APPENDIX I: END-OF-COURSE SUMMER OPERATIONAL ANALYSIS: CALIBRATION, SCALING, AND EQUATING

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APPENDIX I:
2023 EOC SUMMER ADMINISTRATION

The summer EOC administration involved the re-administration of test forms from the 2022 winter EOC administration. The forms included a set of operational items designated for reporting student performance on Georgia Milestones. Note that a set of field test items is also embedded within each test form that was administered. Note that the field test items embedded in the Georgia Milestones assessment did not contribute to a student's total raw score. The test design for the summer form is provided in table I.1.1 below and complete documentation of the development of the test forms administered in summer 2023 can be found within the main body of this technical report.

Table I.1.1: 2023 Summer EOC Georgia Milestones Test Design

Content Area	Course	Number of Forms	Operational Items	Embedded Field Test Items	Total Number of Items	Total Raw Score Points
English Language Arts	AMLC	3	45	8	53	60
Mathematics	CALG	3	50	7	57	58
	ALG1	3	50	7	57	58
Science	BIOL	3	38	4	42	46
Social Studies	HIST	3	38	4	42	46

Post-equating calibration and equating analyses were not completed for the summer administration. Only the pre-equated score conversion tables were generated. Table I.1.2 provides summary results for the EOC assessments for the summer 2023 administration. The table includes the number of students, mean, standard deviation, and percentages of students at the different achievement levels. Scoring tables for the summer administration are provided in Tables I.3.1 through I.5.5. Scale score frequency distributions for the summer administration are found in Tables I.6.1 through I.6.5.

Table I.1.2: Summary Statistics for 2023 Summer EOC

Course	*N* Count	Mean	SD	Percentage of Students in Each Achievement Level			
				Beginning Learner.	***Developing Learner***	***Proficient Learner***	***Distinguished Learner***
AMLC	2,160	465.6	54.9	60%	26%	12%	2%
CALG	453	460.7	35.6	70%	26%	3%	1%
ALG1	3,680	457.3	41.3	72%	23%	5%	1%
BIOL	2,436	458.6	49.5	70%	21%	7%	1%
HIST	1,775	484.4	55.4	54%	26%	13%	7%

Table I.2.1: 2022–2023 Georgia Milestones Cut Scores in the Theta Metric, Linear Transformations, and LOSS/HOSS Values

Secure information has been redacted.

Table I.3.1–I.3.15: 2023 Summer EOC Scoring Tables

Secure information has been redacted.

Table I.4.1 –I.4.5: 2023 Summer EOC Scoring Tables, Braille

Secure information has been redacted.

Table I.5.1–I.5.5: 2023 Summer EOC Scoring Tables, VSL

Secure information has been redacted.

Table I.6.1: Summer 2023 Georgia Milestones Scale Score Frequency Distribution, American Literature & Composition

SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
190	1	0.05	1	0.05
264	1	0.05	2	0.09
288	2	0.09	4	0.19
300	t	0.14	7	0.32
305	3	0.14	10	0.46
330	2	0.09	12	0.56
331	2	0.09	14	0.65
341	6	0.28	20	0.93
349	2	0.09	22	1.02
351	7	0.32	29	1.34
357	6	0.28	35	1.62
359	12	0.56	47	2.18
364	10	0.46	57	2.64
367	3	0.14	60	2.78
371	3	0.14	63	2.92
374	15	0.69	78	3.61
377	4	0.19	82	3.8
381	13	0.6	95	4.4
383	5	0.23	100	4.63
387	16	0.74	116	5.37
389	16	0.74	132	6.11
393	28	1.3	160	7.41
394	13	0.6	173	8.01
398	27	1.25	200	9.26
399	19	0.88	219	10.14
403	34	1.57	253	11.71
408	20	0.93	273	12.64
409	33	1.53	306	14.17
412	17	0.79	323	14.95
413	27	1.25	350	16.2
417	23	1.06	373	17.27
418	34	1.57	407	18.84
421	20	0.93	427	19.77
422	41	1.9	468	21.67
425	25	1.16	493	22.82
427	47	2.18	540	25
429	31	1.44	571	26.44
431	35	1.62	606	28.06
433	17	0.79	623	28.84
435	32	1.48	655	30.32
437	24	1.11	679	31.44
439	37	1.71	716	33.15
440	24	1.11	740	34.26
443	35	1.62	775	35.88
444	20	0.93	795	36.81
447	30	1.39	825	38.19
448	33	1.53	858	39.72
451	69	3.19	927	42.92
455	72	3.33	999	46.25
459	60	2.78	1059	49.03
462	54	2.5	1113	51.53
466	74	3.43	1187	54.95
470	58	2.69	1245	57.64
474	47	2.18	1292	59.81
477	63	2.92	1355	62.73
481	64	2.96	1419	65.69
485	53	2.45	1472	68.15
488	26	1.2	1498	69.35
489	24	1.11	1522	70.46
492	24	1.11	1546	71.57
493	27	1.25	1573	72.82
496	20	0.93	1593	73.75
498	25	1.16	1618	74.91
500	26	1.2	1644	76.11
502	19	0.88	1663	76.99
504	21	0.97	1684	77.96
507	25	1.16	1709	79.12
508	20	0.93	1729	80.05
511	33	1.53	1762	81.57
512	27	1.25	1789	82.82
516	31	1.44	1820	84.26
521	33	1.53	1853	85.79
525	18	0.83	1871	86.62
527	18	0.83	1889	87.45
530	16	0.74	1905	88.19
533	22	1.02	1927	89.21
535	12	0.56	1939	89.77
539	16	0.74	1955	90.51
541	12	0.56	1967	91.06
546	41	1.9	2008	92.96
552	16	0.74	2024	93.7
553	16	0.74	2040	94.44
559	12	0.56	2052	95
561	20	0.93	2072	95.93
566	13	0.6	2085	96.53
570	15	0.69	2100	97.22

SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
574	6	0.28	2106	97.5
581	6	0.28	2112	97.78
583	8	0.37	2120	98.15
593	4	0.19	2124	98.33
594	10	0.46	2134	98.8
606	2	0.09	2136	98.89
608	4	0.19	2140	99.07

SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
622	7	0.32	2147	99.4
627	4	0.19	2151	99.58
645	2	0.09	2153	99.68
653	1	0.05	2154	99.72
682	4	0.19	2158	99.91
750	2	0.09	2160	100

Table I.6.2: Summer 2023 Georgia Milestones Scale Score Frequency Distribution, Coordinate Algebra

SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
314	1	0.22	1	0.22
388	3	0.66	4	0.88
397	3	0.66	7	1.55
402	t	0.44	9	1.99
405	4	0.88	13	2.87
410	5	1.1	18	3.97
412	3	0.66	21	4.64
418	4	0.88	25	5.52
419	17	3.75	42	9.27
425	10	2.21	52	11.48
426	14	3.09	66	14.57
432	37	8.17	103	22.74
438	29	6.4	132	29.14
444	31	6.84	163	35.98
449	18	3.97	181	39.96
450	19	4.19	200	44.15
455	9	1.99	209	46.14
456	19	4.19	228	50.33
460	9	1.99	237	52.32
461	19	4.19	256	56.51
465	15	3.31	271	59.82
466	14	3.09	285	62.91
470	13	2.87	298	65.78
472	21	4.64	319	70.42
475	15	3.31	334	73.73
477	12	2.65	346	76.38
479	10	2.21	356	78.59
481	17	3.75	373	82.34
484	3	0.66	376	83
486	8	1.77	384	84.77
488	6	1.32	390	86.09
491	4	0.88	394	86.98
493	2	0.44	396	87.42
496	3	0.66	399	88.08
498	5	1.1	404	89.18
500	1	0.22	405	89.4
502	3	0.66	408	90.07
505	3	0.66	411	90.73
507	3	0.66	414	91.39
509	3	0.66	417	92.05
511	2	0.44	419	92.49
514	3	0.66	422	93.16
515	2	0.44	424	93.6
518	8	1.77	432	95.36
523	2	0.44	434	95.81
524	2	0.44	436	96.25
528	2	0.44	438	96.69
532	1	0.22	439	96.91
534	2	0.44	441	97.35
541	1	0.22	442	97.57
543	1	0.22	443	97.79
548	2	0.44	445	98.23
551	1	0.22	446	98.45
556	1	0.22	447	98.68
563	1	0.22	448	98.9
592	1	0.22	449	99.12
605	1	0.22	450	99.34
621	1	0.22	451	99.56
650	1	0.22	452	99.78
662	1	0.22	453	100

Table I.6.3: Summer 2023 Georgia Milestones Scale Score Frequency Distribution, Algebra I

SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent	SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
324	2	0.05	2	0.05	496	40	1.09	3169	86.11
341	1	0.03	3	0.08	497	36	0.98	3205	87.09
352	1	0.03	4	0.11	500	35	0.95	3240	88.04
364	t	0.11	8	0.22	501	23	0.63	3263	88.67
366	5	0.14	13	0.35	504	24	0.65	3287	89.32
374	9	0.24	22	0.6	505	25	0.68	3312	90
376	8	0.22	30	0.82	508	23	0.63	3335	90.63
383	11	0.3	41	1.11	509	21	0.57	3356	91.2
385	13	0.35	54	1.47	512	25	0.68	3381	91.88
391	14	0.38	68	1.85	514	15	0.41	3396	92.28
393	25	0.68	93	2.53	517	15	0.41	3411	92.69
398	26	0.71	119	3.23	518	21	0.57	3432	93.26
400	46	1.25	165	4.48	521	16	0.43	3448	93.7
405	38	1.03	203	5.52	523	19	0.52	3467	94.21
406	65	1.77	268	7.28	525	10	0.27	3477	94.48
411	61	1.66	329	8.94	527	19	0.52	3496	95
413	92	2.5	421	11.44	530	12	0.33	3508	95.33
417	61	1.66	482	13.1	532	21	0.57	3529	95.9
419	85	2.31	567	15.41	535	6	0.16	3535	96.06
423	83	2.26	650	17.66	537	10	0.27	3545	96.33
424	123	3.34	773	21.01	540	9	0.24	3554	96.58
429	92	2.5	865	23.51	542	9	0.24	3563	96.82
430	108	2.93	973	26.44	545	5	0.14	3568	96.96
434	86	2.34	1059	28.78	547	6	0.16	3574	97.12
435	116	3.15	1175	31.93	550	5	0.14	3579	97.26
439	102	2.77	1277	34.7	552	7	0.19	3586	97.45
440	135	3.67	1412	38.37	555	8	0.22	3594	97.66
444	221	6.01	1633	44.38	557	6	0.16	3600	97.83
449	209	5.68	1842	50.05	561	5	0.14	3605	97.96
453	94	2.55	1936	52.61	563	5	0.14	3610	98.1
454	100	2.72	2036	55.33	567	4	0.11	3614	98.21
458	170	4.62	2206	59.95	569	7	0.19	3621	98.4
462	153	4.16	2359	64.1	573	2	0.05	3623	98.45
467	142	3.86	2501	67.96	575	5	0.14	3628	98.59
471	133	3.61	2634	71.58	580	4	0.11	3632	98.7
475	124	3.37	2758	74.95	582	1	0.03	3633	98.72
479	57	1.55	2815	76.49	587	2	0.05	3635	98.78
480	43	1.17	2858	77.66	589	3	0.08	3638	98.86
483	58	1.58	2916	79.24	595	3	0.08	3641	98.94
484	50	1.36	2966	80.6	603	5	0.14	3646	99.08
487	53	1.44	3019	82.04	606	1	0.03	3647	99.1
488	39	1.06	3058	83.1	613	4	0.11	3651	99.21
492	71	1.93	3129	85.03	615	3	0.08	3654	99.29

SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
623	2	0.05	3656	99.35
626	1	0.03	3657	99.38
636	4	0.11	3661	99.48
651	5	0.14	3666	99.62
653	1	0.03	3667	99.65

SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
669	2	0.05	3669	99.7
671	5	0.14	3674	99.84
694	3	0.08	3677	99.92
696	3	0.08	3680	100

Table I.6.4: Summer 2023 Georgia Milestones Scale Score Frequency Distribution, Biology

SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
317	1	0.04	1	0.04
320	1	0.04	2	0.08
334	1	0.04	3	0.12
336	t	0.12	6	0.25
348	5	0.21	11	0.45
351	2	0.08	13	0.53
361	2	0.08	15	0.62
363	8	0.33	23	0.94
372	9	0.37	32	1.31
374	15	0.62	47	1.93
382	19	0.78	66	2.71
384	19	0.78	85	3.49
392	32	1.31	117	4.8
394	39	1.6	156	6.4
401	53	2.18	209	8.58
402	64	2.63	273	11.21
409	61	2.5	334	13.71
411	69	2.83	403	16.54
417	69	2.83	472	19.38
418	65	2.67	537	22.04
425	62	2.55	599	24.59
426	76	3.12	675	27.71
432	90	3.69	765	31.4
433	91	3.74	856	35.14
439	68	2.79	924	37.93
440	90	3.69	1014	41.63
446	80	3.28	1094	44.91
447	105	4.31	1199	49.22
453	155	6.36	1354	55.58
460	129	5.3	1483	60.88
466	67	2.75	1550	63.63
467	40	1.64	1590	65.27
473	108	4.43	1698	69.7
479	57	2.34	1755	72.04
480	41	1.68	1796	73.73
485	43	1.77	1839	75.49
486	44	1.81	1883	77.3
492	44	1.81	1927	79.11
493	43	1.77	1970	80.87
498	37	1.52	2007	82.39
500	33	1.35	2040	83.74
504	30	1.23	2070	84.98
506	30	1.23	2100	86.21
511	25	1.03	2125	87.23
513	28	1.15	2153	88.38
518	21	0.86	2174	89.24
520	19	0.78	2193	90.02
524	26	1.07	2219	91.09
527	20	0.82	2239	91.91
531	19	0.78	2258	92.69
535	10	0.41	2268	93.1
539	12	0.49	2280	93.6
542	12	0.49	2292	94.09
546	12	0.49	2304	94.58
550	13	0.53	2317	95.11
554	11	0.45	2328	95.57
558	7	0.29	2335	95.85
562	7	0.29	2342	96.14
566	11	0.45	2353	96.59
571	10	0.41	2363	97
575	6	0.25	2369	97.25
581	7	0.29	2376	97.54
585	9	0.37	2385	97.91
591	2	0.08	2387	97.99
595	8	0.33	2395	98.32
602	4	0.16	2399	98.48
606	2	0.08	2401	98.56
614	8	0.33	2409	98.89
618	5	0.21	2414	99.1
627	5	0.21	2419	99.3
631	8	0.33	2427	99.63
643	2	0.08	2429	99.71
647	2	0.08	2431	99.79
665	4	0.16	2435	99.96
718	1	0.04	2436	100

Table I.6.5: Summer 2023 Georgia Milestones Scale Score Frequency Distribution, United States History

SS	Frequency	Percent	Cumulative Frequency	Cumulative Percent
335	1	0.06	1	0.06
351	1	0.06	2	0.11
377	4	0.23	6	0.34
387	t	0.17	9	0.51
396	5	0.28	14	0.79
404	25	1.41	39	2.2
412	28	1.58	67	3.77
419	60	3.38	127	7.15
426	67	3.77	194	10.93
433	72	4.06	266	14.99
439	95	5.35	361	20.34
445	109	6.14	470	26.48
451	115	6.48	585	32.96
457	106	5.97	691	38.93
462	103	5.8	794	44.73
468	91	5.13	885	49.86
473	74	4.17	959	54.03
478	45	2.54	1004	56.56
479	39	2.2	1043	58.76
484	61	3.44	1104	62.2
489	69	3.89	1173	66.08
494	28	1.58	1201	67.66
495	34	1.92	1235	69.58
500	49	2.76	1284	72.34
505	45	2.54	1329	74.87
510	18	1.01	1347	75.89
511	19	1.07	1366	76.96
516	34	1.92	1400	78.87
521	13	0.73	1413	79.61
522	16	0.9	1429	80.51
527	25	1.41	1454	81.92
532	13	0.73	1467	82.65
533	11	0.62	1478	83.27
538	13	0.73	1491	84
539	15	0.85	1506	84.85
545	31	1.75	1537	86.59
551	9	0.51	1546	87.1
552	6	0.34	1552	87.44
558	27	1.52	1579	88.96
565	26	1.46	1605	90.42
572	13	0.73	1618	91.15
573	16	0.9	1634	92.06
581	21	1.18	1655	93.24
590	25	1.41	1680	94.65
600	22	1.24	1702	95.89
611	6	0.34	1708	96.23
612	10	0.56	1718	96.79
625	21	1.18	1739	97.97
642	20	1.13	1759	99.1
664	6	0.34	1765	99.44
665	5	0.28	1770	99.72
703	3	0.17	1773	99.89
765	2	0.11	1775	100