Conclusions for numeracy performance

- Year four students and year six students are, on average, exceeding the minimum expected numeracy performance levels.
- There was a decrease in the average numeracy performance in PILNA 2021 for both year levels compared with PILNA 2018.
- 67% of year four students met the minimum expected numeracy performance in 2021.
- 72% of year six students met the minimum expected numeracy performance in 2021.
- The proportion of students meeting the minimum expected numeracy performance was less in 2021 than in 2018; this decrease was bigger for year four students than for year six students.
- Girls scored higher than boys in every numeracy area at both year levels.
- Students participating in PILNA 2021 showed more persistence in numeracy than did students in previous PILNA cycles – they left fewer questions unanswered.

Year four and year six students are, on average, exceeding minimum expected numeracy performance levels.

Year four students, on average, scored in numeracy proficiency level four when their minimum expected performance level is level three.

Year six students, on average, scored in numeracy proficiency level six when their minimum expected performance level is level five.

Source: https://pilna.eqap.spc.int/2021/regional/performance/numeracy/conclusions
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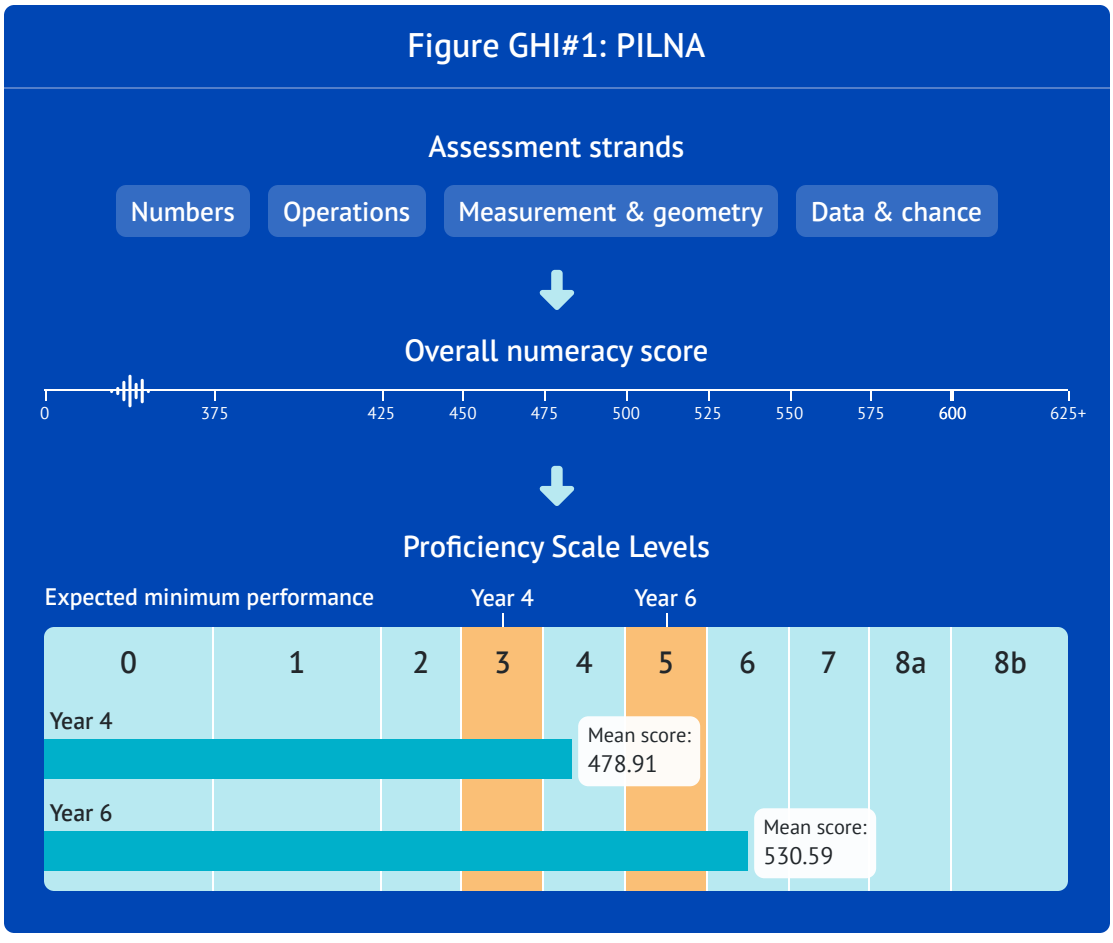

Although students exceeded the minimum expected numeracy performance levels on average, there was a decrease in average numeracy performance in PILNA 2021.

The average numeracy scores for both year four and year six students were lower than in 2018, although the scores of year six students were higher in 2021 than in 2012 and 2015. The year four performance decrease was more substantial, being lower than in any previous PILNA cycle.

The same trends were found for the proportions of students meeting the minimum expected levels of performance.

A smaller proportion of year four students met the minimum expected levels than in any other PILNA cycle and a smaller proportion of year six students met the minimum expected levels in 2021 compared to 2018, although this proportion was higher than in 2012 and 2015.

The decrease in the proportion of students meeting the minimum expected numeracy levels between 2018 and 2021 was also greater for year four students than for year six students.

Source: https://pilna.eqap.spc.int/2021/regional/performance/numeracy/conclusions
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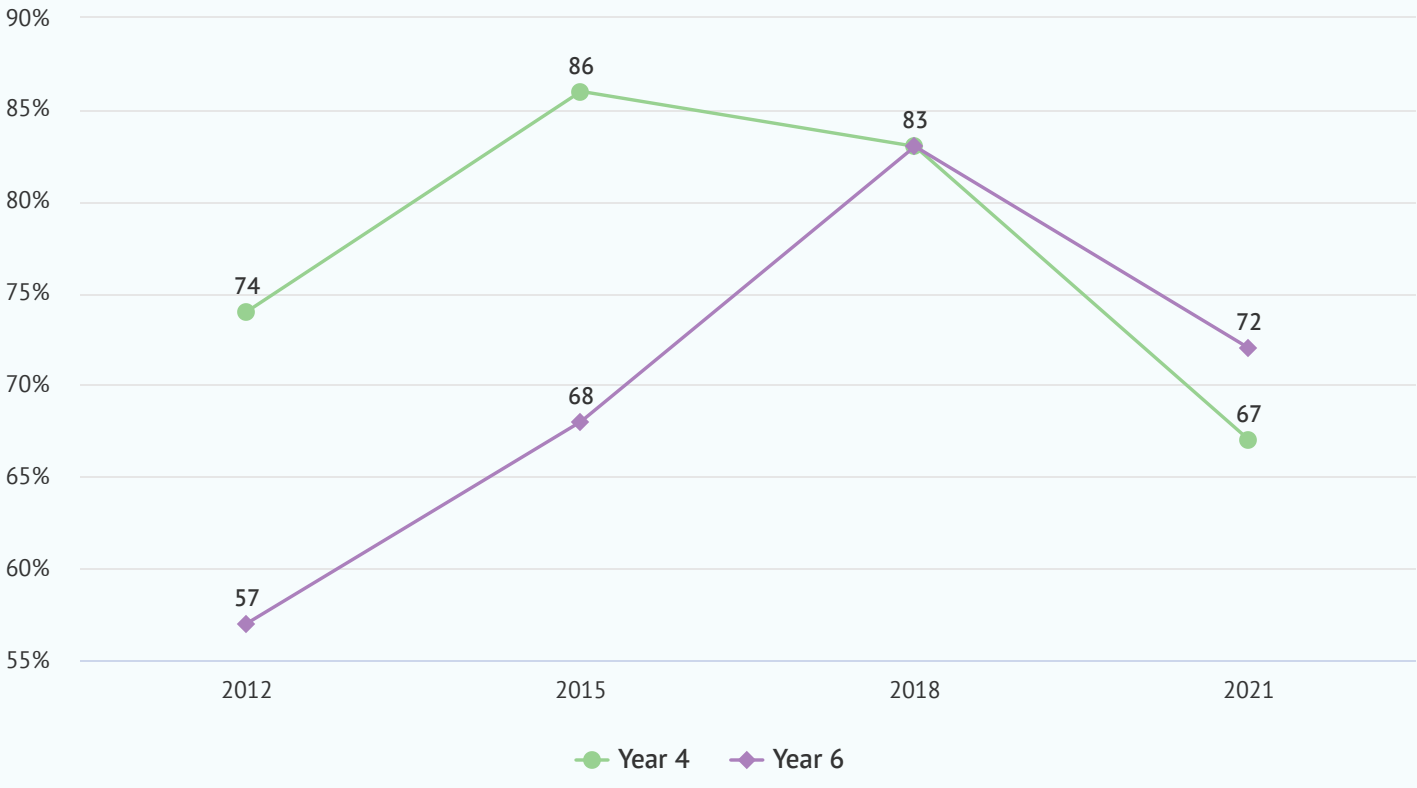
Figure RNF#X2

Students meeting numeracy minimum expected performance by cohort over time



Year	Year 4	Year 6
2012	74	57
2015	86	68
2018	83	83
2021	67	72

Students meeting numeracy minimum expected performance by cohort over time; 2012, 2015, 2018, 2021

These performance decreases in both year groups are worrying. The differences are clear, but further research is required to examine them for statistical significance and size.

In connection with the average numeracy scores, there were two notable differences in the distribution of these scores.

There was a higher proportion of year four students scoring at the lowest levels of proficiency that PILNA measures, level 0 and level 1, than in any PILNA cycle and there was a lower proportion of year six students scoring the highest level of proficiency, level 8, than in any PILNA cycle.

Source: https://pilna.eqap.spc.int/2021/regional/performance/numeracy/conclusions
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So, more year four students were scoring at the lower end of the scale than in any previous PILNA and fewer year six students were scoring at the highest level than in any previous PILNA.

These points contributed to the overall decreases in numeracy performance, but they do not explain why they might have occurred.

These findings also need to be analysed in the context of the new rotated test booklet design. PILNA 2021 collected more information about lower performing students than previous cycles, therefore, it is possible that performance differences are influenced by an increased accuracy of assessment.

Table RNF#X

Numeracy proficiency score distribution by cohort

Level	Year 4	Year 6
8b	0%	5.21% (0.44)
8a	7.82% (0.48)	18.31% (0.68)
7	7.52% (0.35)	16.87% (0.51)
6	11.4% (0.35)	16.66% (0.53)
5	13.95% (0.39)	14.94% (0.48)
4	14.03% (0.41)	10.31% (0.44)
3	12.45% (0.51)	6.52% (0.39)
2	10.48% (0.45)	4.84% (0.34)
1	14.11% (0.56)	4.8% (0.39)
0	8.24% (0.59)	1.53% (0.21)

( ) Standard errors appear in parentheses.

We recommend that Pacific stakeholders research the declines in numeracy performance as a matter of priority. It would be simple to put them down to the impact of the pandemic but, given their significance, stakeholders need to identify precisely what is driving them.

There were also clear differences between girls and boys. Girls scored higher than boys in every numeracy area – the overall numeracy scores and the numeracy strands. This was constant across both year four students and year six students and continues a trend that was observed in PILNA 2015 and PILNA 2018. Interestingly, in both year levels, girls' scores in the numeracy strands were also less variable than boys' scores.

Girls are clearly ahead of boys in numeracy at both levels. This is another priority for research, particularly as the gap between boys' and girls' performance scores shows no sign of narrowing over the various PILNA cycles.

Source: https://pilna.eqap.spc.int/2021/regional/performance/numeracy/conclusions
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Finally, students from PILNA 2021 showed greater persistence in numeracy than previous PILNA cycles: they left fewer questions unanswered. Why this is the case is unclear but this should be considered a priority for further research to establish if changes in learning environments or teaching styles are having an effect on students' resilience.

Source: https://pilna.eqap.spc.int/2021/regional/performance/numeracy/conclusions
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