PAT Maths

Australian norms 2022 update

Australian Council *for* Educational Research

Contents

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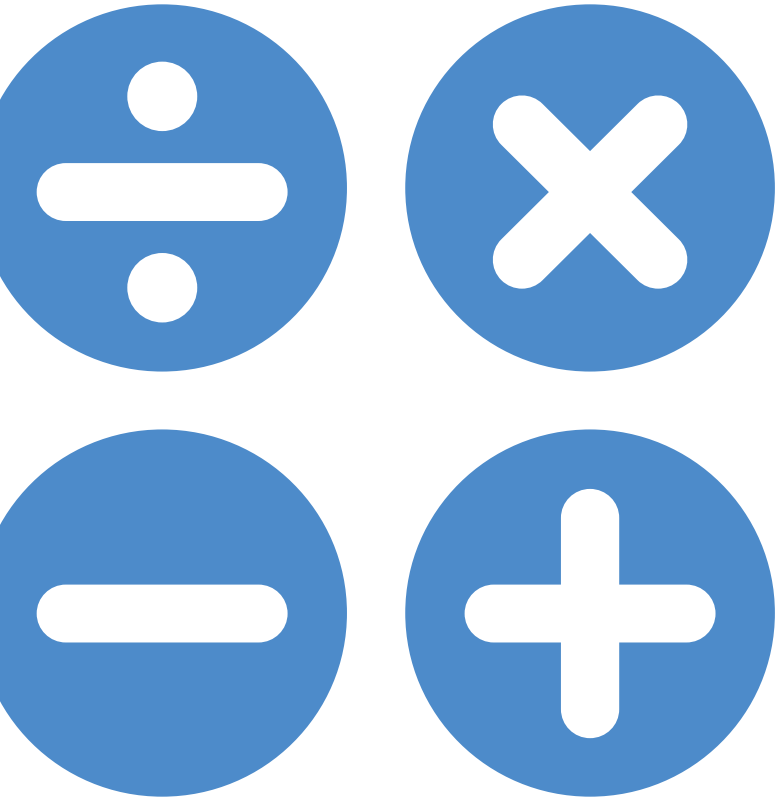
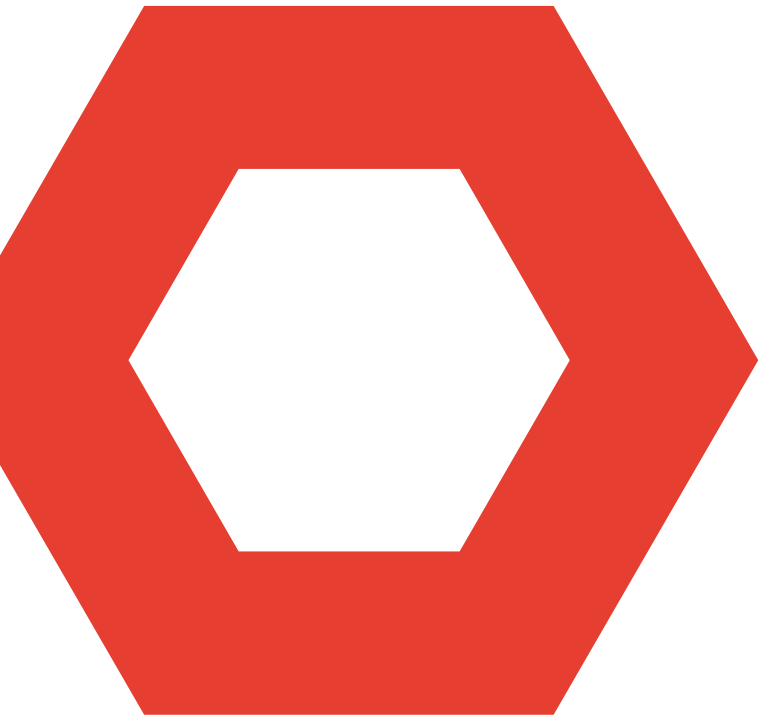


Figures and tables



Introduction

Australian norms are provided as a point of comparison between students' estimated achievement on the PAT Maths scale and the typical achievement of students at each year level nationally. Comparisons between a student's scale score achievement and the Australian norm for a given year level can be expressed as a percentile rank. The percentile rank of a student's scale score indicates the proportion of the comparison group who achieved less than that scale score. Conversion tables outlining the corresponding raw scores, scale scores, and percentile ranks can be found on page 9.

Norm comparisons provide contextual information about a student's relative achievement, but they do not indicate the skills or knowledge that can be expected of the student according to their achievement on their PAT Maths test, nor can they be used to infer progress over time. For these, the student's estimated scale score and the described achievement bands are the best measure.

A note on terminology

This document refers to the current norms as the '2022 update', reflecting their year of publication. The data that comprise the norms were collected in 2019 and represent student achievement at that time.

The previous norms – the '2016 update' – comprised data collected in 2012–2014.

Australian norms

PAT Maths norms are established using a de-identified sample of Australian students and are updated periodically. The 2022 norm update sample is drawn from *PAT Maths 4th Edition* tests completed in ACER's Online Assessment and Reporting System (OARS) during October and November 2019.

The sample is limited to students tested around the same time of year so that comparisons can be made to students at approximately the same stage of their schooling. Students in a particular year level completing a test at the beginning of the year would likely perform differently from students at the same level tested at the end of the year.

At each level, year 1–10, only cases where the student's age fell within an appropriate range were retained. The age ranges were drawn from Australian Bureau of Statistics (ABS) data on the distribution of students by age and year level. This measure was taken to minimise erroneous or unusual year level information in the OARS database and with the assumption that students described as being in a particular year level at the time of testing would fall within the typical age range.

The sample was further restricted to schools that could be matched to the ACER 2019 School Sampling Frame, which provides population-level information about schools and students in Australia.

Change in methodology

The sampling methodology used to estimate the 2022 norms differs in one important respect from the 2016 update. The 2022 update includes results data from the full range of *PAT Maths 4th Edition* tests, whereas the previous norm sample included only results from the test that aligned with each student's year level. For example, the 2016 update year 6 norms represented national achievement on Test 6 only, while the 2022 norm sample does not exclude results based on test level.

This change in methodology reflects an increase in schools administering tests of varying difficulty to students according to their abilities, rather than the same test to all students in a cohort. This method of assessment matches ACER's Progressive Achievement approach and the understanding that assessment is more accurate and valuable when it is well-matched to students' abilities. More information about how this change may contribute to differences in mean student achievement between the 2016 and 2022 norm updates is included on page 7.

2022 norm sample

The final numbers of schools and students comprising the 2022 norm sample are shown in Table 1. The total number of students' results used to calculate the norms are presented by state/territory in Table 2 (page 3), and by sector in Table 3 (page 3).

Table 1 *Schools and students by year level*

Year level	No. of schools	Number of students
Year 1	1838	64 450
Year 2	2870	115 015
Year 3	2991	121 647
Year 4	3025	124 243
Year 5	3030	123 921
Year 6	3045	129 474
Year 7	871	67 394
Year 8	816	59 437
Year 9	718	46 909
Year 10	514	26 964

Table 2 *Students by year level and state/territory*

Year level	ACT	NSW	NT	Qld	SA	Tas	Vic	WA
Year 1	867	11 995	2234	8471	3010	2810	25 400	9663
Year 2	2269	27 715	2437	17 274	5880	5093	38 829	15 518
Year 3	2692	30 347	2366	19 289	4150	5218	41 009	16 576
Year 4	2717	31 434	2322	19 894	4591	5371	41 516	16 398
Year 5	2634	31 025	2306	20 331	4489	5534	41 505	16 097
Year 6	2872	33 286	2461	19 904	4186	5236	44 029	17 500
Year 7	2253	11 119	1764	15 165	3678	4265	23 473	5677
Year 8	1806	9308	1663	13 479	3287	4118	21 166	4610
Year 9	1355	7475	1342	9627	2672	3546	17 234	3658
Year 10	1270	4957	1197	3404	1312	2296	11 290	1238

Table 3 *Students by year level and school sector*

Year level	Government	Catholic	Independent
Year 1	37 655	18 576	8219
Year 2	64 539	35 380	15 096
Year 3	67 827	37 089	16 731
Year 4	67 563	38 227	18 453
Year 5	67 597	36 885	19 439
Year 6	66 973	40 435	22 066
Year 7	28 607	22 743	16 044
Year 8	24 885	20 153	14 399
Year 9	19 054	16 738	11 117
Year 10	11 540	9024	6400

The 2022 update sample size compares well with the size of the 2016 update. Due to smaller annual testing numbers, data for the 2016 update were drawn from across three calendar years, 2012 to 2014. Increased use of PAT Maths meant that results data from a single year, 2019, were sufficient to estimate year level norms for the 2022 update. 2019 was selected as the last stable year of data collection before the COVID-19 global pandemic, which affected schools and students across Australia in 2020 and 2021.

The data for this study remain 'self-selecting'. This means that the sample was not selected using probability sampling methods but rather used all appropriate data gathered from *PAT Maths 4th Edition* tests in OARS. Therefore, the data are not necessarily nationally representative.

For this reason, a weighting adjustment was applied for analysis so that students representing different components of the national population – for example, states, sectors, locations, and socio-economic backgrounds – contribute to the norm outcomes in proportion to their representation in the population.

Weighting

The underlying assumption behind weighting is that the participating student is representative of the group of students that the student is being weighted to – the so-called 'weighting class'. This assumption is more likely to hold when the weighting class is confined to a relatively small part of the population. Rather than simply considering year 2 students in the OARS database from Victoria as representative of all Victorian year 2 students and giving each participant the same weight reflecting the proportion of that group in the data, it is better to consider those students as representatives of smaller subgroups within the larger Victorian year 2 group – for example, students from schools in similar locations or socio-economic areas, or students from the same school sector.

At the same time, it is important that weighting classes are represented by a good number of schools and students. Too few participating schools or students representing a weighting class may lead to individual students being assigned relatively large weights. This is undesirable as these students may have an overly strong influence on outcomes.

The formation of weighting classes is, therefore, an exercise in finding well-defined, smaller subgroups within the population within which a good number of schools and students have participated. For each year level, the available student data were distributed across subpopulations defined by the following criteria:

Jurisdiction	Six states
	Two territories
Management	Government
	Non-government
Sector	Government
	Catholic
	Independent
School location	Metropolitan
	Non-metropolitan
School socio-economic status	Five quintiles based on the postcode-derived Education and Occupation Index, one of the ABS Socio-Economic Index for Areas (SEIFA) indices.[1]

The population reference used was the ACER Sampling Frame, and the maximum possible number of weighting classes across the population was 240.

Weight classes were not maintained if fewer than five schools were present in the weighting class. Where this standard was not met, weight classes with small numbers of schools were collapsed to form a larger class, usually working backwards through the components outlined above.

Following the initial formation of weighting classes, the distribution of data within weight classes by student gender was examined. A weight adjustment was made so that the weighted number of boys and girls in the weighting class matched the population for that class. In some cases, due to the presence of single-gender schools, the number of schools in the newly formed weighting classes was reduced to below five after taking the gender of students into account. In these cases, another round of collapsing was undertaken so that a minimum of five schools per weighting class was maintained.

While the weighting was quite successful in aligning the data from students participating in PAT assessments available from the OARS database to the population distributions, weighting can only attempt to ameliorate the potential biases arising from the differences between the distributions of students in the OARS database and the general population. The assumption that students who have completed PAT tests and were used for weighting are fully representative of the subpopulation from the weighting class cannot be verified.

[1]Australian Bureau of Statistics (2016), Table 1 Postal Area (POA) SEIFA Summary, 2016, 2033.0.55.001 Socio-Economic Indexes for Australia (SEIFA), 2016, accessed January 2020

Table 4 shows the weighted distribution of students comprising the norm sample by state/territory and sector compared with the population distribution calculated from the ABS Schools Data, Table 42b Number of Full-time and Part-time Students.[2]

Table 4 *Weighted distribution of students versus population distribution*

		Government		Catholic		Independent	
	State	Weighted sample %	Population %	Weighted sample %	Population %	Weighted sample %	Population %
Year 1	ACT	1.8	1.8	1.8	2.1	2.3	2.0
	NSW	31.3	31.3	32.6	32.7	30.3	30.3
	NT	1.2	1.2	0.8	0.5	1.0	1.1
	QLD	20.9	21.1	19.7	19.6	22.4	21.0
	SA	6.1	6.2	5.9	5.9	9.6	9.6
	TAS	2.1	2.1	1.8	1.8	1.4	1.6
	VIC	25.3	24.9	28.3	28.3	21.8	23.9
	WA	11.3	11.4	9.0	9.0	11.2	10.5
Year 2	ACT	1.7	1.7	3.1	2.2	0.9	2.1
	NSW	31.4	31.3	36.5	32.6	25.7	30.4
	NT	1.2	1.3	1.1	0.6	0.8	1.1
	QLD	21.2	21.4	9.2	20.0	34.4	21.0
	SA	6.3	6.4	6.5	5.8	8.3	9.4
	TAS	2.2	2.1	2.1	1.9	1.4	1.7
	VIC	24.8	24.5	31.2	27.8	18.9	23.5
	WA	11.3	11.3	10.2	9.1	9.6	10.8
Year 3	ACT	1.8	1.7	2.8	2.2	0.8	2.1
	NSW	33.1	31.3	31.4	32.6	23.4	30.4
	NT	1.3	1.3	1.0	0.6	0.6	1.1
	QLD	23.2	21.4	8.1	20.0	29.7	21.0
	SA	0.0	6.4	18.3	5.8	19.3	9.4
	TAS	2.3	2.1	1.9	1.9	1.1	1.7
	VIC	26.2	24.5	27.4	27.8	16.5	23.5
	WA	12.0	11.3	9.1	9.1	8.6	10.8
Year 4	ACT	1.8	1.7	2.5	2.5	1.5	2.0
	NSW	32.8	30.7	31.1	31.9	23.1	30.2
	NT	1.3	1.2	1.0	0.6	0.6	1.1
	QLD	23.7	22.4	9.1	20.3	29.3	21.8
	SA	0.0	6.3	18.1	5.6	19.2	9.1
	TAS	2.3	2.2	2.0	2.0	1.2	1.7
	VIC	26.1	24.2	27.2	27.8	16.8	23.2
	WA	11.9	11.2	9.1	9.3	8.4	10.8
Year 5	ACT	1.7	1.6	2.4	2.5	1.4	1.8
	NSW	33.1	30.8	30.2	31.9	24.0	30.5
	NT	1.2	1.2	1.0	0.6	0.6	1.1
	QLD	23.8	22.4	10.8	19.9	26.8	21.5
	SA	0.0	6.5	18.1	5.5	18.8	8.7
	TAS	2.5	2.3	1.9	2.0	1.4	1.8
	VIC	25.8	24.0	26.6	28.1	18.3	23.7
	WA	11.9	11.2	9.0	9.4	8.8	10.8

[2] Australian Bureau of Statistics (2019) Table 42b. Number of Full-time and Part-time Students by Affiliation, Sex, Grade, Age and Indigenous Status, States and Territories, 2006-2020 [data set], Schools, 2020, accessed July 2021.

Table 4 *Weighted distribution of students versus population distribution (continued)*

		Government		Catholic		Independent	
	State	Weighted sample %	Population %	Weighted sample %	Population %	Weighted sample %	Population %
Year 6	ACT	1.7	1.5	2.7	2.4	0.8	1.7
	NSW	33.0	30.9	29.0	32.0	25.3	29.8
	NT	1.3	1.2	0.6	0.6	1.0	1.0
	QLD	23.9	22.5	14.2	19.6	23.1	21.4
	SA	0.0	6.5	17.4	5.8	19.3	8.9
	TAS	2.4	2.2	1.9	2.0	1.5	1.9
	VIC	25.8	24.0	25.7	28.3	19.5	24.0
	WA	12.0	11.3	8.6	9.3	9.5	11.3
Year 7	ACT	1.8	1.6	2.4	2.6	1.4	1.7
	NSW	32.0	30.2	30.5	34.1	27.8	28.5
	NT	1.2	1.1	1.1	0.8	0.5	1.0
	QLD	24.9	23.1	15.3	19.3	21.8	21.9
	SA	0.0	6.8	15.5	5.5	13.9	7.3
	TAS	2.4	2.3	2.1	2.2	1.4	1.7
	VIC	25.5	23.7	24.1	26.1	23.1	26.2
	WA	12.1	11.2	8.9	9.5	10.1	11.7
Year 8	ACT	1.8	1.6	2.4	2.5	1.4	1.7
	NSW	32.2	29.9	30.8	34.1	26.3	28.5
	NT	1.2	1.1	1.0	0.7	0.6	1.1
	QLD	25.2	23.5	15.0	19.3	22.0	21.4
	SA	0.0	6.9	15.2	5.5	14.9	7.6
	TAS	2.5	2.3	2.0	2.1	1.5	1.8
	VIC	25.5	23.7	24.7	26.2	22.7	26.0
	WA	11.7	10.9	8.8	9.7	10.7	12.0
Year 9	ACT	1.7	1.6	2.5	2.5	1.3	1.7
	NSW	32.4	30.3	32.9	34.2	24.5	28.3
	NT	1.5	1.0	0.4	0.7	0.2	1.0
	QLD	24.8	23.3	16.3	19.5	21.5	21.8
	SA	0.0	6.7	12.8	5.6	17.2	7.6
	TAS	2.4	2.2	2.0	2.1	1.4	1.7
	VIC	25.6	23.9	24.7	26.0	23.1	26.2
	WA	11.6	10.9	8.4	9.5	10.8	11.7
Year 10	ACT	1.8	1.7	2.3	2.4	1.4	1.7
	NSW	32.6	30.3	35.3	34.3	22.6	28.2
	NT	1.6	1.1	0.3	0.6	0.1	0.9
	QLD	24.4	23.0	17.0	19.0	20.4	22.1
	SA	0.0	7.2	15.2	6.0	16.2	7.8
	TAS	2.4	2.2	2.4	2.2	1.3	1.7
	VIC	26.2	24.4	26.9	26.1	20.6	25.8
	WA	11.0	10.2	0.6	9.5	17.5	11.7

Student achievement

Results from *PAT Maths 4th Edition* tests administered to the norm samples of Australian students were used to ascertain the scale score averages and standard deviations of each year level and – assuming a normal distribution – to calculate the set of percentile ranks associated with achieved scale scores.

The percentile rank of a score is the percentage of students who achieve less than that score. For example, a student with a percentile rank of 75th compared to year 3 has a scale score that is higher than 75 per cent of Australian year 3 students.

Table 5 and Figure 1 (page 8) show the PAT Maths scale score values for given percentile ranks, as well as the standard deviation of achievement, at each year level of the 2022 norms. The 50th percentile represents the mean, or average, achievement of each norm group.

Table 5 *Student achievement by year level*

Percentile rank	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
95th	118.3	128.4	136.8	139.9	146.2	148.5	153.2	154.0	156.6	157.5
75th	107.2	116.5	124.2	128.8	134.0	137.0	140.4	142.0	144.1	145.4
50th (mean)	99.5	108.3	115.4	121.1	125.5	128.9	131.6	133.6	135.4	137.1
25th	91.7	100.0	106.6	113.3	117.0	120.9	122.7	125.3	126.7	128.7
5th	80.6	88.2	94.0	102.2	104.8	109.3	109.9	113.3	114.2	116.6
Standard deviation	11.4	12.2	13.0	11.4	12.6	11.9	13.1	12.3	12.9	12.4

Differences between 2016 and 2022 norms

Some differences in mean student achievement exist between the 2022 and 2016 PAT Maths norm updates. Overall, the 2022 means for the primary school years are higher than the 2016 means, very similar at year 8, and lower in years 9 and 10.

The change in methodology described at the beginning of this document likely contributes in part to the differences in mean student achievement. A small percentage of students in lower year levels completed more difficult tests with the potential to obtain higher scores in 2019. Similarly, a small number of students at higher year levels completed easier tests than those targeted to their year levels. This means that students were able to access tests with content and difficulty more suited to their ability, providing a more accurate measure of their ability. Cases of these types were excluded by the methodology employed in the 2016 update, potentially limiting the range of achievement captured in those norms.

The 2022 norms were estimated using results obtained from *PAT Maths 4th Edition* tests, whereas the 2016 norms were derived from results obtained from the older *PAT Maths Plus* tests. While the tests are on the same scale, we may expect to see some differences in achievement between the two as subsequent editions benefit from ongoing improvement in test quality and targeting. *PAT Maths Plus* tests were, typically, shorter with fewer questions asked of candidates and have lower difficulty items than their *PAT Maths 4th Edition* equivalents, significantly so in the tests targeted to primary school year levels.

While national norms tend to remain relatively stable over time, it is relevant that each norm update comprises results from independent student populations: students who were in years 1–10 in 2012, 2013 and/or 2014, and students who were in years 1–10 in 2019. Additionally, as the OARS data is a self-selected sample, the means may still not fully represent the Australian population even after linking to the Australian sampling frame and weighting. The data used for the 2016 norm update came from PAT tests completed in 2012, 2013 and 2014. The data collected in 2019 for the 2022 update may represent quite a different group of client systems, schools, and students.

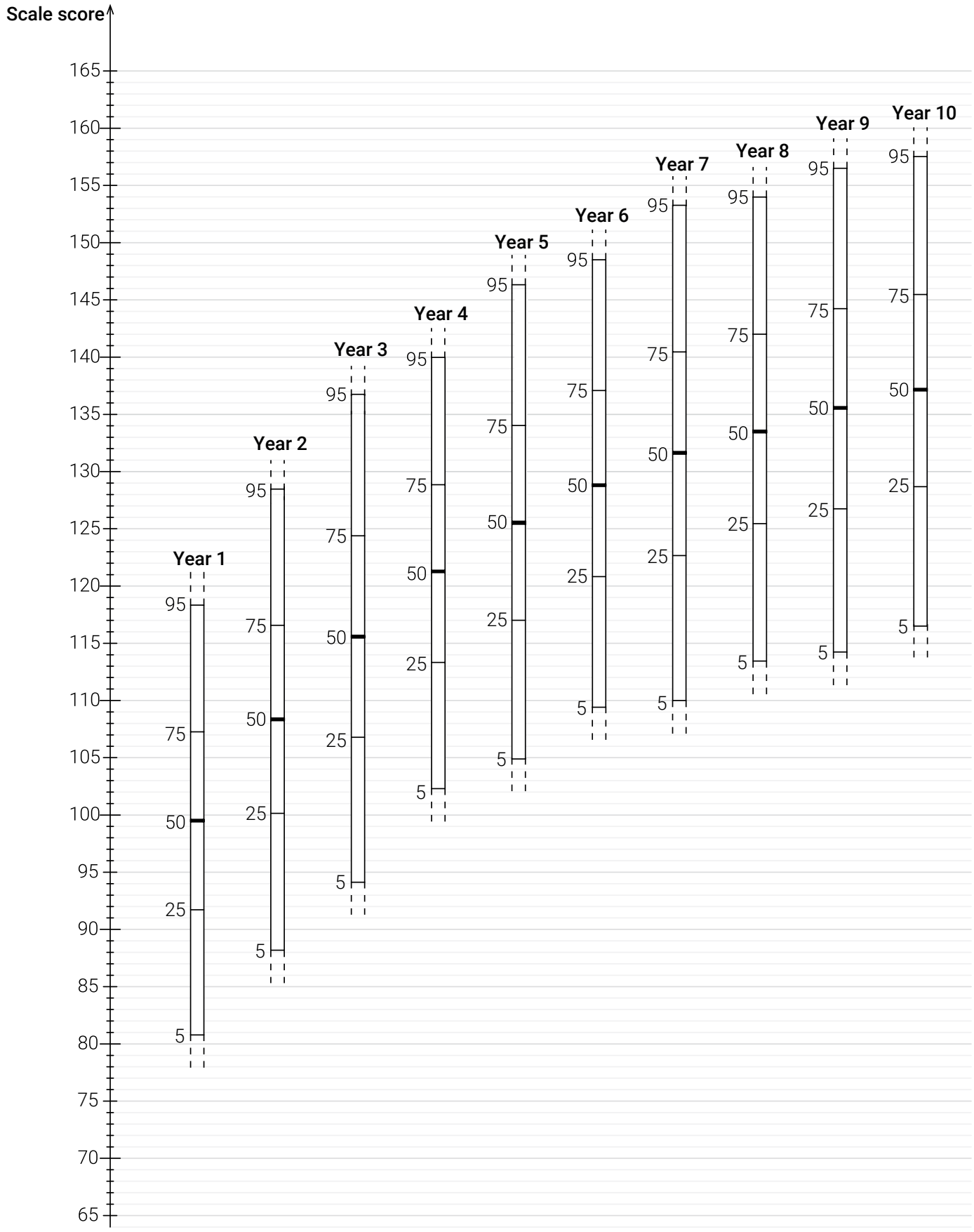


Figure 1 *Student achievement by year level*

Score conversion tables

A student's 'raw' score – most commonly, the total count of correct responses on a test – can be converted to an estimated score on the common PAT Maths scale by accounting for the different mean difficulty of each test. While raw scores on two different tests are not equivalent, scale scores reflect estimated overall achievement and can be directly compared between students and over time, regardless of students' year levels or the tests they have completed.

The following tables show the conversions between raw scores, scale scores (with measurement error margins), and percentile ranks for each *PAT Maths 4th Edition* test. These score conversions are calculated automatically within the online reports. Score conversions are not published for *PAT Maths Adaptive*, due to the large number of test pathways.

PAT Maths 4th Edition Test 1

Raw score	Scale score	Error (+/-)	Year 1 percentile rank	Year 2 percentile rank
30	144.0	>10.3		99
29	133.9	10.3	99	98
28	126.4	7.5		93
27	121.8	6.2	97	86
26	118.4	5.5	95	79
25	115.6	5.1	92	72
24	113.2	4.7	88	65
23	111.1	4.5	84	59
22	109.1	4.3	80	52
21	107.3	4.2	75	46
20	105.7	4.0	70	41
19	104.1	4.0	65	36
18	102.5	3.9	60	31
17	101.0	3.9	55	27
16	99.5	3.8	50	23
15	98.1	3.8	45	20
14	96.6	3.8	40	16
13	95.1	3.9	35	14
12	93.6	3.9	30	11
11	92.1	4.0	26	9
10	90.5	4.0	21	7
9	88.8	4.1	17	5
8	87.0	4.3	13	4
7	85.1	4.5	10	2
6	83.0	4.7	7	
5	80.6	5.1	4	
4	77.8	5.5	2	
3	74.4	6.2		1
2	69.8	7.4	1	
1	62.4	10.3		
0	52.0	>10.3		

PAT Maths 4th Edition Test 2

Raw score	Scale score	Error (+/-)	Year 1 percentile rank	Year 2 percentile rank	Year 3 percentile rank
29	151.0	>10.2	99	99	99
28	140.8	10.2			97
27	133.4	7.4		98	91
26	128.8	6.2		95	84
25	125.4	5.5	98	91	77
24	122.6	5.1	97	87	70
23	120.2	4.7	96	83	64
22	118.0	4.5	94	78	57
21	116.1	4.3	92	73	52
20	114.3	4.2	90	68	46
19	112.5	4.1	87	63	41
18	110.9	4.0	84	58	36
17	109.3	4.0	80	53	32
16	107.7	3.9	76	48	27
15	106.2	3.9	72	43	24
14	104.6	3.9	67	38	20
13	103.1	3.9	62	33	17
12	101.5	4.0	57	28	14
11	99.9	4.0	51	24	11
10	98.3	4.1	45	20	9
9	96.5	4.2	39	16	7
8	94.7	4.3	33	13	5
7	92.8	4.5	28	10	4
6	90.6	4.8	21	7	2
5	88.2	5.1	16	5	1
4	85.4	5.5	10	3	
3	82.0	6.2	6	1	
2	77.4	7.4	2		
1	69.9	10.2	1		
0	59.5	>10.2			

PAT Maths 4th Edition Test 3

Raw score	Scale score	Error (+/-)	Year 2 percentile rank	Year 3 percentile rank	Year 4 percentile rank
35	157.0	>10.3			99
34	146.5	10.3	99	99	98
33	139.0	7.5		96	94
32	134.3	6.3	98	92	87
31	130.8	5.6	96	88	80
30	128.0	5.1	94	83	72
29	125.5	4.8	92	78	65
28	123.4	4.5	89	73	58
27	121.4	4.3	85	67	51
26	119.6	4.2	82	62	44
25	117.9	4.1	78	57	39
24	116.3	4.0	74	52	33
23	114.7	3.9	70	47	28
22	113.2	3.8	65	43	24
21	111.8	3.8	61	39	20
20	110.3	3.8	56	34	17
19	108.9	3.7	52	30	14
18	107.5	3.7	47	27	11
17	106.1	3.7	42	23	9
16	104.7	3.7	38	20	7
15	103.3	3.8	34	17	6
14	101.9	3.8	30	15	4
13	100.4	3.9	25	12	3
12	98.9	3.9	22	10	2
11	97.3	4.0	18	8	1
10	95.7	4.1	15	6	
9	93.9	4.2	11	4	
8	92.1	4.4	9	3	
7	90.1	4.6	6	2	
6	87.9	4.8	4		
5	85.4	5.2	3		
4	82.5	5.6			
3	79.0	6.3		1	
2	74.3	7.5	1		
1	66.7	10.3			
0	56.0	>10.3			

PAT Maths 4th Edition Test 4

Raw score	Scale score	Error (+/-)	Year 3 percentile rank	Year 4 percentile rank	Year 5 percentile rank
35	168.0	>10.2	99	99	99
34	157.6	10.2			
33	150.2	7.4			97
32	145.7	6.2		98	94
31	142.4	5.5	98	96	91
30	139.6	5.0	96	94	86
29	137.3	4.7	95	92	82
28	135.2	4.4	93	89	78
27	133.4	4.2	91	85	73
26	131.6	4.1	89	82	68
25	130.0	4.0	86	78	64
24	128.5	3.9	84	74	59
23	127.0	3.8	81	69	54
22	125.6	3.7	78	65	50
21	124.2	3.7	75	60	45
20	122.8	3.7	71	56	41
19	121.5	3.7	68	51	37
18	120.2	3.6	64	47	33
17	118.8	3.7	60	42	29
16	117.5	3.7	56	37	26
15	116.1	3.7	52	33	22
14	114.8	3.7	48	29	19
13	113.4	3.8	43	25	16
12	111.9	3.8	39	21	13
11	110.4	3.9	35	17	11
10	108.9	4.0	30	14	9
9	107.2	4.1	26	11	7
8	105.5	4.3	22	8	5
7	103.6	4.5	18	6	4
6	101.5	4.7	14	4	2
5	99.1	5.0	10	2	1
4	96.3	5.5	7	1	
3	92.9	6.2	4		
2	88.4	7.4	1		
1	80.9	10.2			
0	70.1	>10.2			

PAT Maths 4th Edition Test 5

Raw score	Scale score	Error (+/-)	Year 4 percentile rank	Year 5 percentile rank	Year 6 percentile rank
35	170.0	>10.2	99	99	99
34	160.0	10.2			
33	152.7	7.4		98	97
32	148.2	6.1		96	94
31	144.9	5.4	98	93	90
30	142.2	4.9	96	90	86
29	140.0	4.6	95	87	82
28	138.0	4.4	93	84	77
27	136.2	4.2	90	80	72
26	134.5	4.0	87	76	68
25	132.9	3.9	84	72	63
24	131.4	3.8	81	68	58
23	130.0	3.7	78	64	53
22	128.7	3.7	74	60	49
21	127.3	3.6	70	55	44
20	126.0	3.6	66	51	40
19	124.8	3.6	62	47	36
18	123.5	3.6	58	43	32
17	122.2	3.6	53	39	28
16	120.9	3.6	49	35	25
15	119.6	3.6	44	31	21
14	118.3	3.7	40	28	18
13	117.0	3.7	36	24	15
12	115.6	3.8	31	21	13
11	114.1	3.9	27	18	10
10	112.6	4.0	23	15	8
9	111.0	4.1	18	12	6
8	109.2	4.2	15	9	4
7	107.4	4.4	11	7	3
6	105.3	4.7	8	5	2
5	102.9	5.0	5	3	1
4	100.1	5.5	3	2	
3	96.7	6.2	1	1	
2	92.0	7.5			
1	84.5	10.3			
0	74.0	>10.3			

PAT Maths 4th Edition Test 6

Raw score	Scale score	Error (+/-)	Year 5 percentile rank	Year 6 percentile rank	Year 7 percentile rank
40	178.0	>10.2	99	99	99
39	168.3	10.2			
38	161.0	7.4			98
37	156.5	6.1		98	97
36	153.2	5.4	98	97	95
35	150.6	4.9	97	96	92
34	148.3	4.6	96	94	89
33	146.3	4.3	95	92	86
32	144.6	4.1	93	90	83
31	142.9	4.0	91	87	80
30	141.4	3.8	89	85	77
29	140.0	3.7	87	82	73
28	138.6	3.7	85	79	70
27	137.3	3.6	82	75	66
26	136.0	3.5	79	72	63
25	134.8	3.5	77	68	59
24	133.6	3.4	74	65	56
23	132.4	3.4	70	61	52
22	131.3	3.4	67	57	49
21	130.1	3.4	64	53	45
20	129.0	3.4	61	50	42
19	127.8	3.4	57	46	38
18	126.7	3.4	53	42	35
17	125.5	3.4	50	38	32
16	124.3	3.4	46	34	29
15	123.1	3.5	42	31	26
14	121.9	3.5	38	27	23
13	120.6	3.6	34	24	20
12	119.3	3.7	31	21	17
11	118.0	3.7	27	18	15
10	116.5	3.9	23	14	12
9	115.0	4.0	20	12	10
8	113.3	4.1	16	9	8
7	111.6	4.3	13	7	6
6	109.6	4.6	10	5	4
5	107.3	4.9	7	3	3
4	104.6	5.4	4	2	2
3	101.3	6.1	2	1	1
2	96.8	7.4	1		
1	89.4	10.2			
0	79.0	>10.2			

PAT Maths 4th Edition Test 7

Raw score	Scale score	Error (+/-)	Year 6 percentile rank	Year 7 percentile rank	Year 8 percentile rank
40	179.0	>10.2	99	99	99
39	169.1	10.2			
38	161.7	7.4		98	98
37	157.2	6.1		97	97
36	153.9	5.4	98	95	94
35	151.2	4.9	96	93	92
34	148.9	4.6	95	90	89
33	146.9	4.3	93	87	85
32	145.1	4.1	91	84	82
31	143.5	4.0	88	81	78
30	141.9	3.8	86	78	74
29	140.5	3.7	83	75	71
28	139.1	3.7	80	71	67
27	137.8	3.6	77	68	63
26	136.6	3.5	74	64	59
25	135.3	3.5	70	61	55
24	134.1	3.4	66	57	51
23	133.0	3.4	63	54	47
22	131.8	3.4	59	50	44
21	130.7	3.4	55	47	40
20	129.5	3.4	51	43	36
19	128.4	3.4	48	40	33
18	127.2	3.4	44	37	30
17	126.0	3.4	40	33	26
16	124.9	3.5	36	30	23
15	123.7	3.5	33	27	21
14	122.4	3.5	29	24	18
13	121.2	3.6	25	21	15
12	119.8	3.7	22	18	13
11	118.5	3.8	19	16	10
10	117.0	3.9	15	13	8
9	115.5	4.0	13	11	7
8	113.8	4.2	10	8	5
7	112.0	4.4	7	6	3
6	110.0	4.6	5	5	2
5	107.7	5.0	3	3	1
4	105.0	5.4	2	2	
3	101.7	6.1	1	1	
2	97.2	7.4			
1	89.8	10.2			
0	80.0	>10.2			

PAT Maths 4th Edition Test 8

Raw score	Scale score	Error (+/-)	Year 7 percentile rank	Year 8 percentile rank	Year 9 percentile rank
40	184.0	>10.2			
39	173.9	10.2	99	99	99
38	166.5	7.4			
37	162.0	6.2	98	98	98
36	158.7	5.4		97	96
35	156.0	4.6	96	96	94
34	153.7	4.4	95	94	92
33	151.7	4.2	93	92	89
32	149.9	4.0	91	90	86
31	148.2	3.9	89	88	83
30	146.7	3.8	87	85	80
29	145.2	3.7	85	82	77
28	143.9	3.6	82	79	74
27	142.6	3.5	79	76	71
26	141.3	3.5	77	73	67
25	140.1	3.4	74	69	64
24	138.9	3.4	71	66	60
23	137.7	3.4	67	62	57
22	136.5	3.4	64	59	53
21	135.4	3.4	61	55	49
20	134.2	3.4	57	51	46
19	133.1	3.4	54	48	42
18	131.9	3.4	51	44	39
17	130.7	3.4	47	40	35
16	129.6	3.5	44	37	32
15	128.4	3.5	40	33	29
14	127.1	3.5	36	29	26
13	125.9	3.6	33	26	23
12	124.5	3.7	29	22	19
11	123.2	3.8	26	19	17
10	121.7	3.9	22	16	14
9	120.2	4.0	19	13	11
8	118.5	4.2	16	10	9
7	116.7	4.4	12	8	7
6	114.7	4.6	9	6	5
5	112.4	5.0	7	4	3
4	109.7	5.4	4	2	2
3	106.4	6.2	2	1	1
2	101.9	7.4	1		
1	94.5	10.2			
0	84.0	>10.2			

PAT Maths 4th Edition Test 9

Raw score	Scale score	Error (+/-)	Year 8 percentile rank	Year 9 percentile rank	Year 10 percentile rank
40	186.0	>10.2			
39	175.7	10.2	99	99	99
38	168.3	7.4			
37	163.8	6.1		98	98
36	160.5	5.4	98	97	97
35	157.8	5.0	97	95	95
34	155.6	4.6	96	94	93
33	153.6	4.4	94	92	90
32	151.8	4.2	92	89	88
31	150.1	4.0	90	87	85
30	148.6	3.9	88	84	82
29	147.1	3.8	86	81	79
28	145.7	3.7	83	78	75
27	144.4	3.6	80	75	72
26	143.1	3.5	77	72	68
25	141.9	3.5	74	69	65
24	140.7	3.5	71	65	61
23	139.5	3.4	68	62	57
22	138.4	3.4	64	59	54
21	137.2	3.4	61	55	50
20	136.0	3.4	57	51	46
19	134.9	3.4	54	48	43
18	133.7	3.4	50	44	39
17	132.6	3.4	46	41	35
16	131.4	3.5	42	37	32
15	130.1	3.5	38	34	28
14	128.9	3.5	35	30	25
13	127.6	3.6	31	27	22
12	126.3	3.7	27	24	19
11	124.9	3.8	23	20	16
10	123.4	3.9	20	17	13
9	121.9	4.0	17	14	11
8	120.2	4.2	13	11	8
7	118.4	4.4	10	9	6
6	116.4	4.6	8	7	4
5	114.1	5.0	5	4	3
4	111.4	5.4	3	3	
3	108.0	6.2			
2	103.5	7.4	1	1	1
1	96.1	10.2			
0	86.0	>10.2			

PAT Maths 4th Edition Test 10

Raw score	Scale score	Error (+/-)	Year 9 percentile rank	Year 10 percentile rank
40	189.0	>10.2	99	99
39	179.1	10.2		
38	171.8	7.4		
37	167.3	6.2		
36	163.9	5.4	98	98
35	161.2	5.0	97	97
34	158.9	4.6	96	96
33	156.9	4.4	95	94
32	155.1	4.2	93	92
31	153.4	4.0	91	90
30	151.8	3.9	89	88
29	150.4	3.8	87	85
28	149.0	3.7	85	83
27	147.6	3.6	82	80
26	146.3	3.6	80	77
25	145.1	3.5	77	74
24	143.8	3.5	74	70
23	142.6	3.5	71	67
22	141.4	3.4	67	63
21	140.3	3.4	64	60
20	139.1	3.4	61	56
19	137.9	3.4	57	52
18	136.7	3.4	53	48
17	135.5	3.5	50	45
16	134.3	3.5	46	41
15	133.1	3.5	42	37
14	131.8	3.6	39	33
13	130.5	3.6	35	29
12	129.2	3.7	31	26
11	127.8	3.8	27	22
10	126.3	3.9	24	19
9	124.8	4.0	20	16
8	123.1	4.2	17	13
7	121.3	4.4	13	10
6	119.3	4.6	10	7
5	117.0	5.0	7	5
4	114.3	5.4	5	3
3	111.0	6.1	2	1
2	106.5	7.4	1	
1	99.1	10.2		
0	89.0	>10.2		