA level 1 were eight literacy credits and eight numeracy credits from specific unit and internally-assessed achievement standards. NCEA levels 2 and 3 had no literacy or numeracy requirements, which meant that a small number of students were able to achieve level 2 or 3 without having met the level 1 requirements.

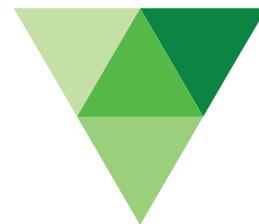
From 2013, the literacy and numeracy requirements were changed from eight to 10 credits, which can be gained through a wider range of selected assessment standards or three literacy and three numeracy unit standards. The level 1 literacy and numeracy requirements now have to be met to achieve NCEA levels 2 and 3.<sup>3</sup> The achievement standards from which literacy and numeracy credits can be gained are aligned to the New Zealand Curriculum and Te Marautanga o Aotearoa.

It is interesting to note the requirements in other countries. For example, in some Australian states, students are required to achieve specific literacy and numeracy standards; while other states are considering whether to introduce a similar model in response to concerns about learner capability before students graduate from senior secondary school.

<sup>1</sup> Taumata Mātauranga ā-Motu Kua Taea is the Māori name for NCEA. "NCEA" is inclusive of both Māori and English medium.

<sup>2</sup> McNaughton, S., Fraser, W., Rosedale, N., & Oldehaver, J. (2014). *Enhancement of Tertiary Education Strategy Priority Frameworks*. Woolf Fisher Research Centre, University of Auckland.

<sup>3</sup> For University Entrance, the literacy standard is 10 credits at level 2 and above. University Entrance uses the same numeracy standard as for NCEA (10 credits at level 1).



The graduating requirement in Ontario, Canada, is that students must reach a secondary school literacy benchmark. In Finland, the only formal national test is the university matriculation exam: four open-ended exams that are based on problem-solving skills, rather than subject mastery, and include embedded literacy and numeracy competencies.

## Literacy and numeracy definitions

The achievement standards selected to meet literacy and numeracy requirements provide the scope for students to demonstrate reading, writing, speaking and listening skills for literacy; and number, measurement and statistical skills for numeracy at level 6 of the New Zealand Curriculum and Te Marautanga o Aotearoa.

Literacy and numeracy is the focus of some of the achievement standards. Others have literacy and numeracy skills embedded within them and students need to demonstrate sufficient literacy or numeracy in these achievement standards. However, there are tensions between meeting the subject-based requirements of these achievement standards and the literacy or numeracy requirements.

There are over 980 standards in levels 1, 2 and 3 that are based on the New Zealand Curriculum and Te Marautanga o Aotearoa. Over 700 of these assessment standards meet the literacy requirements and over 90 meet the numeracy requirements.

There are also two English for Academic Purposes unit standards and six other unit standards that can assess literacy and numeracy based on the following definitions:

- Literacy is the written and oral language people use in their everyday life, learning and work, including reading, writing, speaking and listening. These skills are essential for good communication, active participation, critical thinking and problem solving.
- Numeracy is the bridge between mathematics and daily life, including the knowledge and skills necessary to apply mathematics to everyday family and financial matters, learning, work and community tasks and social and leisure activities.

## Literacy and numeracy skills

Tertiary providers, employers and the school sector recognise the importance of the literacy and numeracy capabilities of school leavers, but there is a wide spread in students' abilities as well as concerns that many NCEA graduates do not have adequate skills in these areas.

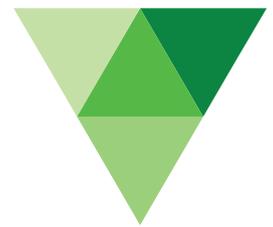
*PISA 2015 New Zealand Summary Report*<sup>4</sup> shows that in New Zealand the average achievement of 15-year-olds in mathematics, science and reading remains above the OECD average.

Results from the *Skills and Education: Survey of Adult Skills (PIAAC)*<sup>5</sup> show that New Zealand was 12th in the OECD in literacy and 13th in numeracy.

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<sup>4</sup> May, S., Flockton, J., & Kirkham, S. (2016). *PISA 2015 New Zealand Summary Report*. (PISA is an international standardised education research study of 15-year-olds. Three key learning areas are assessed: mathematics, science and reading.)

<sup>5</sup> Ministry of Education. (2016). *Skills and Education: Survey of Adult Skills (PIAAC)*.



Our very best students continue to do well (above the OECD average) for literacy and numeracy, but the distribution of student performance in New Zealand shows that we have relatively low equality in learning outcomes. The gap between the top 10% and the bottom 10% of our students is wider than in most other OECD countries.

The Progress in International Reading Literacy Study (PIRLS) 2015/16 studied the reading performance of year 5 students. It showed that New Zealand's mean reading score (523) remained statistically significantly higher than the PIRLS Scale Centrepont (500) but there was a small, but statistically significant, eight-point decrease in the mean score from PIRLS during 2011 to 2016. This means that students showed a drop in their reading literacy<sup>6</sup>, but at this stage we are unable to say that this is a trend.

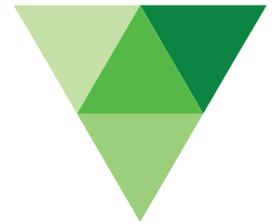
## Literacy and numeracy measures

Charles Darr, using data from The National Monitoring Study of Student Achievement (NMSSA)<sup>7</sup>, shows the percentage of students in NMSSA assessments achieving at or above expected curriculum levels across the curriculum for years 4 and 8, as seen below.

Learning area	Year	Year 4 (Curriculum Level 2 and above) %	Year 8 (Curriculum Level 4 and above) %
English: Writing	2012	65	35
Science	2012	85	19
Mathematics	2013	81	41
Health and Physical Education	2013	97	51
English: Reading	2014	58	59
Social Studies	2014	63	38
English: Listening	2015	79	70
English: Viewing	2015	77	63
The Arts	2015	72	63

<sup>6</sup> In PIRLS, "reading literacy" is defined as "The ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment."

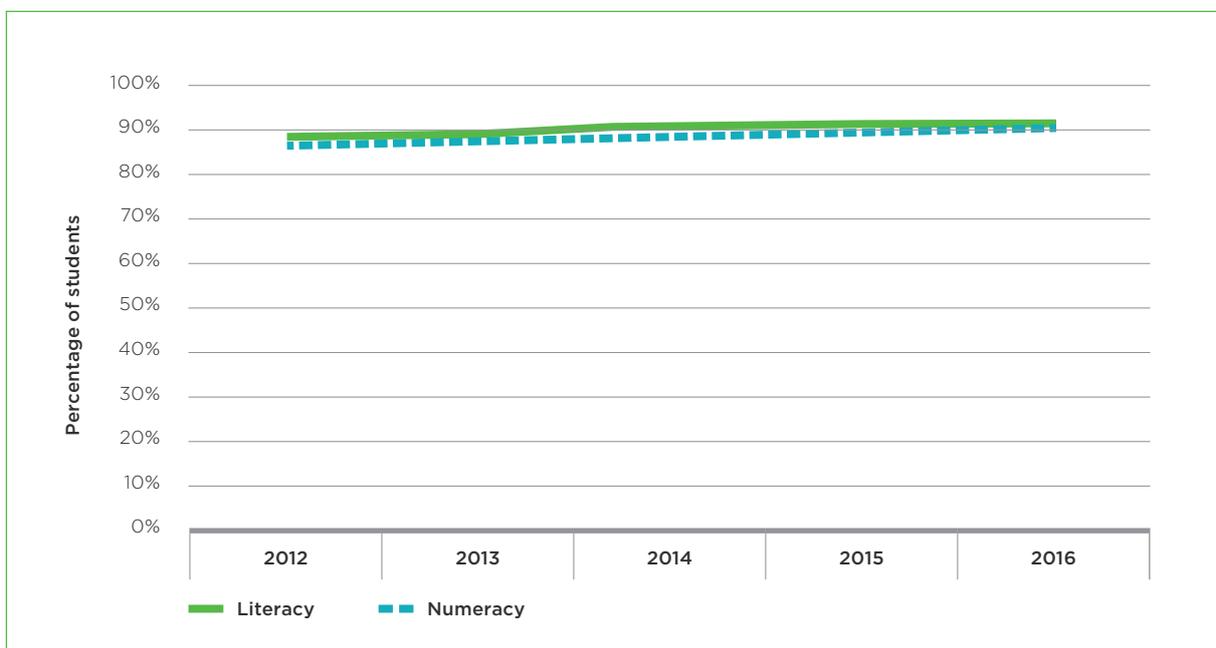
<sup>7</sup> Darr, C. (2017). The National Monitoring Study of Student Achievement: Wānangatia te Putanga Tauri, *SET 2017* (2), 57-60.



While this data shows that many students appear below the expected curriculum level in primary school for reading, writing and mathematics, the attainment rates for students attaining NCEA level 1 in literacy and numeracy (below) are over 90% and rising. This raises concerns that the assessment of literacy and numeracy may not consistently be at level 6 of the New Zealand Curriculum and Te Marautanga o Aotearoa.

The NMSSA data shows that we are not seeing any lift in achievement for learners between years 4 and 8. The PIRLS and NMSSA research may indicate that literacy issues need to be considered within the NCEA review.

Figure 1 shows the percentage of year 11 students attaining NCEA level 1 in literacy and numeracy by the end of each year.

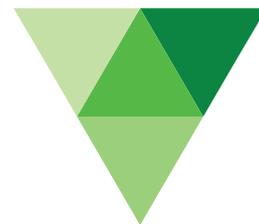


**Figure 1:** Cumulative percentage of year 11 students attaining NCEA level 1 literacy and numeracy<sup>8</sup>

There continues to be concerns about whether the literacy and numeracy standards are sufficient. Some feedback, as part of the University Entrance review, expressed concern about the literacy and numeracy capabilities of students.<sup>9</sup> NZQA decided not to increase the literacy and numeracy requirements in University Entrance but agreed to a review of the list of standards that can be used to meet the literacy standard.

<sup>8</sup> NZQA. Annual report on NCEA (2017) and New Zealand Scholarship data and statistics (2016).

<sup>9</sup> Twenty-six percent of survey respondents considered the literacy standard too low (70% were comfortable with the literacy standard). Some thought the requirements for writing for academic purposes should be increased. Most organisations considered that the numeracy requirement should remain as it is, but Lincoln and Massey universities considered that the numeracy standard should be higher.



A Tertiary Education Commission report<sup>10</sup> into the alignment of literacy and numeracy measures raised the following issues:

- the robustness of the literacy and numeracy requirements for NCEA – does the broad use of achievement standards validly and reliably measure literacy and numeracy? (for literacy and numeracy, the achievement standards are expected to align with level 6 of the New Zealand Curriculum, but there is no explicit literacy expectation at level 6)
- how literacy and numeracy requirements link to literacy and numeracy skills, as measured by international benchmarks
- skill level differences between those who meet the literacy and numeracy requirements via unit standards, as opposed to via achievement standards.

Other issues about literacy and numeracy assessment include whether literacy and numeracy requirements should increase in difficulty as a student moves through the certificates<sup>11</sup>, and whether other literacies should be mandatory, for example, digital, scientific and financial literacies.

#### **Questions for consideration**

What literacy and numeracy requirements, if any, should apply to each level of NCEA?

How can future needs be taken into account when designing literacy and numeracy requirements?

How can literacy and numeracy be best measured (specific requirements versus requirements within a subject-focused achievement standard)?

How can literacy and numeracy requirements be effectively quality assured?

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<sup>10</sup> Thomas, G., Johnston, M., & Ward, J. (2014). *Aligning Measures of Literacy and Numeracy*. Research for the Tertiary Education Commission.

<sup>11</sup> If people want to attain University Entrance, there is a higher literacy requirement (level 2+).