

Benchmarking Year 4 numeracy performance: Are standards being met?

Table CNT4.1

Year 4 student proficiency in numeracy

level	Distribution
8	7.55 % (1.69)
7	7.65 % (2.41)
6	10.06 % (2.28)
5	9.90 % (1.87)
4	12.30 % (4.35)
3	10.76 % (3.12)
2	10.29 % (2.11)
1	12.53 % (2.50)
0	18.96 % (5.32)

Distribution of year 4 overall numeracy scores, Cook Is, PILNA 2021

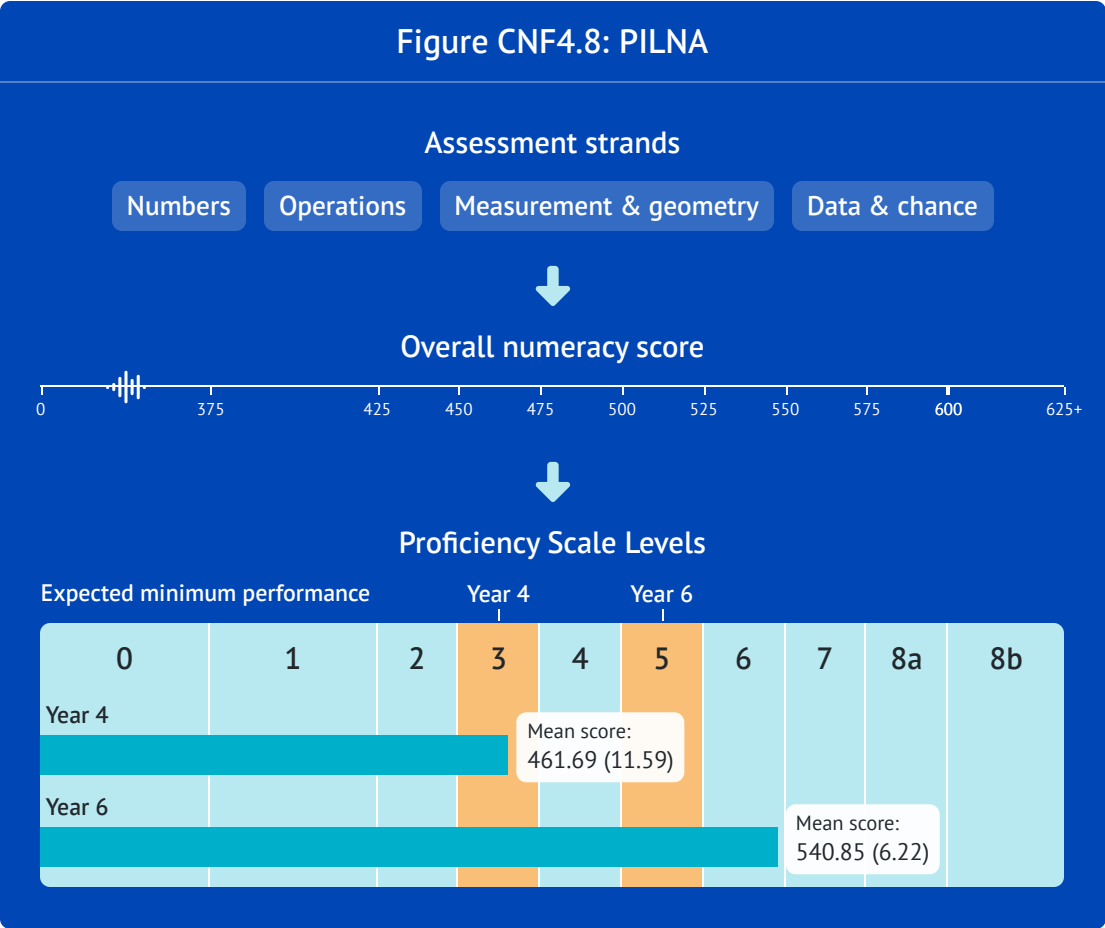
() Standard errors appear in parentheses.

Expected minimum proficiency score.

Table CNT4.1 shows the distribution of year four overall numeracy scores in Cook Islands against the PILNA numeracy proficiency scale. This scale converts a student's overall numeracy score into a level ranking from zero to eight. The expected minimum overall numeracy performance for year four students is **proficiency level three**. Pacific stakeholders expect these students to reach or exceed this proficiency level.

The average overall numeracy score for year four students in Cook Islands in 2021 was 461.69 (SD = 85.78). This corresponds to proficiency level four in the PILNA numeracy proficiency scale, though at the lower threshold for this level (level four is assigned to scores 475–500), as shown in the common proficiency scale 'meter' of numeracy for year four students in Cook Islands (Figure CNF4.8). On average, year four students in Cook Islands are exceeding the minimum expected proficiency level in numeracy.

Although year four students in Cook Islands exceeded the minimum expected proficiency level in numeracy, they had slightly lower average numeracy scores (462) than year four students in the region (479).



The average numeracy score does not tell us the whole story. The proportion of students who are meeting the minimum expected standard is also important. Approximately 58% of the year four students in Cook Islands, three out of five, performed at or above this expected level (levels 3–8) in PILNA 2021. Conversely, approximately 42% of the students, two out of five, performed below the expected proficiency level (levels 0–2). In other words, most year four students are meeting the minimum expected level for numeracy, but there is a significant proportion (42%) who are yet to meet the minimum expected proficiency level.

Table CNT4.2

Distribution of year 4 student numeracy proficiency relative to the region and SIS

level	cook islands_percent	cook islands_se	cook islands_cumulative	Region	SIS
8	7.55	1.69	92.45	7.82% (0.48)	13.85% (2.64)
7	7.65	2.41	84.80	7.52% (0.35)	9.59% (1.60)
6	10.06	2.28	74.74	11.40% (0.35)	10.74% (1.22)
5	9.90	1.87	64.84	13.95% (0.39)	9.88% (0.96)
4	12.30	4.35	52.54	14.03% (0.41)	9.53% (1.28)
3	10.76	3.12	41.78	12.45% (0.51)	9.50% (1.10)
2	10.29	2.11	31.49	10.48% (0.45)	8.83% (1.32)
1	12.53	2.50	18.96	14.11% (0.56)	14.13% (2.19)
0	18.96	5.32	0	8.24% (0.59)	13.94% (2.92)

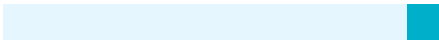
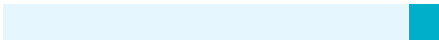


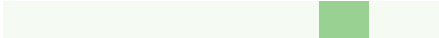
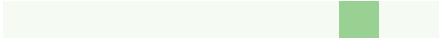


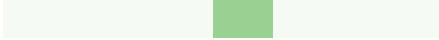



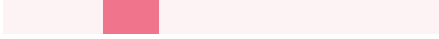

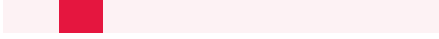
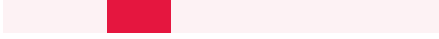


Distribution of year 4 student numeracy performance relative to the region and SIS, Cook Is, PILNA 2021

() Standard errors appear in parentheses.

Table CNT4.2 compares the performance of year four students for numeracy in the Cook Islands, against that in Small Island States and the region. While 58% of year four students performed at or above the expected level (levels 3-8) for numeracy in the Cook Islands, this figure was higher in the Small Island States (63%) and in the region (67%) as a whole.

Table CNT4.3

Year 4 Numeracy distribution by proficiency scores and gender

level	Girls	Boys
8	 7.98 % (2.73)	 7.28 % (1.66)
7	 8.86 % (3.08)	 6.73 % (2.97)
6	 11.03 % (2.76)	 9.38 % (3.28)
5	 10.81 % (3.37)	 9.13 % (2.45)
4	 13.68 % (6.71)	 11.03 % (4.24)
3	 11.99 % (4.88)	 9.73 % (3.32)
2	 12.57 % (3.95)	 8.50 % (2.52)
1	 10.10 % (3.98)	 14.62 % (3.20)
0	 12.97 % (5.68)	 23.59 % (5.57)

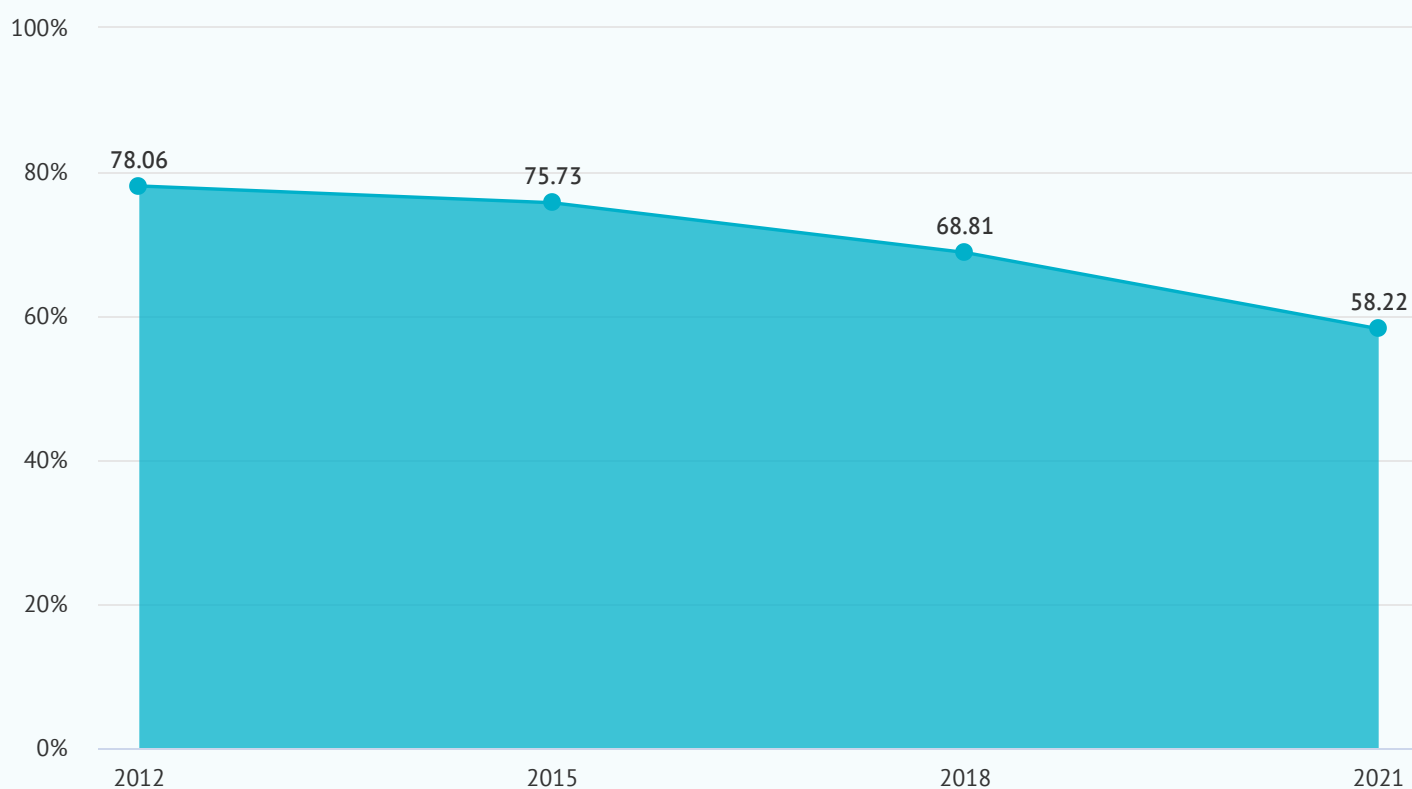
Distribution of year 4 numeracy proficiency scores by gender, Cook Is, PILNA 2021

() Standard errors appear in parentheses.

When looking at the Cook Islands distribution of year four numeracy proficiency scores in 2021 by gender (Table CNT4.3), slight differences can be seen for girls and boys. Approximately 64% of girls performed at or above the minimum expected proficiency level (levels 3–8) compared to approximately 53% of boys. Additionally, boys represented higher proportions of the students performing at level zero and level one than did girls; 15% of year four boys performed at level one compared to 10% of girls, and 24% of boys performed at level zero compared to 13% of girls.

Figure CNF4.9

Proportion of year four students meeting the overall numeracy standard over time



Year	Students at/above minimum
2012	78.06
2015	75.73
2018	68.81
2021	58.22

Proportion of year four students meeting the overall numeracy standard over time, Cook Is, PILNA 2012, 2015, 2018, 2021

Figure CNF4.9 shows the proportion of Cook Island year four students meeting the overall numeracy standard over time. As seen in Figure CNF4.9, a lower proportion of year four students met the minimum expected level of overall numeracy performance in 2021 than in all previous PILNA cycles (2012 = 78%, 2015 = 76%, 2018 = 69%, 2021 = 58%). However, the percentage performing at the three top levels (levels 6–8) has increased from 2012 to 2021. Fewer year four students performing at or above the minimum expected level of numeracy performance in 2021 aligns with the results for the region,

which saw a similar trend (2012 = 74%, 2015 = 86%, 2018 = 83%, 2021 = 67%). This is a critical finding from PILNA 2021: a decrease in the proportion of year four students achieving the minimum expected level of numeracy.