Appendix F: Psychometrics

1. Item Residual Correlation Summary 2
2. Item Level Statistics 8
3. Principal Component Analysis Scree Plots 27
4. Item Difficulty and Person Parameter Wright Maps 36
5. Anchor Item P-Value Comparison 52
6. Historical Performance Level Change 57
7. Reliability by Subgroups 63
8. Raw Score to Scale Score Conversion Tables 66

Appendix F.1: Residual Item Correlation Summary

Residual Item Correlation for ELA Within Part

	Statistic	Grade						
		3	4	5	6	7	8	HS
Part A	N	45	45	45	45	45	45	45
	Mean	-0.03	-0.02	0.00	0.02	0.04	-0.01	0.02
	SD	0.10	0.15	0.18	0.19	0.20	0.16	0.15
	Minimum	-0.19	-0.28	-0.29	-0.28	-0.29	-0.23	-0.18
	P_{10}	-0.14	-0.19	-0.22	-0.20	-0.21	-0.20	-0.14
	P_{25}	-0.11	-0.16	-0.18	-0.16	-0.15	-0.16	-0.13
	P_{50}	-0.04	-0.07	0.06	0.06	0.07	0.01	0.06
	P_{75}	0.06	0.10	0.15	0.16	0.23	0.14	0.15
	P_{90}	0.10	0.18	0.22	0.26	0.28	0.16	0.21
	Maximum	0.19	0.28	0.29	0.41	0.33	0.25	0.29
	>|0.30| (N)	0	0	0	3	2	0	0
	>|0.30| (%)	0	0	0	6.67	4.44	0	0
Part B	N	45	45	45	45	45	45	45
	Mean	-0.04	-0.04	-0.02	-0.04	-0.02	-0.03	-0.03
	SD	0.08	0.09	0.11	0.08	0.09	0.08	0.10
	Minimum	-0.17	-0.21	-0.26	-0.18	-0.17	-0.15	-0.24
	P_{10}	-0.15	-0.13	-0.14	-0.13	-0.12	-0.12	-0.15
	P_{25}	-0.09	-0.10	-0.09	-0.09	-0.07	-0.09	-0.09
	P_{50}	-0.05	-0.04	-0.04	-0.05	-0.03	-0.03	-0.05
	P_{75}	0.00	0.00	0.03	0.00	0.04	0.00	0.04
	P_{90}	0.06	0.09	0.14	0.05	0.09	0.09	0.08
	Maximum	0.11	0.20	0.22	0.15	0.19	0.22	0.13
	>|0.30| (N)	0	0	0	0	0	0	0
	>|0.30| (%)	0	0	0	0	0	0	0
Part C	N	45	45	45	45	45	45	45
	Mean	-0.04	-0.05	-0.04	-0.03	-0.05	-0.04	-0.05
	SD	0.10	0.12	0.09	0.11	0.11	0.12	0.11
	Minimum	-0.19	-0.20	-0.21	-0.18	-0.21	-0.20	-0.23
	P_{10}	-0.15	-0.17	-0.15	-0.14	-0.18	-0.19	-0.17
	P_{25}	-0.13	-0.14	-0.10	-0.12	-0.15	-0.14	-0.11
	P_{50}	-0.04	-0.09	-0.05	-0.07	-0.07	-0.07	-0.07
	P_{75}	0.00	0.05	0.01	0.09	0.03	0.06	0.01
	P_{90}	0.12	0.14	0.05	0.12	0.11	0.16	0.14
	Maximum	0.20	0.21	0.27	0.21	0.20	0.20	0.17
	>|0.30| (N)	0	0	0	0	0	0	0
	>|0.30| (%)	0	0	0	0	0	0	0

Residual Item Correlation for Math Within Part

	Statistic	Grade						
		3	4	5	6	7	8	HS
Part A	N	45	45	45	45	45	45	45
	Mean	-0.02	-0.01	-0.03	-0.02	0.03	-0.01	-0.01
	SD	0.16	0.15	0.16	0.16	0.14	0.15	0.14
	Minimum	-0.22	-0.22	-0.24	-0.26	-0.21	-0.20	-0.18
	P_{10}	-0.19	-0.18	-0.20	-0.20	-0.15	-0.18	-0.15
	P_{25}	-0.16	-0.13	-0.18	-0.16	-0.10	-0.15	-0.13
	P_{50}	-0.12	-0.08	-0.08	-0.05	0.05	-0.10	-0.08
	P_{75}	0.13	0.13	0.12	0.10	0.14	0.14	0.12
	P_{90}	0.18	0.20	0.18	0.20	0.21	0.18	0.18
	Maximum	0.24	0.31	0.23	0.28	0.25	0.21	0.24
	>|0.30| (N)	0	1	0	0	0	0	0
	>|0.30| (%)	0	2.22	0	0	0	0	0
Part B	N	45	45	45	45	45	45	45
	Mean	-0.05	-0.05	-0.05	-0.05	-0.04	-0.04	-0.04
	SD	0.12	0.13	0.11	0.11	0.08	0.09	0.08
	Minimum	-0.24	-0.24	-0.23	-0.25	-0.24	-0.22	-0.18
	P_{10}	-0.20	-0.20	-0.18	-0.17	-0.13	-0.15	-0.14
	P_{25}	-0.13	-0.13	-0.12	-0.13	-0.08	-0.10	-0.09
	P_{50}	-0.05	-0.06	-0.07	-0.06	-0.05	-0.06	-0.04
	P_{75}	0.00	0.03	0.01	0.04	0.02	0.03	0.00
	P_{90}	0.09	0.14	0.14	0.12	0.05	0.08	0.07
	Maximum	0.27	0.20	0.19	0.18	0.14	0.14	0.17
	>|0.30| (N)	0	0	0	0	0	0	0
	>|0.30| (%)	0	0	0	0	0	0	0
Part C	N	45	45	45	45	45	45	45
	Mean	-0.05	-0.04	-0.05	-0.05	-0.04	-0.04	-0.04
	SD	0.11	0.13	0.13	0.12	0.12	0.10	0.09
	Minimum	-0.20	-0.27	-0.23	-0.27	-0.24	-0.17	-0.18
	P_{10}	-0.17	-0.18	-0.20	-0.19	-0.16	-0.13	-0.15
	P_{25}	-0.14	-0.14	-0.14	-0.13	-0.12	-0.11	-0.10
	P_{50}	-0.08	-0.07	-0.09	-0.08	-0.08	-0.07	-0.07
	P_{75}	0.01	0.09	0.02	0.08	0.01	0.05	0.03
	P_{90}	0.13	0.14	0.15	0.13	0.14	0.11	0.09
	Maximum	0.18	0.19	0.25	0.25	0.25	0.18	0.15
	>|0.30| (N)	0	0	0	0	0	0	0
	>|0.30| (%)	0	0	0	0	0	0	0

Residual Item Correlation for Science Within Part

	Statistic	Grade		
		5	8	HS
Part A	N	45	45	45
	Mean	-0.01	0.00	0.00
	SD	0.18	0.18	0.15
	Minimum	-0.23	-0.24	-0.19
	P_{10}	-0.19	-0.21	-0.15
	P_{25}	-0.18	-0.18	-0.14
	P_{50}	-0.08	-0.05	-0.11
	P_{75}	0.16	0.19	0.15
	P_{90}	0.25	0.23	0.20
	Maximum	0.28	0.33	0.27
	>|0.30| (N)	0	1	0
	>|0.30| (%)	0	2.22	0
Part B	N	45	45	45
	Mean	-0.05	-0.04	-0.03
	SD	0.12	0.11	0.08
	Minimum	-0.25	-0.21	-0.20
	P_{10}	-0.19	-0.18	-0.10
	P_{25}	-0.11	-0.10	-0.08
	P_{50}	-0.08	-0.06	-0.04
	P_{75}	0.05	0.01	0.03
	P_{90}	0.13	0.14	0.07
	Maximum	0.23	0.18	0.18
	>|0.30| (N)	0	0	0
	>|0.30| (%)	0	0	0
Part C	N	45	45	45
	Mean	-0.05	-0.04	-0.03
	SD	0.15	0.09	0.11
	Minimum	-0.26	-0.24	-0.21
	P_{10}	-0.21	-0.15	-0.16
	P_{25}	-0.16	-0.11	-0.13
	P_{50}	-0.08	-0.06	-0.06
	P_{75}	0.12	0.03	0.06
	P_{90}	0.17	0.09	0.12
	Maximum	0.22	0.14	0.17
	>|0.30| (N)	0	0	0
	>|0.30| (%)	0	0	0

Residual Item Correlation for Social Studies Within Part

	Statistic	Grades	
		8	HS
Part A	N	45	45
	Mean	-0.02	-0.01
	SD	0.17	0.14
	Minimum	-0.32	-0.22
	P_{10}	-0.19	-0.14
	P_{25}	-0.17	-0.12
	P_{50}	-0.07	-0.03
	P_{75}	0.14	0.09
	P_{90}	0.19	0.19
	Maximum	0.28	0.32
	>|0.30| (N)	1	2
	>|0.30| (%)	2.22	4.44
Part B	N	45	45
	Mean	-0.02	0.02
	SD	0.12	0.09
	Minimum	-0.24	-0.19
	P_{10}	-0.13	-0.12
	P_{25}	-0.09	-0.07
	P_{50}	-0.05	0.05
	P_{75}	0.05	0.09
	P_{90}	0.15	0.11
	Maximum	0.20	0.16
	>|0.30| (N)	0	0
	>|0.30| (%)	0	0
Part C	N	45	45
	Mean	-0.04	-0.02
	SD	0.10	0.12
	Minimum	-0.21	-0.23
	P_{10}	-0.17	-0.17
	P_{25}	-0.10	-0.11
	P_{50}	-0.06	-0.02
	P_{75}	0.05	0.04
	P_{90}	0.11	0.07
	Maximum	0.17	0.26
	>|0.30| (N)	0	0
	>|0.30| (%)	0	0

Residual Item Correlation for ELA Within Task

	Statistic	Grade						
		3	4	5	6	7	8	HS
Task	N	30	30	30	30	30	30	30
	Mean	0.00	-0.05	0.00	-0.03	-0.02	-0.05	-0.04
	SD	0.11	0.12	0.13	0.13	0.12	0.12	0.11
	Minimum	-0.21	-0.23	-0.22	-0.26	-0.23	-0.24	-0.27
	P_{10}	-0.11	-0.18	-0.15	-0.18	-0.17	-0.17	-0.18
	P_{25}	-0.08	-0.13	-0.09	-0.14	-0.10	-0.15	-0.13
	P_{50}	-0.03	-0.07	-0.02	-0.02	-0.03	-0.06	-0.05
	P_{75}	0.06	0.03	0.06	0.06	0.10	0.05	0.08
	P_{90}	0.15	0.11	0.20	0.14	0.13	0.10	0.10
	Maximum	0.20	0.28	0.26	0.25	0.16	0.18	0.11
	>|0.30| (N)	0	0	0	0	0	0	0
	>|0.30| (%)	0	0	0	0	0	0	0

Residual Item Correlation for Math Within Task

	Statistic	Grade						
		3	4	5	6	7	8	HS
Task	N	30	30	30	30	30	30	30
	Mean	0.01	0.02	-0.03	-0.05	-0.05	-0.03	-0.03
	SD	0.14	0.14	0.15	0.14	0.12	0.11	0.09
	Minimum	-0.20	-0.19	-0.27	-0.25	-0.25	-0.20	-0.21
	P_{10}	-0.16	-0.16	-0.22	-0.19	-0.20	-0.17	-0.14
	P_{25}	-0.06	-0.10	-0.16	-0.17	-0.12	-0.12	-0.10
	P_{50}	-0.04	0.01	-0.04	-0.08	-0.04	-0.04	-0.02
	P_{75}	0.13	0.14	0.08	0.03	0.01	0.04	0.02
	P_{90}	0.21	0.20	0.18	0.13	0.06	0.13	0.06
	Maximum	0.29	0.26	0.23	0.27	0.33	0.17	0.16
	>|0.30| (N)	0	0	0	0	1	0	0
	>|0.30| (%)	0	0	0	0	3.33	0	0

Residual Item Correlation for Science Within Task

	Statistic	Grade		
		5	8	HS
Task	N	30	30	30
	Mean	-0.09	-0.08	-0.05
	SD	0.12	0.11	0.09
	Minimum	-0.26	-0.27	-0.19
	P_{10}	-0.24	-0.19	-0.16
	P_{25}	-0.19	-0.17	-0.13
	P_{50}	-0.08	-0.07	-0.03
	P_{75}	-0.05	0.00	0.01
	P_{90}	0.06	0.08	0.07
	Maximum	0.24	0.14	0.15
	>|0.30| (N)	0	0	0
	>|0.30| (%)	0	0	0

Residual Item Correlation for Social Studies Within Part

	Statistic	Grades	
		8	HS
Task	N	30	30
	Mean	0.00	-0.05
	SD	0.13	0.10
	Minimum	-0.22	-0.23
	P_{10}	-0.15	-0.18
	P_{25}	-0.09	-0.11
	P_{50}	-0.02	-0.06
	P_{75}	0.05	0.02
	P_{90}	0.17	0.06
	Maximum	0.29	0.19
	>|0.30| (N)	0	0
	>|0.30| (%)	0	0

Spring 2023 Item Level Statistics

Secure information has been redacted from this report.

Appendix F.3: Principal Component Analysis Scree Plots

ELA Grade 05

ELA Grade 06

ELA Grade 07

ELA Grade 08

ELA Grade HS

Math Grade 03

Math Grade 04

Math Grade 05

Math Grade 06
Dimension Eigenvalue Exp.Var.
1 4.7339 15.8%
2 3.5422 11.8%
3 1.4841 4.9%
4 1.3389 4.5%
5 1.052 3.5%
Eigenvalue
0
5
10
15
1
2
3
4
5
Dimensions

Math Grade 07
Dimension Eigenvalue Exp.Var.
1 5.5449 18.5%
2 2.8947 9.6%
3 1.3172 4.4%
4 1.2581 4.2%
5 1.0806 3.6%
Eigenvalue
0
5
10
15
1
2
3
4
5
Dimensions

Math Grade 08
Dimension Eigenvalue Exp.Var.
1 5.2204 17.4%
2 3.1007 10.3%
3 1.4146 4.7%
4 1.217 4.1%
5 1.0019 3.3%
Eigenvalue
0
5
10
15
1
2
3
4
5
Dimensions

Math Grade HS
Dimension Eigenvalue Exp.Var.
1 5.8014 19.3%
2 2.6244 8.7%
3 1.3407 4.5%
4 1.1202 3.7%
5 1.0743 3.6%
Eigenvalue
0
5
10
15
1
2
3
4
5
Dimensions

Science Grade 05

Science Grade 08

Science Grade HS

Social Studies Grade 08

Appendix F.4: 2023 Item Difficulty-Student Ability Wright Maps

Science plots are shown in the Appendix D. Research: Science Item Cognitive Validity Study.

ELA Grade 04
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Cut-scores
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

ELA Grade 05
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Cut-scores
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

ELA Grade 06
Cut-scores
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

ELA Grade 07
Cut-scores
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

ELA Grade 08
Cut-scores
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

ELA Grade HS
Cut-scores
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Math Grade 03
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Cut-scores
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Math Grade 04
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Cut-scores
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Math Grade 05
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Cut-scores
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Math Grade 06
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Cut-scores
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Math Grade 07
Student Distribution
Cut-scores
Item Task
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Math Grade 08
Student Distribution
Cut-scores
Item Task
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Math Grade HS
Student Distribution
300
250
200
150
100
50
0
-4
-2
0
2
4
Cut-scores
Item Task
2
4
6
8
10
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
2
4
6
8
10
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Social Studies Grade 08
Student Distribution
Cut-scores
Item Task
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Social Studies Grade HS
Student Distribution
Cut-scores
Item Task
A-Difficulty
B-Difficulty
C-Difficulty
Item Task
A-Threshold1
A-Threshold2
B-Threshold1
B-Threshold2
C-Threshold1
C-Threshold2

Appendix F.5: Anchor Item P-Values Comparison

P-value ELA Grade 07
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value ELA Grade 08
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value ELA Grade HS
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value MATH Grade 03
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value MATH Grade 04
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value MATH Grade 05
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value MATH Grade 06
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value MATH Grade 07
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value MATH Grade 08
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value MATH Grade HS
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value Science Grade 05
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value Science Grade 08
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value Science Grade HS
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value Social Grade 08
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

P-value Social Grade HS
Current Year
Previous Year
0.0
0.2
0.4
0.6
0.8
1.0

Appendix F.6: Historical Achievement Level Change

All Students

Content	Grade	2022 (%)				2023 (%)			
		1	2	3	4	1	2	3	4
ELA	03	5.81	31.65	41.43	21.1	3.65	28.18	42.47	25.36
ELA	04	4.98	30.07	45.85	19.1	2.51	28.31	47.54	21.48
ELA	05	5.08	29.37	51.64	13.91	3.18	30.99	48.97	16.47
ELA	06	4.13	24.87	53.22	17.78	2.34	25.89	53.01	18.37
ELA	07	4.61	22.23	43.92	29.24	3.69	20.43	43.23	32.28
ELA	08	2.79	12.62	50.41	34.18	1.5	12.26	49.2	36.64
ELA	HS	4.27	27.44	36.33	31.96	2.86	25.66	37.96	30.85
MATH	03	9.52	28.44	38.96	23.08	6.64	24.25	39.76	27.91
MATH	04	6.65	37.09	36.5	19.76	3.99	36.17	37.49	21.53
MATH	05	4.94	35.87	42.21	16.98	3.41	34.23	42.6	18.76
MATH	06	3.56	30.52	51.31	14.61	1.84	33.3	47.05	15.7
MATH	07	3.98	32.26	50.24	13.52	2.69	33.12	49.03	14.38
MATH	08	2.96	30.18	49.09	17.77	2.05	31.03	47.05	18.82
MATH	HS	3.89	26.74	52.29	17.09	2.57	27.76	53.24	15.16
SCIENCE	05	7.3	32.83	45.98	13.9	4.97	33.33	45.23	15.3
SCIENCE	08	3.22	30.79	42.83	23.16	1.6	35.09	40.04	22.22
SCIENCE	HS	5.5	30.54	51.35	12.62	4.08	29.74	52.19	11.9
SOCIAL	08	4.32	26	40.35	29.33	3	26.78	38.59	30.68
SOCIAL	HS	4.62	23.25	43.17	28.96	3.15	21.11	43.03	31.49
SOCIAL	HS	4.62	23.25	43.17	28.96	3.15	21.11	43.03	31.49

Gender

Content	Grade	Gender	2022 (%)				2023 (%)			
			1	2	3	4	1	2	3	4
ELA	03	F	5.68	32.86	41.38	20.08	3.11	27.11	42.12	27.47
ELA	03	M	5.82	30.92	41.15	21.45	3.89	28.65	42.62	24.44
ELA	04	F	4.76	28.37	45.63	21.03	1.87	29.16	48.60	20.19
ELA	04	M	4.97	30.67	45.75	18.20	2.78	27.95	47.10	22.01
ELA	05	F	5.37	28.08	53.55	12.48	2.73	28.96	49.54	18.21
ELA	05	M	4.82	29.89	50.47	14.56	3.38	31.88	48.71	15.70
ELA	06	F	5.32	24.59	52.48	17.43	1.67	26.00	54.33	17.50
ELA	06	M	3.13	24.93	53.43	17.90	2.68	25.84	52.34	18.81
ELA	07	F	3.51	21.87	45.08	29.05	3.44	21.97	41.97	32.13
ELA	07	M	4.74	22.42	43.41	29.36	3.80	19.71	43.83	32.35
ELA	08	F	2.43	11.23	49.92	35.05	1.07	11.30	51.60	35.73
ELA	08	M	2.64	13.19	50.12	33.36	1.71	12.73	48.03	37.08
ELA	HS	F	4.53	30.07	34.74	29.93	3.36	24.73	38.87	29.86
ELA	HS	M	3.95	25.80	36.70	32.60	2.61	26.11	37.51	31.33
MATH	03	F	8.72	29.21	43.41	18.26	6.04	26.92	37.18	28.21
MATH	03	M	9.64	27.76	36.66	24.77	6.90	23.10	40.87	27.78
MATH	04	F	5.16	37.70	40.08	16.07	3.93	39.07	39.25	17.57
MATH	04	M	7.08	36.65	34.79	21.06	4.02	34.98	36.76	23.17
MATH	05	F	5.55	38.47	42.81	12.31	4.19	33.15	44.26	17.67
MATH	05	M	4.39	34.02	41.26	19.04	3.06	34.70	41.87	19.24
MATH	06	F	3.67	29.54	51.19	14.13	1.67	37.00	45.67	13.67
MATH	06	M	3.13	30.67	50.83	14.68	1.92	31.44	47.74	16.72
MATH	07	F	3.17	34.39	50.25	11.19	3.28	33.28	50.82	11.80
MATH	07	M	3.95	31.02	49.88	14.44	2.40	33.05	48.18	15.59
MATH	08	F	2.88	29.29	49.77	16.54	2.44	30.08	49.62	16.95
MATH	08	M	2.72	30.10	47.87	18.08	1.86	31.50	45.79	19.73
MATH	HS	F	4.38	27.74	50.95	15.47	3.18	28.45	50.18	16.96
MATH	HS	M	3.29	25.80	52.12	17.62	2.26	27.42	54.74	14.27
SCIENCE	05	F	8.49	30.33	49.57	11.27	4.55	34.43	43.72	16.03
SCIENCE	05	M	6.46	33.76	43.76	15.07	5.15	32.85	45.89	14.98
SCIENCE	08	F	3.34	28.98	45.68	20.79	1.53	36.64	41.83	19.69
SCIENCE	08	M	2.79	31.19	40.65	23.97	1.64	34.33	39.17	23.45
SCIENCE	HS	F	6.13	30.95	51.24	10.51	4.95	28.45	53.36	11.31
SCIENCE	HS	M	4.97	29.97	50.80	13.52	3.66	30.37	51.61	12.18
SOCIAL	08	F	4.25	26.71	40.97	26.25	2.90	28.40	41.37	27.02
SOCIAL	08	M	3.80	25.14	39.26	30.33	3.05	25.99	37.23	32.46
SOCIAL	HS	F	4.53	23.50	47.59	23.36	4.24	22.26	42.93	29.68
SOCIAL	HS	M	4.39	22.81	40.35	31.36	2.61	20.54	43.08	32.38

Ethnicity

Content	Grade	Ethnicity	2022 (%)				2023 (%)			
			1	2	3	4	1	2	3	4
ELA	03	Black	5.92	28.10	43.11	22.59	3.66	26.53	43.16	26.18
ELA	03	Hispanic	6.01	36.40	41.34	15.55	3.40	28.91	46.60	21.09
ELA	03	White	5.24	31.65	38.39	24.16	3.69	29.30	39.75	26.84
ELA	04	Black	5.97	29.48	46.51	17.79	2.55	24.94	48.42	23.97
ELA	04	Hispanic	5.15	31.25	46.32	17.28	2.53	33.54	48.10	15.51
ELA	04	White	2.82	29.58	44.67	22.13	1.91	29.25	43.79	24.86
ELA	05	Black	5.34	28.17	52.60	13.62	3.56	31.32	47.92	16.84
ELA	05	Hispanic	3.13	32.81	54.30	9.77	1.42	31.91	52.48	13.83
ELA	05	White	5.40	27.16	49.64	17.45	3.08	28.13	50.48	17.73
ELA	06	Black	3.42	25.40	54.70	16.00	2.74	25.53	52.68	18.56
ELA	06	Hispanic	4.13	26.86	53.72	14.88	1.12	26.22	55.81	16.85
ELA	06	White	4.49	21.68	50.59	22.66	2.16	23.92	52.34	21.22
ELA	07	Black	4.89	21.00	46.06	27.92	3.78	19.76	44.38	31.97
ELA	07	Hispanic	3.03	25.25	46.13	25.25	3.03	23.86	43.94	28.79
ELA	07	White	4.37	22.03	38.81	34.62	3.45	18.18	41.09	36.36
ELA	08	Black	2.24	12.91	51.65	32.34	1.32	12.87	48.95	36.41
ELA	08	Hispanic	3.28	14.96	51.82	28.83	2.67	11.00	55.33	31.00
ELA	08	White	2.99	10.30	46.51	39.20	0.85	10.87	46.52	41.09
ELA	HS	Black	4.56	26.96	38.35	29.24	2.91	26.70	38.47	28.64
ELA	HS	Hispanic	3.97	31.35	38.49	25.00	4.18	27.20	39.33	27.62
ELA	HS	White	3.27	24.30	34.11	37.69	2.51	23.70	36.80	35.01
MATH	03	Black	7.71	25.76	42.70	22.59	6.13	21.93	40.68	29.83
MATH	03	Hispanic	13.43	32.51	35.34	18.37	7.48	25.85	38.10	27.55
MATH	03	White	8.43	28.28	36.52	25.84	7.58	26.84	40.37	24.18
MATH	04	Black	7.50	36.98	36.85	18.17	3.28	35.89	37.47	22.14
MATH	04	Hispanic	5.88	36.03	34.56	23.16	6.01	37.03	36.39	20.25
MATH	04	White	4.83	38.63	37.22	18.71	3.06	36.52	39.01	21.03
MATH	05	Black	4.94	36.05	42.19	15.75	4.39	33.57	41.76	19.45
MATH	05	Hispanic	2.73	36.33	43.75	16.41	1.42	36.88	41.84	18.79
MATH	05	White	5.22	35.43	39.57	18.53	2.89	34.49	43.35	18.11
MATH	06	Black	3.79	30.40	50.55	14.65	1.87	34.00	46.20	16.19
MATH	06	Hispanic	3.31	30.58	52.48	12.81	1.50	34.83	46.44	14.23
MATH	06	White	2.93	29.88	50.39	15.23	1.80	29.86	50.00	15.83
MATH	07	Black	4.42	33.05	49.28	12.41	2.48	33.37	49.03	14.25
MATH	07	Hispanic	2.02	34.01	49.49	12.79	3.41	33.33	49.24	14.02
MATH	07	White	3.85	29.72	50.87	15.21	2.36	32.00	49.64	14.73
MATH	08	Black	2.77	29.78	49.09	17.18	2.09	30.80	47.74	17.93
MATH	08	Hispanic	3.28	29.20	48.54	17.15	2.67	33.00	45.00	18.33
MATH	08	White	2.49	29.90	47.67	18.27	1.70	28.52	48.56	20.71
MATH	HS	Black	3.37	27.16	53.42	14.87	2.67	29.61	53.76	12.50
MATH	HS	Hispanic	3.97	29.76	48.41	15.87	3.35	27.20	51.46	16.74
MATH	HS	White	3.43	22.74	52.80	20.09	2.33	25.13	54.04	17.41
SCIENCE	05	Black	6.68	33.78	45.66	12.95	5.46	33.57	45.67	14.35
SCIENCE	05	Hispanic	5.86	35.55	44.14	13.28	4.26	35.11	42.55	16.67
SCIENCE	05	White	8.09	29.32	45.68	16.37	4.82	30.44	46.82	16.57
SCIENCE	08	Black	3.20	30.63	44.50	20.70	1.65	36.19	40.37	20.24
SCIENCE	08	Hispanic	1.82	32.85	38.69	24.82	1.33	36.33	40.33	21.00
SCIENCE	08	White	3.16	28.90	41.36	25.25	1.02	31.07	40.24	27.16
SCIENCE	HS	Black	5.55	30.13	53.52	10.01	4.13	29.49	54.00	9.47

SCIENCE	HS	Hispanic	6.35	37.70	44.84	10.32	4.18	32.64	48.95	12.55
SCIENCE	HS	White	3.58	27.73	50.16	17.45	3.95	28.73	51.35	15.08
SOCIAL	08	Black	4.27	24.55	40.66	29.24	3.74	27.06	38.50	29.48
SOCIAL	08	Hispanic	3.65	25.55	39.05	28.83	2.67	27.67	44.00	25.00
SOCIAL	08	White	3.82	24.75	41.53	28.74	1.70	24.79	35.65	37.18
SOCIAL	HS	Black	4.06	24.18	43.61	26.96	3.16	21.48	43.69	30.22
SOCIAL	HS	Hispanic	5.56	25.79	44.84	21.43	3.35	23.85	41.42	30.13
SOCIAL	HS	White	4.21	20.72	39.88	34.89	3.41	19.93	41.11	34.65

SRC

Content	Grade	Primary SRC	2022 (%)				2023 (%)			
			1	2	3	4	1	2	3	4
ELA	03	05	0.00	12.12	43.94	43.94	0.43	6.03	36.21	57.33
ELA	03	07	7.12	33.71	41.57	16.48	3.57	32.94	44.84	18.65
ELA	03	08	5.92	35.81	41.88	15.93	4.52	32.88	42.88	19.18
ELA	04	05	0.67	11.11	44.78	43.10	0.00	8.18	48.74	43.08
ELA	04	07	6.28	39.13	47.34	7.25	2.78	33.87	47.10	15.78
ELA	04	08	5.18	31.92	47.07	15.42	3.22	32.94	49.64	14.20
ELA	05	05	1.13	9.86	64.79	23.94	0.00	10.06	56.10	33.54
ELA	05	07	6.15	41.60	46.11	5.94	4.57	41.55	45.73	7.16
ELA	05	08	5.47	31.14	48.95	13.88	2.91	33.67	48.10	15.19
ELA	06	05	0.48	7.21	58.17	33.65	0.00	8.15	56.59	34.77
ELA	06	07	7.72	35.91	47.81	8.56	4.44	33.54	50.71	10.71
ELA	06	08	3.45	30.14	53.53	12.09	2.43	32.25	51.82	13.23
ELA	07	05	0.42	5.01	44.26	50.31	0.42	4.44	38.05	57.08
ELA	07	07	7.41	34.36	45.27	12.96	8.09	33.09	43.93	14.71
ELA	07	08	4.96	27.41	42.56	24.66	2.13	23.61	46.51	27.17
ELA	08	05	0.20	1.59	39.04	58.37	0.20	1.38	36.74	61.69
ELA	08	07	5.19	20.77	56.28	16.08	2.55	18.76	60.47	17.30
ELA	08	08	2.23	14.73	54.32	28.27	1.72	15.74	51.19	31.08
ELA	HS	05	0.36	8.71	37.21	52.81	0.45	8.46	41.65	47.22
ELA	HS	07	7.65	37.61	38.99	14.98	5.17	38.37	37.18	15.51
ELA	HS	08	4.19	35.63	34.88	24.10	2.60	31.37	35.88	27.56
MATH	03	05	1.01	16.16	44.95	36.87	0.43	11.64	37.07	49.57
MATH	03	07	12.36	30.71	40.82	15.36	7.14	30.56	44.44	16.27
MATH	03	08	10.47	28.53	36.12	23.67	8.22	23.84	37.53	28.77
MATH	04	05	1.35	27.95	38.72	31.31	0.63	22.96	46.86	29.56
MATH	04	07	6.52	46.62	36.23	9.18	4.87	43.39	36.43	14.85
MATH	04	08	7.78	34.79	35.74	21.42	4.53	35.68	36.40	21.84
MATH	05	05	1.13	23.94	50.14	23.94	0.00	22.26	47.26	29.88
MATH	05	07	5.94	46.11	39.75	6.97	5.37	43.34	39.56	10.74
MATH	05	08	4.91	34.78	37.87	21.18	2.91	33.67	42.41	20.00
MATH	06	05	0.24	18.75	56.01	24.52	0.00	20.14	56.35	22.06
MATH	06	07	6.05	41.34	44.47	6.68	4.04	45.25	39.80	8.48
MATH	06	08	3.45	31.40	51.65	12.72	1.48	33.74	45.88	16.60
MATH	07	05	0.84	19.83	57.62	21.71	0.42	19.66	55.18	24.10
MATH	07	07	5.35	44.44	42.80	6.38	4.23	45.59	42.65	6.25
MATH	07	08	3.99	33.33	49.04	12.40	2.56	33.14	49.79	14.08
MATH	08	05	0.00	14.54	57.37	27.29	0.20	14.15	56.78	28.29
MATH	08	07	5.86	39.87	44.72	8.04	4.92	43.35	41.35	8.74
MATH	08	08	2.23	33.63	44.35	18.45	1.59	33.99	44.44	19.05
MATH	HS	05	0.54	12.16	59.71	27.22	1.34	14.25	62.14	22.05
MATH	HS	07	6.42	37.46	46.48	7.65	3.98	40.36	46.72	6.96
MATH	HS	08	3.89	29.19	50.15	15.27	1.91	30.33	51.65	14.38
SCIENCE	05	05	1.13	18.31	58.03	22.25	0.91	13.41	57.62	27.44
SCIENCE	05	07	11.27	39.75	41.19	7.38	6.76	41.75	42.54	7.36
SCIENCE	05	08	6.87	35.62	43.20	13.18	4.68	36.96	41.90	15.32
SCIENCE	08	05	0.40	14.54	49.40	35.26	0.20	22.40	42.83	33.60
SCIENCE	08	07	5.36	41.37	39.70	11.89	2.73	42.99	41.35	11.66
SCIENCE	08	08	3.13	34.52	38.24	22.77	1.85	39.68	35.32	22.09
SCIENCE	HS	05	0.91	19.24	60.07	19.42	1.56	17.37	63.47	16.48

SCIENCE	HS	07	9.63	37.61	46.02	5.50	6.76	40.76	44.14	4.77
SCIENCE	HS	08	5.39	35.33	48.05	10.33	3.99	31.89	48.87	13.34
SOCIAL	08	05	0.20	10.76	43.23	45.62	0.39	11.59	39.49	47.94
SOCIAL	08	07	8.38	34.51	38.53	16.25	5.65	39.34	37.52	16.03
SOCIAL	08	08	3.72	30.95	37.65	26.04	3.57	29.37	38.89	27.38
SOCIAL	HS	05	0.36	11.80	45.37	41.02	0.67	12.25	43.88	42.76
SOCIAL	HS	07	7.80	29.05	43.12	18.96	5.17	32.01	41.15	20.48
SOCIAL	HS	08	4.79	28.44	42.66	23.05	3.12	21.49	43.50	29.98

Appendix F.7: Reliability by Subgroups

Total Score Reliabilities and SEM by Gender—Grades 3–8, HS

Content Area	Grade	Gender	Reliability	SEM
ELA	3	Female	0.86	3.83
		Male	0.88	3.84
	4	Female	0.83	3.86
		Male	0.86	3.82
	5	Female	0.87	3.74
		Male	0.86	3.82
	6	Female	0.85	3.62
		Male	0.87	3.60
	7	Female	0.88	3.54
		Male	0.88	3.53
	8	Female	0.87	3.54
		Male	0.88	3.55
	HS	Female	0.89	3.54
		Male	0.88	3.58
Mathematics	3	Female	0.83	4.04
		Male	0.86	3.95
	4	Female	0.76	4.06
		Male	0.80	4.03
	5	Female	0.79	4.01
		Male	0.79	4.03
	6	Female	0.79	3.96
		Male	0.81	3.90
	7	Female	0.81	3.85
		Male	0.81	3.82
	8	Female	0.82	3.89
		Male	0.83	3.89
	HS	Female	0.85	3.83
		Male	0.83	3.85
Science	5	Female	0.81	3.94
		Male	0.81	3.96
	8	Female	0.77	3.94
		Male	0.80	3.89
	HS	Female	0.84	3.90
		Male	0.83	3.88
Social Studies	8	Female	0.81	3.80
		Male	0.84	3.76
	HS	Female	0.82	3.85
		Male	0.81	3.82

Total Score Reliabilities and SEM by Ethnicity—Grades 3–8, HS

Content Area	Grade	Gender	Reliability	SEM
ELA	3	Non-White	0.87	3.82
		White	0.87	3.87
	4	Non-White	0.85	3.85
		White	0.86	3.79
	5	Non-White	0.87	3.80
		White	0.86	3.77
	6	Non-White	0.87	3.63
		White	0.87	3.55
	7	Non-White	0.88	3.56
		White	0.88	3.47
	8	Non-White	0.88	3.58
		White	0.87	3.47
	HS	Non-White	0.88	3.59
		White	0.89	3.51
Mathematics	3	Non-White	0.86	3.97
		White	0.85	4.02
	4	Non-White	0.80	4.03
		White	0.79	4.05
	5	Non-White	0.80	4.02
		White	0.77	4.02
	6	Non-White	0.81	3.92
		White	0.79	3.91
	7	Non-White	0.81	3.83
		White	0.82	3.82
	8	Non-White	0.82	3.90
		White	0.83	3.84
	HS	Non-White	0.84	3.86
		White	0.84	3.80
Science	5	Non-White	0.82	3.96
		White	0.79	3.94
	8	Non-White	0.79	3.93
		White	0.80	3.85
	HS	Non-White	0.83	3.90
		White	0.84	3.85
Social Studies	8	Non-White	0.83	3.80
		White	0.83	3.71
	HS	Non-White	0.81	3.84
		White	0.82	3.81

Total Score Reliabilities and SEM by English Learner—Grades 3–8, HS

Content Area	Grade	English Learner	Reliability	SEM
ELA	3	No	0.88	3.84
		Yes	0.83	3.80
	4	No	0.85	3.83
		Yes	0.80	3.85
	5	No	0.87	3.80
		Yes	0.82	3.67
	6	No	0.87	3.61
		Yes	0.86	3.48
	7	No	0.88	3.53
		Yes	0.85	3.50
	8	No	0.88	3.55
		Yes	0.89	3.47
	HS	No	0.89	3.57
		Yes	0.73	3.55
Mathematics	3	No	0.85	3.99
		Yes	0.86	3.90
	4	No	0.80	4.04
		Yes	0.76	4.01
	5	No	0.79	4.03
		Yes	0.77	3.91
	6	No	0.80	3.93
		Yes	0.83	3.80
	7	No	0.82	3.83
		Yes	0.75	3.82
	8	No	0.82	3.89
		Yes	0.83	3.87
	HS	No	0.84	3.84
		Yes	0.85	3.84
Science	5	No	0.81	3.97
		Yes	0.81	3.80
	8	No	0.79	3.90
		Yes	0.81	3.93
	HS	No	0.83	3.89
		Yes	0.84	3.87
Social Studies	8	No	0.83	3.77
		Yes	0.83	3.75
	HS	No	0.81	3.83
		Yes	0.84	3.84

Spring 2023 Raw Score to Scale Score Conversion Tables

Secure information has been redacted from this report.