

From: [REDACTED]
To: [Alana Saunders](#)
Cc: [Eldon Paki](#); [Kevin Hoar](#); [Catherine Edser](#)
Subject: Re: Statistics for cutscore meeting
Date: Thursday, 23 May 2024 5:28:24 PM

Hi Alana

15 July might be okay for a data analysis but it won't be until 21 July for all digital marking to be complete. Given 64,000 students are enrolled we should have a dataset of about 25,000 by then.

Given the size of the dataset we get a pretty good idea of how the assessment is tracking after the first week. The distributions don't appear to change much after that.

If Eldon is pressed for time he could run the Winstep analysis in the week of 15 July. If you can produce the usual spreadsheet of complete results before our meeting on 26 July we should have confidence in the data.

How does that sound?

Regards

[REDACTED]

On Thu, May 23, 2024 at 5:14 PM Alana Saunders <xxxxx.xxxxxxxx@xxxx.xxxx> wrote:

Hi [REDACTED]

Can I clarify what dates you would be wanting information from us? We have data extraction scheduled for the week of 15 July. Would this be too soon?

I'll continue to produce the generic spreadsheet I have produced in the past (unless you don't need it). Eldon does the winsteps stuff and currently we don't have that scheduled so I will need to touch base with him. He will be on leave from 22 July which might make things difficult.

If you let us know when you'd need data, Eldon and I can touch base on Monday when he is back from his current leave and figure out what to do. Don't let me deter you if you need data closer to the 26th – we'll find a way to make something work.

Thanks,

Alana

From: [REDACTED]

Sent: Thursday, May 23, 2024 10:45 AM

To: Eldon Paki <x@xx>; Kevin Hoar <x@xx>; Alana Saunders <x@xx>

Subject: Statistics for cutscore meeting

Hi Eldon and Alana

It was nice to catch up at our virtual meeting.

This is a "heads up" about stats we will need to set the Numeracy cutscore for Term 2 CAA, 2024.

Kevin, [REDACTED] and I have a Zoom meeting set for 10am Friday 26 July to discuss the setting. Marking should be near-complete by Monday 22 July.

Last year you provided a Winstep analysis for the Numeracy items that gave a Rasch scale logit and percentage correct for each item. That was extremely helpful to us in setting and justifying the placement of the cutscore.

Are you able to provide this again?

If you can please schedule that in.

Thanks and regards

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[Redacted]

[Redacted]

[Redacted]

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	JMLE MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
23	6505	51966	2.60	0.01	0.91	-9.90	0.79	-9.40
5	9884	51966	1.98	0.01	1.07	9.90	1.11	6.26
17	12324	51966	1.62	0.01	0.96	-6.92	0.84	-9.90
22	12565	51966	1.58	0.01	0.94	-9.60	1.16	9.90
21	13222	51966	1.50	0.01	1.00	0.00	1.00	-0.34
6	15674	51966	1.18	0.01	1.13	9.90	1.28	9.90
30	15710	51966	1.18	0.01	0.78	-9.90	0.64	-9.90
9	16912	51966	1.04	0.01	0.97	-5.22	0.93	-6.83
20	21957	51966	0.47	0.01	1.06	9.90	1.03	3.90
15	23152	51966	0.34	0.01	0.79	-9.90	0.70	-9.90
7	23666	51966	0.29	0.01	0.96	-9.90	0.92	-9.90
2	24730	51966	0.17	0.01	0.87	-9.90	0.82	-9.90
3	25516	51966	0.09	0.01	1.04	9.20	1.04	4.98
8	26131	51966	0.03	0.01	1.18	9.90	1.25	9.90
28	26197	51966	0.02	0.01	1.06	9.90	1.10	9.90
1	26669	51966	-0.03	0.01	1.17	9.90	1.31	9.90
27	26749	51966	-0.04	0.01	0.92	-9.90	0.88	-9.90
29	27393	51966	-0.11	0.01	1.08	9.90	1.12	9.90
16	27683	51966	-0.14	0.01	0.85	-9.90	0.79	-9.90
19	28156	51966	-0.19	0.01	1.10	9.90	1.16	9.90
13	29607	51966	-0.34	0.01	0.91	-9.90	0.86	-9.90
25	30999	51966	-0.50	0.01	0.93	-9.90	0.86	-9.90
11	31306	51966	-0.53	0.01	1.13	9.90	1.18	9.90
14	33977	51966	-0.83	0.01	0.83	-9.90	0.76	-9.90
24	34429	51966	-0.88	0.01	1.01	1.59	1.04	3.37
26	35313	51966	-0.99	0.01	1.05	8.55	1.18	9.90
4	42676	51966	-2.02	0.01	1.14	9.90	1.48	9.90
12	43809	51966	-2.22	0.01	1.00	0.16	1.09	4.34
18	45112	51966	-2.48	0.01	1.07	7.37	1.20	8.15
10	46510	51966	-2.80	0.02	1.05	4.40	1.15	5.46

PTMEASUR-AL		EXACT MATCH		ITEM
CORR.	EXP.	OBS%	EXP%	
0.43	0.38	89.2	88.4	Q4e
0.38	0.43	82.1	83.2	Q1e
0.48	0.45	80.6	80.1	Q3e
0.47	0.45	81.4	79.8	Q4d
0.46	0.46	79.0	79.1	Q4c
0.40	0.48	73.3	76.7	Q1f
0.61	0.48	82.3	76.7	Q5f
0.50	0.48	76.7	75.7	Q2c
0.47	0.50	70.3	73.0	Q4b
0.63	0.51	80.4	72.6	Q3c
0.54	0.51	73.9	72.5	Q2a
0.59	0.51	77.0	72.4	Q1b
0.49	0.51	70.5	72.4	Q1c
0.40	0.51	65.8	72.3	Q2b
0.47	0.51	70.2	72.4	Q5d
0.40	0.51	66.6	72.4	Q1a
0.56	0.51	75.0	72.4	Q5c
0.46	0.51	69.7	72.5	Q5e
0.60	0.51	77.8	72.5	Q3d
0.45	0.51	69.7	72.6	Q4a
0.56	0.51	75.8	73.0	Q3a
0.55	0.51	75.7	73.6	Q5a
0.43	0.51	69.4	73.7	Q2e
0.60	0.50	80.7	75.3	Q3b
0.49	0.50	75.6	75.6	Q4f
0.45	0.49	75.9	76.4	Q5b
0.34	0.44	82.7	84.4	Q1d
0.41	0.42	86.6	86.1	Q2f
0.36	0.40	87.7	88.0	Q3f
0.34	0.38	90.3	90.3	Q2d

From: [Eldon Paki](#)
To: [REDACTED]
Cc: [Kevin Hoar](#); [Alana Saunders](#)
Subject: 2024 Numeracy Session 1 - Output for Cut Score Setting Process
Date: Friday, 19 July 2024 2:25:19 PM
Attachments: [13-500WS.xlsx](#)
[13-500WS.txt](#)
[2024 Session01 Score to Measure v01.xlsx](#)

Hi [REDACTED]

Attached are the diagnostics based on the data extraction earlier today.

Note:

- The analysis used 51,966 student responses which makes me reasonably confident that the analysis has captured over 90 percent of the respondents
- 13-500WS.xlsx lists the items in order from the highest JMLE MEASURE to the lowest
 - That is, from the most difficult item to the least difficult (i.e. easiest) item
 - Q4e was the most difficult with JMLE MEASURE = 2.60
 - In contrast, Q2d was the least difficult (easiest) with JMLE MEASURE = -2.80
- 13-500WS.txt
 - This output is directly from Winsteps just in case you need it and was used to create 13-500WS.xlsx above
- 2024 Session01 Score to Measure v01.xlsx lists in order from the lowest SCORE to the highest SCORE.

Think that's about it from me.

Hokey Cokey??

Eldon

TABLE 13.1 32406 lit_num data 2024_T2 V3.csv ZOU500WS.TXT Jul 19 2024 12:18
 INPUT: 51966 PERSON 30 ITEM REPORTED: 51966 PERSON 30 ITEM 2 CATS WINSTEPS 5.2.5.1

PERSON: REAL SEP.: 2.59 REL.: .87 ... ITEM: REAL SEP.: 108.75 REL.: 1.00

ITEM STATISTICS: MEASURE ORDER

ENTRY	TOTAL	TOTAL	JMLE	MODEL	INFIT	OUTFIT	PTMEASUR-AL	EXACT MATCH	ITEM				
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR. EXP.	OBS% EXP%			
23	6505	51966	2.60	.01	.91	-9.90	.79	-9.40	.43	.38	89.2	88.4	Q4e
5	9884	51966	1.98	.01	1.07	9.90	1.11	6.26	.38	.43	82.1	83.2	Q1e
17	12324	51966	1.62	.01	.96	-6.92	.84	-9.90	.48	.45	80.6	80.1	Q3e
22	12565	51966	1.58	.01	.94	-9.60	1.16	9.90	.47	.45	81.4	79.8	Q4d
21	13222	51966	1.50	.01	1.00	.00	1.00	-.34	.46	.46	79.0	79.1	Q4c
6	15674	51966	1.18	.01	1.13	9.90	1.28	9.90	.40	.48	73.3	76.7	Q1f
30	15710	51966	1.18	.01	.78	-9.90	.64	-9.90	.61	.48	82.3	76.7	Q5f
9	16912	51966	1.04	.01	.97	-5.22	.93	-6.83	.50	.48	76.7	75.7	Q2c
20	21957	51966	.47	.01	1.06	9.90	1.03	3.90	.47	.50	70.3	73.0	Q4b
15	23152	51966	.34	.01	.79	-9.90	.70	-9.90	.63	.51	80.4	72.6	Q3c
7	23666	51966	.29	.01	.96	-9.90	.92	-9.90	.54	.51	73.9	72.5	Q2a
2	24730	51966	.17	.01	.87	-9.90	.82	-9.90	.59	.51	77.0	72.4	Q1b
3	25516	51966	.09	.01	1.04	9.20	1.04	4.98	.49	.51	70.5	72.4	Q1c
8	26131	51966	.03	.01	1.18	9.90	1.25	9.90	.40	.51	65.8	72.3	Q2b
28	26197	51966	.02	.01	1.06	9.90	1.10	9.90	.47	.51	70.2	72.4	Q5d
1	26669	51966	-.03	.01	1.17	9.90	1.31	9.90	.40	.51	66.6	72.4	Q1a
27	26749	51966	-.04	.01	.92	-9.90	.88	-9.90	.56	.51	75.0	72.4	Q5c
29	27393	51966	-.11	.01	1.08	9.90	1.12	9.90	.46	.51	69.7	72.5	Q5e
16	27683	51966	-.14	.01	.85	-9.90	.79	-9.90	.60	.51	77.8	72.5	Q3d
19	28156	51966	-.19	.01	1.10	9.90	1.16	9.90	.45	.51	69.7	72.6	Q4a
13	29607	51966	-.34	.01	.91	-9.90	.86	-9.90	.56	.51	75.8	73.0	Q3a
25	30999	51966	-.50	.01	.93	-9.90	.86	-9.90	.55	.51	75.7	73.6	Q5a
11	31306	51966	-.53	.01	1.13	9.90	1.18	9.90	.43	.51	69.4	73.7	Q2e
14	33977	51966	-.83	.01	.83	-9.90	.76	-9.90	.60	.50	80.7	75.3	Q3b
24	34429	51966	-.88	.01	1.01	1.59	1.04	3.37	.49	.50	75.6	75.6	Q4f
26	35313	51966	-.99	.01	1.05	8.55	1.18	9.90	.45	.49	75.9	76.4	Q5b
4	42676	51966	-2.02	.01	1.14	9.90	1.48	9.90	.34	.44	82.7	84.4	Q1d
12	43809	51966	-2.22	.01	1.00	.16	1.09	4.34	.41	.42	86.6	86.1	Q2f
18	45112	51966	-2.48	.01	1.07	7.37	1.20	8.15	.36	.40	87.7	88.0	Q3f
10	46510	51966	-2.80	.02	1.05	4.40	1.15	5.46	.34	.38	90.3	90.3	Q2d
MEAN	26151.1	51966	.00	.01	1.00	.32	1.02	.66			77.1	76.9	
P.SD	10289.1	.0	1.27	.00	.11	8.87	.20	8.73			6.5	5.5	

TABLE 13.3 32406 lit_num data 2024_T2 V3.csv ZOU500WS.TXT Jul 19 2024 12:18
 INPUT: 51966 PERSON 30 ITEM REPORTED: 51966 PERSON 30 ITEM 2 CATS WINSTEPS 5.2.5.1

ITEM CATEGORY/OPTION/DISTRACTOR FREQUENCIES: MEASURE ORDER

ENTRY	DATA	SCORE	DATA	ABILITY	S.E.	INFT	OUTF	PTMA			
NUMBER	CODE	VALUE	COUNT	%	MEAN	P.SD	MEAN	MNSQ	MNSQ	CORR.	ITEM
23	0	0	45461	87	-.21	1.31	.01	.9	.9	-.43	Q4e
1	1	1	6505	13	1.68	1.20	.01	.8	.8	.43	
5	0	0	42082	81	-.24	1.35	.01	1.1	1.1	-.38	Q1e
1	1	1	9884	19	1.16	1.28	.01	1.1	1.1	.38	
17	0	0	39642	76	-.36	1.30	.01	1.0	1.0	-.48	Q3e
1	1	1	12324	24	1.28	1.15	.01	.9	.8	.48	
22	0	0	39401	76	-.35	1.27	.01	.9	.9	-.47	Q4d
1	1	1	12565	24	1.24	1.28	.01	.9	1.2	.47	
21	0	0	38744	75	-.36	1.30	.01	1.0	1.0	-.46	Q4c
1	1	1	13222	25	1.16	1.22	.01	1.0	1.0	.46	
6	0	0	36292	70	-.35	1.34	.01	1.1	1.2	-.40	Q1f
1	1	1	15674	30	.90	1.28	.01	1.2	1.3	.40	
30	0	0	36256	70	-.55	1.19	.01	.8	.8	-.61	Q5f
1	1	1	15710	30	1.37	1.02	.01	.7	.6	.61	
9	0	0	35054	67	-.47	1.28	.01	1.0	1.0	-.50	Q2c
1	1	1	16912	33	1.07	1.19	.01	1.0	.9	.50	
20	0	0	30009	58	-.55	1.32	.01	1.1	1.1	-.47	Q4b
1	1	1	21957	42	.83	1.21	.01	1.0	1.0	.47	
15	0	0	28814	55	-.79	1.17	.01	.8	.8	-.63	Q3c
1	1	1	23152	45	1.05	1.05	.01	.8	.7	.63	
7	0	0	28300	54	-.68	1.25	.01	1.0	.9	-.54	Q2a
1	1	1	23666	46	.88	1.18	.01	1.0	.9	.54	
2	0	0	27236	52	-.78	1.19	.01	.9	.8	-.59	Q1b
1	1	1	24730	48	.92	1.14	.01	.9	.8	.59	
3	0	0	26450	51	-.66	1.32	.01	1.1	1.1	-.49	Q1c
1	1	1	25516	49	.75	1.20	.01	1.0	1.0	.49	
8	0	0	25835	50	-.55	1.36	.01	1.2	1.3	-.40	Q2b
1	1	1	26131	50	.61	1.28	.01	1.2	1.2	.40	
28	0	0	25769	50	-.65	1.28	.01	1.0	1.1	-.47	Q5d
1	1	1	26197	50	.71	1.26	.01	1.1	1.1	.47	
1	0	0	25297	49	-.56	1.33	.01	1.2	1.2	-.40	Q1a
1	1	1	26669	51	.59	1.32	.01	1.2	1.4	.40	
27	0	0	25217	49	-.80	1.26	.01	1.0	.9	-.56	Q5c
1	1	1	26749	51	.81	1.13	.01	.9	.8	.56	

29	0	0	24573	47	-.67	1.35	.01	1.1	1.2	-.46	Q5e
1	1	1	27393	53	.66	1.21	.01	1.0	1.0	.46	
16	0	0	24283	47	-.89	1.19	.01	.9	.8	-.60	Q3d
1	1	1	27683	53	.84	1.12	.01	.8	.8	.60	
19	0	0	23810	46	-.68	1.37	.01	1.1	1.3	-.45	Q4a
1	1	1	28156	54	.63	1.22	.01	1.0	1.0	.45	
13	0	0	22359	43	-.90	1.22	.01	.9	.9	-.56	Q3a
1	1	1	29607	57	.74	1.18	.01	.9	.9	.56	
25	0	0	20967	40	-.94	1.20	.01	.9	.8	-.55	Q5a
1	1	1	30999	60	.69	1.20	.01	.9	.9	.55	
11	0	0	20660	40	-.73	1.25	.01	1.1	1.1	-.43	Q2e
1	1	1	31306	60	.54	1.34	.01	1.2	1.3	.43	
14	0	0	17989	35	-1.15	1.17	.01	.8	.7	-.60	Q3b
1	1	1	33977	65	.66	1.15	.01	.8	.8	.60	
24	0	0	17537	34	-.96	1.30	.01	1.0	1.1	-.49	Q4f
1	1	1	34429	66	.53	1.24	.01	1.0	1.0	.49	
26	0	0	16653	32	-.92	1.39	.01	1.1	1.3	-.45	Q5b
1	1	1	35313	68	.48	1.23	.01	1.0	1.0	.45	
4	0	0	9290	18	-1.01	1.47	.02	1.3	1.6	-.34	Q1d
1	1	1	42676	82	.26	1.33	.01	1.1	1.1	.34	
12	0	0	8157	16	-1.35	1.40	.02	1.0	1.1	-.41	Q2f
1	1	1	43809	84	.29	1.30	.01	1.0	1.0	.41	
18	0	0	6854	13	-1.28	1.42	.02	1.2	1.2	-.36	Q3f
1	1	1	45112	87	.23	1.34	.01	1.1	1.1	.36	
10	0	0	5456	10	-1.40	1.45	.02	1.1	1.2	-.34	Q2d
1	1	1	46510	90	.20	1.34	.01	1.0	1.0	.34	

From: [Alana Saunders](#)
To: [Kevin Hoar](#)
Subject: RE: Numeracy May 2024 assessment year group numbers.
Date: Friday, 26 July 2024 1:42:14 PM
Attachments: [image003.png](#)
[PRS-5656 Numeracy assessments by year level v0.1.xlsx](#)

Hi Kevin,

Full data is attached.

[PRS-5656 Numeracy assessments by year level v0.1.xlsx]

Thanks,
Alana

From: Russell Hazeldine <xxxxxxx.xxxxxxxxx@xxxx.xxxx.xx>
Sent: Friday, July 26, 2024 11:51 AM
To: Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx>
Cc: Alana Saunders <xxxxx.xxxxxxxxx@xxxx.xxxx.xx>
Subject: RE: Numeracy May 2024 assessment year group numbers.

Good afternoon Kevin – Alana’s data below has been reviewed successfully

Cheers
Russell



From: Alana Saunders <[xxxxx.xxxxxxxxx@xxxx.xxxx.xx](#)>
Sent: Friday, July 26, 2024 10:49 AM
To: Kevin Hoar <[xxxxx.xxxx@xxxx.xxxx.xx](#)>
Cc: Russell Hazeldine <[xxxxxxx.xxxxxxxxx@xxxx.xxxx.xx](#)>
Subject: RE: Numeracy May 2024 assessment year group numbers.

Hi Kevin,

I can give you an unreviewed amount.

Year 10: 29,455
Other: 25,088
Total: 54,543

Proportion Year 10: 54%

Russell is reviewing these numbers at the moment so I’ll let you know if anything changes.

Thanks,
Alana

From: Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx>
Sent: Friday, July 26, 2024 10:45 AM
To: Alana Saunders <xxxxx.xxxxxxxx@xxxx.xxxx.xx>
Subject: Re: Numeracy May 2024 assessment year group numbers.

Hi Alana.

We are actually meeting with Charles at the moment.

Could you please find out the number (or %) of year 10s versus the total.
The other levels can come later.

Thanks so much.

Cheers.
Kevin

Kevin Hoar | National Assessment Facilitator

External Assessment Team

Assessment Division | Wāhanga Aromatawai

New Zealand Qualifications Authority | Mana Tohu Mātauranga o Aotearoa



xxxxx.xxxx@xxxx.xxxx.xx



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6140

He rerekē tatou katoa – awhi i te oranga ki te katoa

We are all different – embrace life to the fullest

From: Alana Saunders <xxxxx.xxxxxxxx@xxxx.xxxx.xx>
Sent: Friday, 26 July 2024 10:11
To: Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx>

Subject: RE: Numeracy May 2024 assessment year group numbers.

Hi Kevin,

It wouldn't be too hard. How quickly do you need this? I assume before you meet with Charles today? I'll need to shuffle some things around but that's fine.

Alana

From: Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx>

Sent: Friday, July 26, 2024 10:09 AM

To: Alana Saunders <xxxxx.xxxxxxxx@xxxx.xxxx.xx>

Subject: Numeracy May 2024 assessment year group numbers.

Hi Alana.

Is it possible / easy to get the numbers who sat the latest Numeracy assessment based on year levels - i.e. year 7, 8, 9, 10, 11, 12, 13, tertiary numbers.

Thanks so much.

Cheers.

Kevin

Kevin Hoar | National Assessment Facilitator

External Assessment Team

Assessment Division | Wāhanga Aromatawai

New Zealand Qualifications Authority | Mana Tohu Mātauranga o Aotearoa



Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority



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Time Period	Secondary/Tertiary	Year Level	Participating Students
2024-T2	Secondary		1
2024-T2	Secondary	7	4
2024-T2	Secondary	8	12
2024-T2	Secondary	9	1,498
2024-T2	Secondary	10	29,455
2024-T2	Secondary	11	19,900
2024-T2	Secondary	12	2,573
2024-T2	Secondary	13	1,079
2024-T2	Secondary	14	18
2024-T2	Secondary	15	3

PRS-5656 Numeracy assessments by year level

Psychometrics, Reporting and Statistics, Data & Data Analysis, NZQA

Request:

Is it possible / easy to get the numbers who sat the latest Numeracy assessment based on year levels - i.e. year 7, 8, 9, 10, 11, 12, 13, tertiary numbers.

Requestor:

Kevin Hoar

Includes:

Students that appear in Assessment Master for the 2024 Term 2 Numeracy Session.
A breakdown for MoE Year Level and a Secondary/Tertiary flag.

Excludes:

Held Learners
Slave NSNs
Withdrawn Entries
Withdrawn Enrolments

Notes:

This information is live and as at 10:30am on 26/07/2024.
At this time, we don't know which students have voided so they are included in the counts.

Run Information:

Run on 26/07/2024, in PDSQL07 using assessment_master_marks and eqa dbo tables.

From: [Kevin Hoar](#)
To: [Alana Saunders](#); [Susan Henry](#)
Subject: Re: Lit-num quality assurance checks
Date: Thursday, 1 August 2024 12:55:56 PM
Attachments: [image001.png](#)

Second time around - stupid Office 365!

For Numeracy:

1. 791 (assuming we are talking about the number marked on Google Drive).
2. None that I am aware of, but who knows....
3. Cut is 16. Outcome cuts are 5, 5, 2.
4. 30 question items - 5 questions/context, each with 6 items/question parts.
5. Nothing I can think of.

Cheers.

Kevin

From: Alana Saunders <x@xx>
Sent: Thursday, 1 August 2024 10:25
To: Susan Henry <x@xx>; Kevin Hoar <x@xnz>
Subject: Lit-num quality assurance checks

Hello Sue and Kevin,

Apologies for being away the past few days. I am back on board and about to start quality assurance checks. I have some questions that would help with this if you wouldn't mind providing some information. For yours Sue, it would help if these could be split into week 1 and week 2.

1. Approximately how many students responded on paper?
2. Are there currently any students yet to have responses loaded?
3. What are the cut scores?
4. Only for Kevin – How many questions were there in the numeracy paper? I just want to check the database has the right number showing.
5. Is there anything else we should be aware of when doing checks?

Thanks,

Alana Saunders ([she/her](#))

Statistical Analyst | Kaitātari Tauanga

Psychometrics, Reporting and Statistics | Te Tauanga Hinengaro, Pūrongo, me te Tauranga

[New Zealand Qualifications Authority | Mana Tohu Mātauranga o Aotearoa](#)

Mon

Tue

Wed

Thu

Fri



Numeracy 32406

2024 – Term 2

Introduction

This report presents the analysis of the Numeracy 32406 assessment that was conducted during the 2nd term in 2024.

Results

The assessment (30 multiple choice items) was divided into three outcomes:

- Outcome 1 represented by 12 items
- Outcome 2 represented by 11 items
- Outcome 3 represented by 7 items.

To achieve the Standard, students were required to meet/exceed all of the following conditions:

- Condition 1
 - Correctly answer at least 5 items from Outcome 1
- Condition 2
 - Correctly answer at least 5 items from Outcome 2
- Condition 3
 - Correctly answer at least 2 items from Outcome 3
- Condition 4
 - Correctly answer a total of least 16 items.

A total of 55,765 student-responses were used for the analysis.

Table 1 shows the number of students and the percentage of students that met/exceeded each condition independent of the other conditions. As seen from the table, the lowest percentage of 48.8 percent shows the most difficult (hardest) of the four conditions was Condition 4.

Table 1. Number of students and percentage of students that met/exceeded each condition.

Condition	No. of students	Percent (%)
1	39,901	71.6
2	40,259	72.2
3	35,587	63.8
4	27,191	48.8

Table 2 shows the number of students and the percentage of students by grade.

Table 2. Number of students and percentage of students by grade. N = Not Achieved and A = Achieved.

Grade	No. of students	Percent (%)
N	30,431	54.6
A	25,334	45.4

The table shows that 54.6 percent of the students that participated in the assessment attained an N grade, i.e. 54.6 percent did not meet/exceed all four conditions concurrently. On the other hand, the table shows that 45.4 percent of the students attained an A grade, i.e. 45.4 percent of the students met/exceeded all four conditions concurrently.

Results by item are shown in Table 3. The table shows:

- An item's associated Outcome (1, 2, or 3)
- Percentage of students who voided the item
- Of the students who did not void the item
 - The percentage of students who answered the item incorrectly
 - The percentage of students who answered the item correctly.

An inspection of the table shows:

- Item Q1a
 - Is associated with Outcome 1
 - 0.1 percent of the 55,765 students voided the item
 - Of the students who did not void the item, 45.0 percent of them answered it incorrectly, and
 - Of the students who did not void the item, 55.0 percent of them answered it correctly
- The item with the highest void percentage was
 - Item Q5f
 - Associated with Outcome 3
 - 5.3 percent of the 55,765 students voided the item.

Table 3. Percentages of Voids, Incorrect, and Correct, by item.

Item	Outcome	Void (%)	Incorrect (%)	Correct (%)
Q1a	1	0.1	45.0	55.0
Q1b	2	0.9	52.0	48.0
Q1c	2	3.3	49.1	50.9
Q1d	1	0.4	17.6	82.4
Q1e	3	4.5	79.7	20.3
Q1f	2	0.4	69.5	30.5
Q2a	1	0.4	54.2	45.8
Q2b	1	0.2	49.4	50.6
Q2c	3	4.2	65.9	34.1
Q2d	2	0.2	10.2	89.8
Q2e	2	0.2	39.5	60.5
Q2f	2	0.7	15.2	84.8
Q3a	1	1.5	42.1	57.9
Q3b	2	0.8	34.1	65.9
Q3c	2	1.6	54.7	45.3
Q3d	1	3.8	44.5	55.5
Q3e	3	2.5	75.6	24.4
Q3f	1	0.3	12.7	87.3
Q4a	1	0.8	45.5	54.5
Q4b	3	2.8	56.3	43.7
Q4c	1	1.8	74.0	26.0
Q4d	2	0.5	74.3	25.7
Q4e	1	2.6	87.1	12.9
Q4f	2	1.9	32.2	67.8
Q5a	1	2.6	38.8	61.2
Q5b	2	0.8	31.5	68.5
Q5c	3	4.8	45.7	54.3
Q5d	1	2.6	48.2	51.8
Q5e	3	3.2	45.7	54.3
Q5f	3	5.3	67.8	32.2

Table 4 shows:

- The items ordered by incorrect percentages from the lowest value to the highest value, i.e. ordered from the least difficult (easiest) item to the most difficult (hardest) item
- The item's relative difficulty
 - Difficulty relative to the least difficult (easiest) item.

An inspection of the table shows:

- The least difficult (easiest) item was Q2d
 - Associated with Outcome 2
 - With 10.2 percent of students answering it incorrectly
- The most difficult (hardest) item was Q4e
 - Associated with Outcome 1
 - With 87.1 percent of students answering it incorrectly, and
 - With relative difficulty of 8.6

- That is, Q4e was 8.6 times more difficult (harder) than Q2d, the least difficult (easiest) item.

Table 4. Items ordered by incorrect percentages from the lowest value to the highest value, i.e., ordered from the least difficult (easiest) item to the most difficult (hardest) item, as well as an item's relative difficulty (relative to the least difficult item). Font colouring corresponds to the items associated outcome: Blue = Outcome 1, Green = Outcome 2, and Red = Outcome 3.

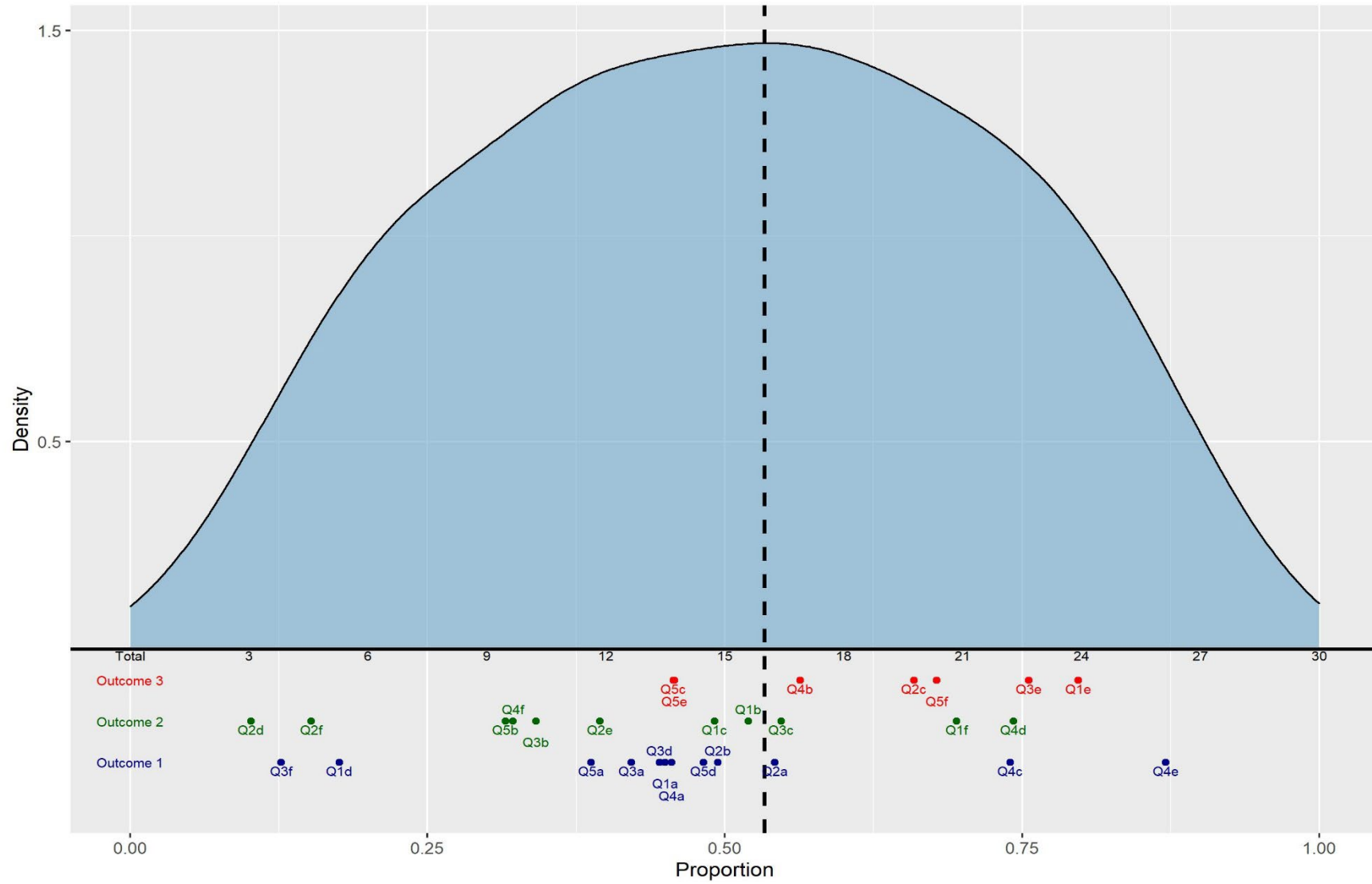
Item	Incorrect (%)	Relative Difficulty
Q2d	10.2	1.00 – Baseline
Q3f	12.7	1.2
Q2f	15.2	1.5
Q1d	17.6	1.7
Q5b	31.5	3.1
Q4f	32.2	3.2
Q3b	34.1	3.4
Q5a	38.8	3.8
Q2e	39.5	3.9
Q3a	42.1	4.1
Q3d	44.5	4.4
Q1a	45.0	4.4
Q4a	45.5	4.5
Q5c	45.7	4.5
Q5e	45.7	4.5
Q5d	48.2	4.7
Q1c	49.1	4.8
Q2b	49.4	4.9
Q1b	52.0	5.1
Q2a	54.2	5.3
Q3c	54.7	5.4
Q4b	56.3	5.5
Q2c	65.9	6.5
Q5f	67.8	6.7
Q1f	69.5	6.8
Q4c	74.0	7.3
Q4d	74.3	7.3
Q3e	75.6	7.4
Q1e	79.7	7.8
Q4e	87.1	8.6

The distribution of student scores and item difficulties are summarised graphically in Figure 1. For the purpose of presenting the data graphically, the item difficulties have been converted to proportions from percentages. The item difficulties are represented by dots separated into associated outcomes with the item number beside the dot. Items located to the right were more difficult than items located to the left. As can be seen from Figure 1:

- The distribution of student scores is asymmetric
 - More particularly, a negatively-skewed distribution
- The least difficult (easiest) item was Q2d
 - The dot farthest to the left

- Associated with Outcome 2
- The most difficult item was Q4e
 - The dot farthest to the right
 - Associated with Outcome 1.

Figure 1. Distribution of student scores, and location of item difficulties. The vertical dashed line is at the student score equal to 16. Font colouring corresponds to the items associated outcome: Blue = Outcome 1, Green = Outcome 2, and Red = Outcome 3.



From: [Kevin Hoar](#)
To: y [REDACTED]
Subject: Eldon's report on the first assessment round for 2024.
Date: Monday, 2 September 2024 8:58:26 AM
Attachments: [Outlook-fwxqeimf.png](#)
[2024 Numeracy Term 2 Report from Eldon v01.docx](#)

Hi [REDACTED]

To be honest, things are heating up here regarding Lit/Num.

Attached is Eldon's report for the Term 2 Numeracy assessment for your edification. Hopefully, there is information in this report that would inform the development of the 2025 assessments.

Cheers.

Kevin

Kevin Hoar | National Assessment Facilitator

Co-Requisite Team

Assessment Division | Wāhanga Aromatawai

New Zealand Qualifications Authority | Mana Tohu Mātauranga o Aotearoa



[REDACTED]
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From: [Eldon Paki](#)
To: [REDACTED]
Cc: [Kevin Hoar](#); [Alana Saunders](#)
Subject: RE: FW: FW: Rasch
Date: Thursday, 18 July 2024 3:53:17 PM

Hi [REDACTED]

The stuff I provide to inform the cut score setting process that's outputted from the Winsteps software will need to be based on the data in the database as at tomorrow morning when Alana does the data extraction and forwards it to me to do my magic with Winsteps.

Recall that I'm on leave next week and I'm the only one in NZQA with their Winsteps "Driver's License" so I need to do my thing before COB tomorrow.

I'm hoping that over 90 percent will be complete by extraction time tomorrow morning. Once I do my Winsteps thing and various cross-checks, I'll be able to forward the stuff through to you sometime tomorrow afternoon.

I'm also hoping that the material I forward (that informs the cut score setting process) captures most of the student volume and will be representative of the uncaptured student volume at the time of the data extraction.

Any worries then let me know.

Hokey Cokey??

Eldon

From: [REDACTED]
Sent: Thursday, July 18, 2024 8:58 AM
To: Eldon Paki <~~x@xx~~>; Alana Saunders <Alana.Saunders@nzqa.govt.nz>; Kevin Hoar <~~x@xx~~>
Subject: Re: FW: FW: Rasch

Hello Eldon and Alana

I hope all is well with you.

Our Numeracy marking team aims to be complete by Sunday 21 July. It is likely that most of the schools are complete by now but we have no easy way to check with AM. Kevin and I will meet with [REDACTED] to discuss cut-scores on Friday 26 July. So the time frame is short.

Is it worthwhile having a quick catchup today or tomorrow to discuss what is needed and things at your end?

I am happy to catch up next week. Monday and Tuesday mornings are relatively free.

Regards



On Thu, Jun 27, 2024 at 3:46 PM Eldon Paki <xxxxx.xxxx@xxxx.xxxx.xx> wrote:


Hi Vince,

Regarding the attached output from Winsteps back in Dec last year – for financial reasons, moving forward, Management do not wish to renew our Winsteps license.

If the Winsteps license is not renewed I won't be able to provide the two attached pieces of output.

Questions:

- Do you actually need these two outputs for the cut score decision-making process?
- Will an alternative to these outputs be acceptable?

I've discovered that  for the cut score decision-making process (i) doesn't actually use the csv file, (ii) but uses the following parts of the txt file:

- ENTRY NUMBER
- TOTAL SCORE
- TOTAL COUNT
- JMLE MEASURE
- PTMEASUR-AL
 - CORR.

Due of the cost-cutting environment, I've attempted to move away from Winsteps software to R software and have found you win some, you lose some.

Anyhow, using R:

- Producing the outputted csv file is simply impossible
- I'll be able to output the following parts of the txt file
 - ENTRY NUMBER
 - TOTAL SCORE
 - TOTAL COUNT
 - MEASURE
- It won't be the JMLE measure that Winsteps computes but will be the MLE measure that R computes
 - The Winsteps JMLE measure and the R MLE measure have the same orders of magnitude.

It may be easier to video-chat about these matters. If so, can you give me a couple of time-windows (in case of timeslot clashes)? I can't see it lasting longer than half an hour (I reckon it can be done in about 15-20 mins). Oops, just had a conversation with Kevin and he said you're a Zoom person while we're Microsoft Teams people.

Anyway, let me know via a response to the questions above, or with a couple of time-windows to set up the online meeting.

Hokey Cokey??
Eldon

From: Eldon Paki
Sent: Saturday, December 16, 2023 11:48 AM
To: [REDACTED]
Cc: Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx>; Alana Saunders <xxxxx.xxxxxxxx@xxxx.xxxx.xx>
Subject: RE: Rasch

Hi [REDACTED]

Attached are the Numeracy equivalent files of those I churned out for [REDACTED] related to Literature-Reading.

As mentioned yesterday the input dataset was the "unaffected" students.

One other caveat related to the input dataset – any non-responses (i.e. students not attempting the item) have been coded as "incorrect answer" (rather than legitimately as a non-response).

Regarding the csv file:

- For my purposes I pay attention to columns A and B
 - The Scores (in this assessment out of 30) and associated (JMLE) Measure
 - JMLE = Joint Maximum Likelihood Estimate.

Regarding the txt file:

- Regarding the 1st table only in the file
 - It orders the JMLE Measures for each item in decreasing order
 - That is, from the most difficult item to the least difficult item.

Here's a thought I've had which I may include in the analysis as a recommendation providing things stack up. I've got a suspicion that *psychometrically* the assessment may be double-testing a few mathematical skills, which if true means we could test those said skills just the once and therefore shorten the assessment by a "block" of items, like removing the block of items from Q5 (say), and shortening the assessment to 25 items (say).

I'll be available until 4:00 pm today. If you want to yarn over the phone then my work number (I'm here at work until about 4:30 pm – 5:00 pm-ish) is [REDACTED]. It'll pay to phone through on your cell of [REDACTED] (if I don't recognise the number I usually don't pickup).

Any worries then let me know.

Hokey Cokey??

Eldon

From: [REDACTED]
Sent: Friday, December 15, 2023 2:33 PM
To: Eldon Paki <xxxxx.xxxx@xxxx.xxxx.xx>
Subject: Re: Rasch

Hi Eldon

That will be brilliant.

Thanks

[REDACTED]

On Fri, Dec 15, 2023 at 2:10 PM Eldon Paki <xxxxx.xxxx@xxxx.xxxx.xx> wrote:

Hi [REDACTED]

I'll conduct the analysis using the dataset with the "unaffected" students.

I'll assume you're referencing the output that Charles got me to I churned out for the Reading CAA, so will produce the Numeracy equivalent output.

I'll ping it through to you some time tomorrow morning.

Hokey Cokey??

Eldon

From: Vince Wright <xxxxx.xxxxxx.x.xx@xxxxx.xxx>

Sent: Friday, December 15, 2023 1:51 PM

To: Eldon Paki <xxxxx.xxxx@xxxx.xxxx.xx>; Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx>

Subject: Rasch

Kia ora Eldon

I hope all is well.

[REDACTED] tells me that you produced a Rasch analysis for the items in the latest Reading CAA (Term 4, 2023).

Is it possible for you to produce a similar scale for the Numeracy items?

That would be very helpful to us.

Thanks and regards

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[Redacted]

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[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

From: [Kevin Hoar](#)
To: [Catherine Edser](#); [Hamsa Lilley](#)
Cc: [Susan Henry](#)
Subject: Re: Quick check in and confirmation of next steps with the lit num results issue
Date: Thursday, 15 August 2024 3:10:27 PM
Attachments: [Outlook-srrq4t35.png](#)

Hi Catherine.

For **Numeracy**:

Personally - I would like to invoke the 'no candidate is disadvantaged by a systems issue' situation and suggest that all 35 A to N results **stay as A**.

I think taking down even one result from A to N will result in further "please explain" work being done further down the line.

Cheers.

Kevin

Kevin Hoar | National Assessment Facilitator

External Assessment Team

Assessment Division | Wāhanga Aromatawai

New Zealand Qualifications Authority | Mana Tohu Mātauranga o Aotearoa



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From: Catherine Edser <xxxxxxxxx.xxxx@xxxx.xxxx.xx>

Sent: Thursday, 15 August 2024 14:54

To: Hamsa Lilley <xxxxx.xxxxx@xxxx.xxxx.xx>

Cc: Susan Henry <xxxxx.xxxx@xxxx.xxxx.xx>; Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.nz>

Subject: RE: Quick check in and confirmation of next steps with the lit num results issue

Looking at candidates whose result changed from A → N

Literacy Writing

- 4 candidates did not have a change to the total score (so the changes balanced out in total but dropped them below the cut score for at least one outcome).
- 100 candidates had a reduction to their total score; 1 was -6, 1 was -5, 6 were -4, 6 were -3, 26 were -2, and 60 were -1.

Numeracy

- 1 candidate did not have a change to the total score (so the changes balanced out in total but dropped them below the cut score for at least one outcome).
- 34 candidates had a reduction to their total score; 10 were -2 and 24 were -1.

Cheers,
Catherine.

From: Hamsa Lilley <xxxxx.xxxxxx@xxxx.xxxx.xx>
Sent: Thursday, August 15, 2024 2:22 PM
To: Catherine Edser <xxxxxxxxx.xxxxx@xxxx.xxxx.xx>
Cc: Susan Henry <xxxxx.xxxxx@xxxx.xxxx.xx>; Kevin Hoar <xxxxx.xxxx@xxxx.xxxt.nz>
Subject: RE: Quick check in and confirmation of next steps with the lit num results issue

Ok thank you.

From: Catherine Edser <xxxxxxxxx.xxxxx@xxxx.xxxx.xx >
Sent: Thursday, August 15, 2024 2:21 PM
To: Hamsa Lilley <xxxxx.xxxxxx@xxxx.xxxx.xx >
Cc: Susan Henry <xxxxx.xxxxx@xxxx.xxxx.xx >; Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx >
Subject: RE: Quick check in and confirmation of next steps with the lit num results issue

If we process the scores as they are, it's definitely **will** have their feedback reports altered.

I ran the new and old scores through the thresholds (after Kevin helped me) for each level of evidence for each standard and outcome and it **will** change where the tick goes.

Doing this allowed me to remove/ignore cases where processing the new scores will cause the underlying number to change, but not move the tick in the feedback report (so the candidates/schools will not see ANY difference regardless of what we do).

I'm very happy for Kevin/Sue to spot-check a few to ensure I've done this correctly but yes, as far as I can see ... it's will.

Cheers,
Catherine.

From: Hamsa Lilley <xxxxx.xxxxxx@xxxx.xxxx.xx >
Sent: Thursday, August 15, 2024 2:19 PM
To: Catherine Edser <xxxxxxxxx.xxxxx@xxxx.xxxx.xx >
Cc: Susan Henry <xxxxx.xxxxx@xxxx.xxxx.xx >; Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx >
Subject: RE: Quick check in and confirmation of next steps with the lit num results issue

And one more thing – Sue (Kevin if required but I think it is mostly writing), can you look at Catherine's s/s – what I want to understand is the accuracy of the Not Achieved reports

where the student actually did a lot better than the report says they had.

Thanks, Hamsa

From: Catherine Edser <xxxxxxxxx.xxxxx@xxxx.xxxx.xx >

Sent: Thursday, August 15, 2024 2:12 PM

To: Hamsa Lilley <xxxxx.xxxxxx@xxxx.xxxx.xx >

Cc: Susan Henry <xxxxx.xxxxx@xxxx.xxxx.xx >; Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx >

Subject: RE: Quick check in and confirmation of next steps with the lit num results issue

Hi Hamsa (and FYI Sue/Kevin),

Here's the spreadsheet what I have been working away on.

Summary for meeting:

- There are 405 assessments that have a material or unknown change in their result.
 - By type of change:
 - Upgrades = 260
 - Literacy Writing = 176
 - Numeracy = 77
 - Te Reo Matatini Te Reo Torohū = 6
 - Te Reo Matatini Reo Whakaputa = 1
 - Downgrades = 139
 - Literacy Writing = 104
 - Numeracy = 35
 - Unknown = 6
 - Literacy Writing = 5
 - Numeracy = 1
 - By Standard:
 - Literacy Writing = 285
 - Numeracy = 113
 - Te Reo Matatini Te Reo Torohū = 6
 - Te Reo Matatini Reo Whakaputa = 1
- There are 1,141 assessments where there is no material change to their result
 - Of these, 1,081 assessments (for 1,079 learners) are Not Achieved.
 - Of these, 725 learners will have their feedback report(s) altered.

So, in total if all results were transferred as is 1,130 learners would be affected.

Cheers,
Catherine.

-----Original Appointment-----

From: Hamsa Lilley <xxxxx.xxxxxx@xxxx.xxxx.xx>
Sent: Thursday, August 15, 2024 11:36 AM
To: Hamsa Lilley; Catherine Edser; Sue Chalmers; Amanda Picken; Gavin Middleton; Keri-Anne Stephens; Linda Glogau
Cc: Sheryl Ching; Natasha Ropata
Subject: Quick check in and confirmation of next steps with the lit num results issue
When: Thursday, 15 August 2024 3:00 PM-3:30 PM (UTC+12:00) Auckland, Wellington.
Where: Microsoft Teams Meeting

Kia ora koutou

We are working through next steps today. At this meeting we will confirm the approach, the results change process and comms to schools process.

Hamsa

Microsoft Teams [Need help?](#)

[Join the meeting now](#)

Meeting ID: 443 110 743 576

Passcode: PJsWJX

For organizers: [Meeting options](#)

From: [Kevin Hoar](#)
To: [REDACTED]
Subject: Re: The data you requested from Alana and Catherine.
Date: Wednesday, 21 August 2024 6:14:01 PM
Attachments: [Outlook-rqxeihp1.png](#)

Hi [REDACTED]
Totally agree! It was the Year 11 and 12s who brought the overall pass rate stats down.
Cheers
Kevin

Get [Outlook for Android](#)

From: [REDACTED]
Sent: Wednesday, August 21, 2024 5:11:01 PM
To: Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx>
Subject: Re: The data you requested from Alana and Catherine.

Hi Kevin

It really does confirm what we suspected about Year 11s who possibly sat previously. The data for low SES is awful.
The success rate of Year 10s is about the same as last year.
Let's hope for a balance of deciles in the next round.

Cheers

[REDACTED]

On Wed, Aug 21, 2024 at 4:45 PM Kevin Hoar <xxxxx.xxxx@xxxx.xxxx.xx> wrote:

Hi [REDACTED].

I received the following information about success rates for different year levels for the first Numeracy assessment event this year.

Sorry it has taken so long.

Cheers.
Kevin

Assuming this has not already been resolved, here's the information Vince was asking for:

By Year Level:

Standard	Year Level	Participating students	Achieved students	Achievement rate
Numeracy	7	4	0	0.0%
	8	11	4	36.4%
	9	1,500	753	50.2%

	10	29,750	16,893	56.8%
	11	20,406	6,277	30.8%
	12	2,648	861	32.5%
	13	1,119	469	41.9%
	14	21	12	57.1%
	15	3	2	66.7%

By SES (I can probably go back to previous years, but this is what I have immediately to hand; if that's enough, great, if not, let us know):

Standard	Socio-economic Barriers to Achievement (EQI Group)	Participating students	Achieved students	Achievement rate
Numeracy	Fewer (High decile)	12,805	7,948	62.1%
	Moderate (Mid decile)	31,596	13,521	42.8%
	More (Low decile)	7,938	1,567	19.7%
	Unassigned	3,136	2,244	71.6%

Feel free to pass this on to him, with whatever notes / caveats you would like to add.

Kevin Hoar | National Assessment Facilitator

External Assessment Team

Assessment Division | Wāhanga Aromatawai

New Zealand Qualifications Authority | Mana Tohu Mātauranga o Aotearoa



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He rerekē tatou katoa – awahi i te oranga ki te katoa

We are all different – embrace life to the fullest

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SCORE	MEASURE	S.E.	INFO	NORMED	S.E.	FREQUENCY	%
0	-5.42	1.86	0.29	122	129	123	0.2
1	-4.13	1.06	0.89	211	73	296	0.6
2	-3.32	0.79	1.62	268	54	513	1.0
3	-2.80	0.67	2.24	304	46	845	1.6
4	-2.40	0.60	2.78	331	42	1217	2.3
5	-2.07	0.55	3.26	354	38	1425	2.7
6	-1.78	0.52	3.71	374	36	1775	3.4
7	-1.53	0.49	4.11	392	34	1893	3.6
8	-1.30	0.47	4.48	408	33	2003	3.9
9	-1.08	0.46	4.80	423	32	2089	4.0
10	-0.88	0.44	5.08	437	31	2242	4.3
11	-0.69	0.43	5.31	450	30	2409	4.6
12	-0.50	0.43	5.50	463	30	2464	4.7
13	-0.32	0.42	5.64	476	29	2401	4.6
14	-0.15	0.42	5.73	488	29	2546	4.9
15	0.03	0.42	5.77	500	29	2580	5.0
16	0.20	0.42	5.76	512	29	2581	5.0
17	0.38	0.42	5.70	524	29	2577	5.0
18	0.55	0.42	5.59	536	29	2501	4.8
19	0.73	0.43	5.43	549	30	2425	4.7
20	0.92	0.44	5.23	562	30	2352	4.5
21	1.12	0.45	4.98	575	31	2228	4.3
22	1.32	0.46	4.68	590	32	2170	4.2
23	1.55	0.48	4.34	605	33	1986	3.8
24	1.79	0.50	3.94	622	35	1821	3.5
25	2.06	0.54	3.48	640	37	1534	3.0
26	2.37	0.58	2.96	662	40	1208	2.3
27	2.74	0.65	2.37	688	45	838	1.6
28	3.24	0.77	1.70	722	53	529	1.0
29	4.02	1.04	0.92	777	72	281	0.5
30	5.29	1.85	0.29	865	128	114	0.2

CUM.FREQ.	%	PERCENTILE	1	2	3	4	5
123	0.2	0	0.00	0.00	0.00	0.00	0.00
419	0.8	1	0.02	0.01	0.01	0.11	0.00
932	1.8	1	0.04	0.03	0.03	0.21	0.00
1777	3.4	3	0.06	0.05	0.05	0.31	0.01
2994	5.8	5	0.09	0.07	0.08	0.40	0.01
4419	8.5	7	0.12	0.10	0.10	0.49	0.02
6194	11.9	10	0.15	0.12	0.13	0.56	0.02
8087	15.6	14	0.18	0.15	0.17	0.62	0.03
10090	19.4	17	0.22	0.19	0.20	0.67	0.04
12179	23.4	21	0.26	0.22	0.24	0.72	0.04
14421	27.8	26	0.30	0.26	0.28	0.76	0.05
16830	32.4	30	0.34	0.30	0.32	0.79	0.06
19294	37.1	35	0.38	0.34	0.36	0.82	0.08
21695	41.7	39	0.43	0.38	0.40	0.84	0.09
24241	46.6	44	0.47	0.42	0.44	0.87	0.11
26821	51.6	49	0.51	0.46	0.48	0.89	0.12
29402	56.6	54	0.56	0.51	0.53	0.90	0.14
31979	61.5	59	0.60	0.55	0.57	0.92	0.17
34480	66.4	64	0.64	0.59	0.61	0.93	0.19
36905	71.0	69	0.68	0.64	0.66	0.94	0.22
39257	75.5	73	0.72	0.68	0.70	0.95	0.26
41485	79.8	78	0.76	0.72	0.74	0.96	0.30
43655	84.0	82	0.80	0.76	0.77	0.97	0.34
45641	87.8	86	0.83	0.80	0.81	0.97	0.39
47462	91.3	90	0.86	0.83	0.85	0.98	0.45
48996	94.3	93	0.89	0.87	0.88	0.98	0.52
50204	96.6	95	0.92	0.90	0.91	0.99	0.60
51042	98.2	97	0.94	0.93	0.93	0.99	0.68
51571	99.2	99	0.96	0.96	0.96	0.99	0.78
51852	99.8	99	0.98	0.98	0.98	1.00	0.89
51966	100.0	99	1.00	1.00	1.00	1.00	1.00

Numeracy (32406)

Students whose Numeracy was clearly at or above the standard demonstrated strengths in:

- locating the position of 225 million years ago on a timeline
- reading a line graph to determine the number of tuatara present, for a given year
- extending a visual growth pattern (1, 3, 7, 15, ...) to find the total number of squares in the next term
- locating all the lines of reflection symmetry for a headband design
- applying the mass of one litre of water to find the mass of an empty water container
- finding the unit rate charge, given the total cost and amount used
- establishing which season had the highest rainfall, from a time series graph
- reading a line graph to determine the difference in attendance at *Polyfest*, for two given years
- using a timetable to compare the duration of two different types of performance
- calculating how many times heavier the tuatara is than the wētā, given the mass of both animals
- modelling how many tuatara will be born in 10 years, given the frequency of egg laying and the number of eggs per clutch
- interpreting the scale on a map to find the location of an offshore island
- selecting the top view that matches pictures of a sculpture
- calculating how many amounts of \$1000 there are in \$2,600,000
- interpreting a time given in hours and minutes and rounding it to the nearest hour
- calculating the number of 250 mL glasses that can be filled from three 1.5 L bottles
- using percentages to compare the amount of water in an adult pig with the amount of water in a piglet
- locating a probability of $\frac{2}{5}$ on a scale from 'impossible' to 'certain'
- using two visual displays to work out how many performers needed to move to change from one formation into another
- organising heights, expressed as decimals, in descending order
- explaining whether, or not, a dot plot of lengths given in mm, provides evidence for the presence of young tuatara
- comparing a cartoon image with normal proportions of human faces, using fractions
- interpreting a graphic about water usage to decide which measure saves the most water
- evaluating a claim about future numbers of attendees using evidence from a time series graph
- using rate (speed) to evaluate a claim about the average speed of a Rugby-7s player during a game
- explaining whether a captain should choose heads or tails for a future coin toss, given a record of three previous tosses
- using a data table to explain the correctness, or incorrectness, of a claim about the percentage of times NZ Sevens teams made Olympic finals.

Students whose Numeracy was below the standard demonstrated that they had difficulty in:

- selecting mathematical and statistical approaches that did not meet the demands of the situation
- interpreting the question correctly
- understanding the problem, as shown by not providing an answer or stating they did not know (IDK)
- calculating or reasoning correctly
- selecting a correct procedure

- taking a position in relation to a given situation (usually any position is accepted if it is justified)
- justifying their position to a given situation by doing more than just restating the claim.

Marker reflections across the assessment that may support next steps:

- experiencing a wide range of realistic contexts from everyday life, and connecting the mathematics and statistics used across a range of contexts
- placing value within large whole numbers, an example of multiplicative operators between amounts, which is essential for working with rates and ratios
- understanding basic units of measurement, especially conversions between units
- interpreting rates
- identifying reflective symmetry
- locating numbers on various scales
- interpreting dot plots to give meaning
- understanding and interpretation of diagrammatic literacy
- interpreting viewpoints given a situation
- continued support for ākongā about taking a mathematical or statistical position and the use of evidence to explain their position.

NUMERACY RESULTS BY YEAR AND EQI GROUPING – ASSESSMENT EVENT ONE 2024

Numeracy achievement rates from the May 2024 assessment.

By Year Level:

Standard	Year Level	Participating students	Achieved students	Achievement rate
Numeracy	7	4	0	0.0%
	8	11	4	36.4%
	9	1,500	753	50.2%
	10	29,750	16,893	56.8%
	11	20,406	6,277	30.8%
	12	2,648	861	32.5%
	13	1,119	469	41.9%
	14	21	12	57.1%
	15	3	2	66.7%

By SES (I can probably go back to previous years, but this is what I have immediately to hand; if that's enough, great, if not, let us know 😊):

□

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