

APPENDIX N

SCALED SCORE DISTRIBUTIONS AND LOOKUP TABLES

Figure N-1. Cumulative Scale Score Distributions—ELA Grade 3

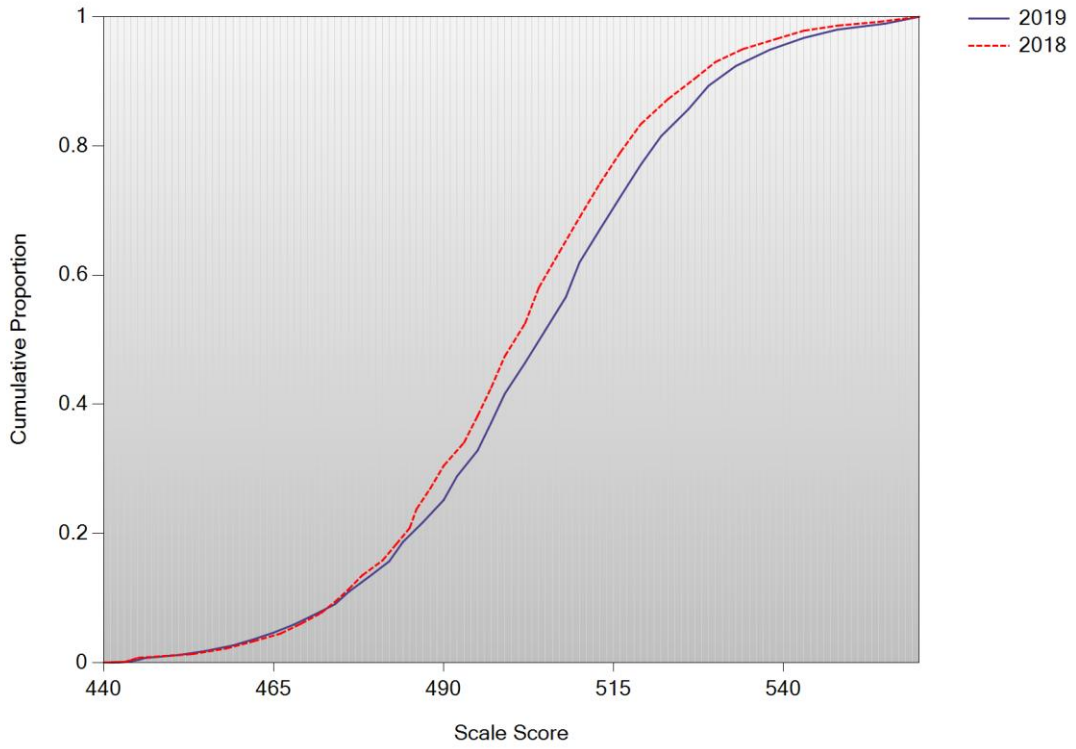


Figure N-2. Cumulative Scale Score Distributions—ELA Grade 4

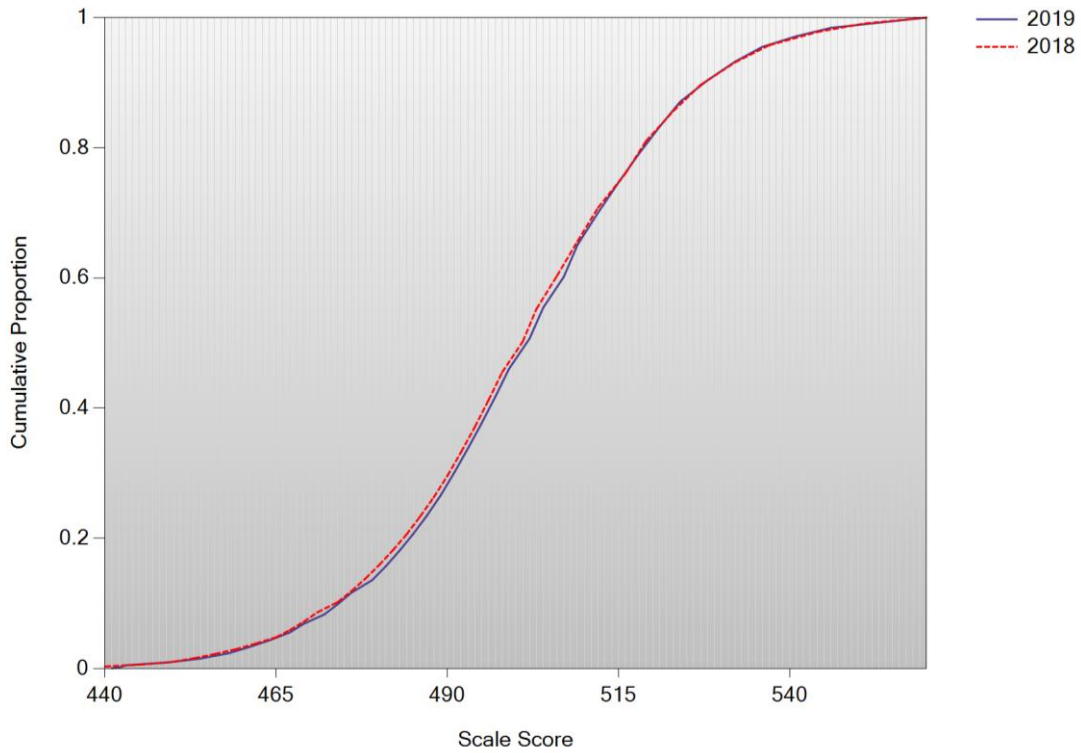


Figure N-3. Cumulative Scale Score Distributions—ELA Grade 5

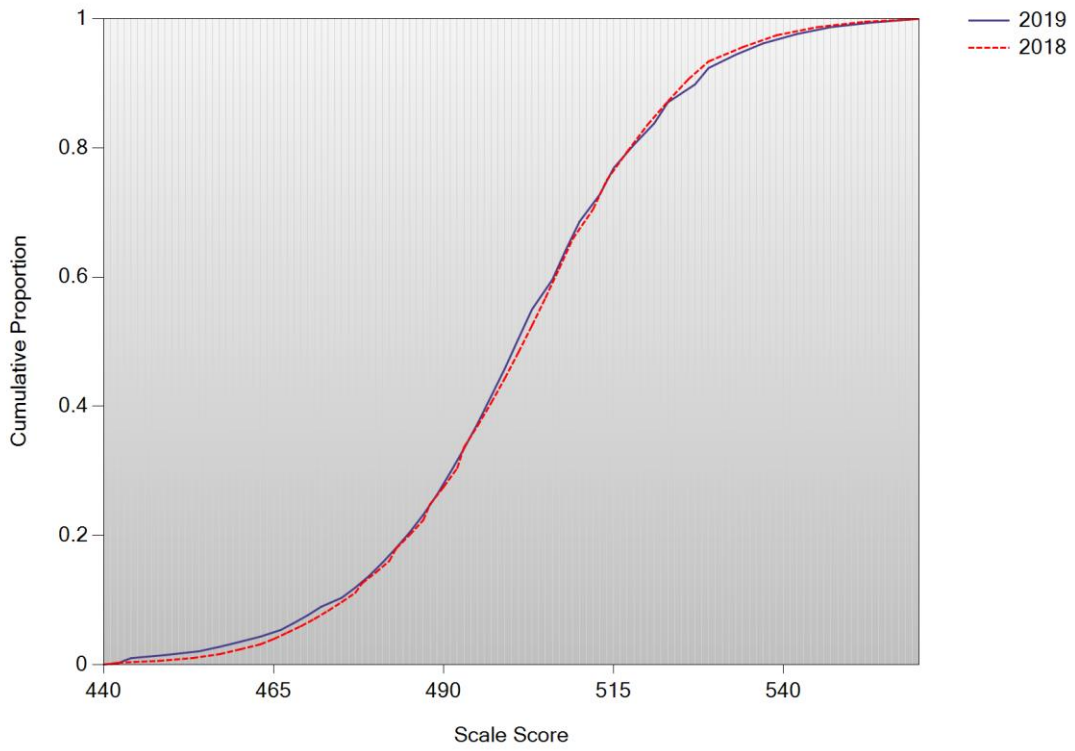


Figure N-4. Cumulative Scale Score Distributions—ELA Grade 6

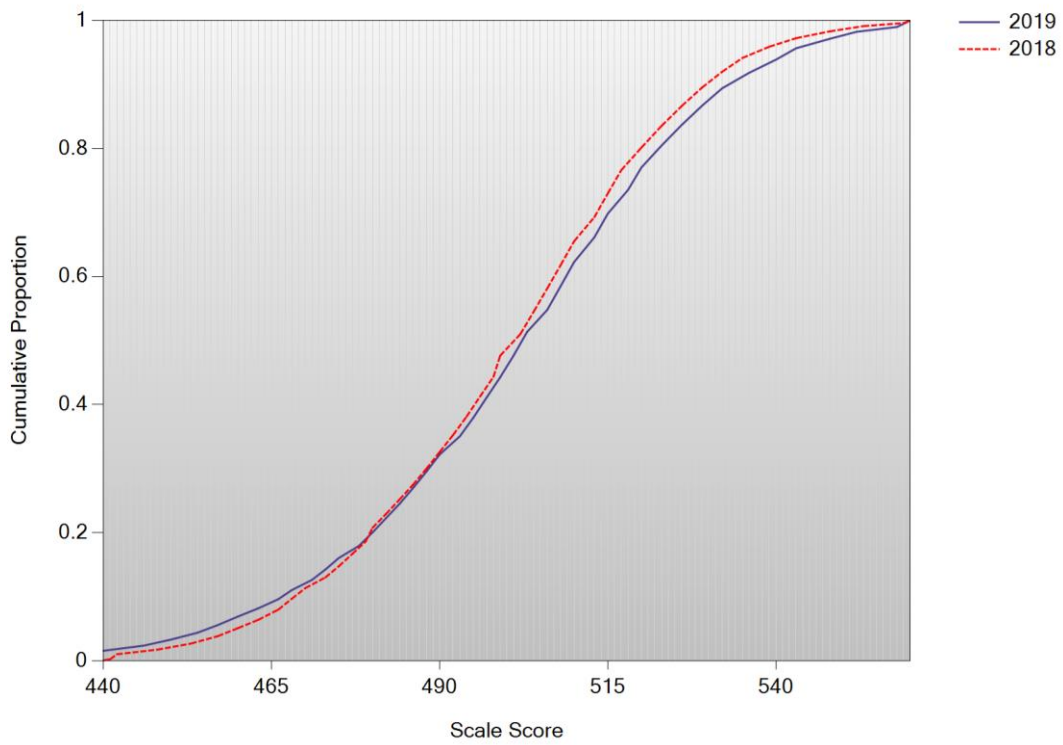


Figure N-5. Cumulative Scale Score Distributions—ELA Grade 7

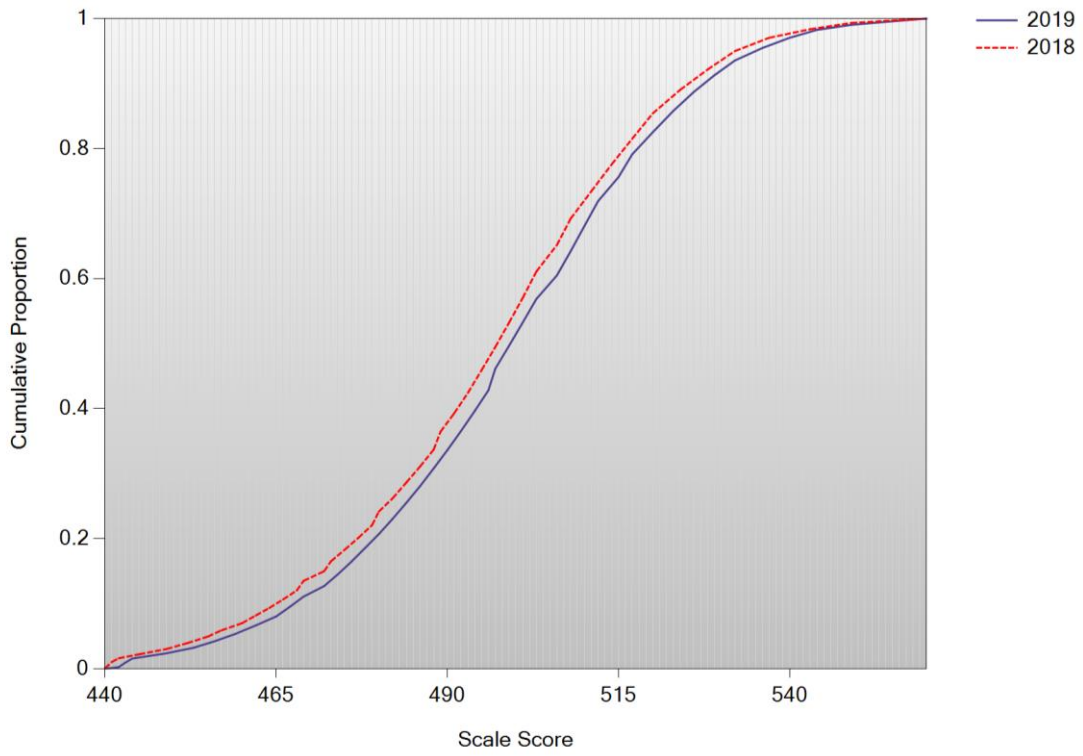


Figure N-6. Cumulative Scale Score Distributions—ELA Grade 8

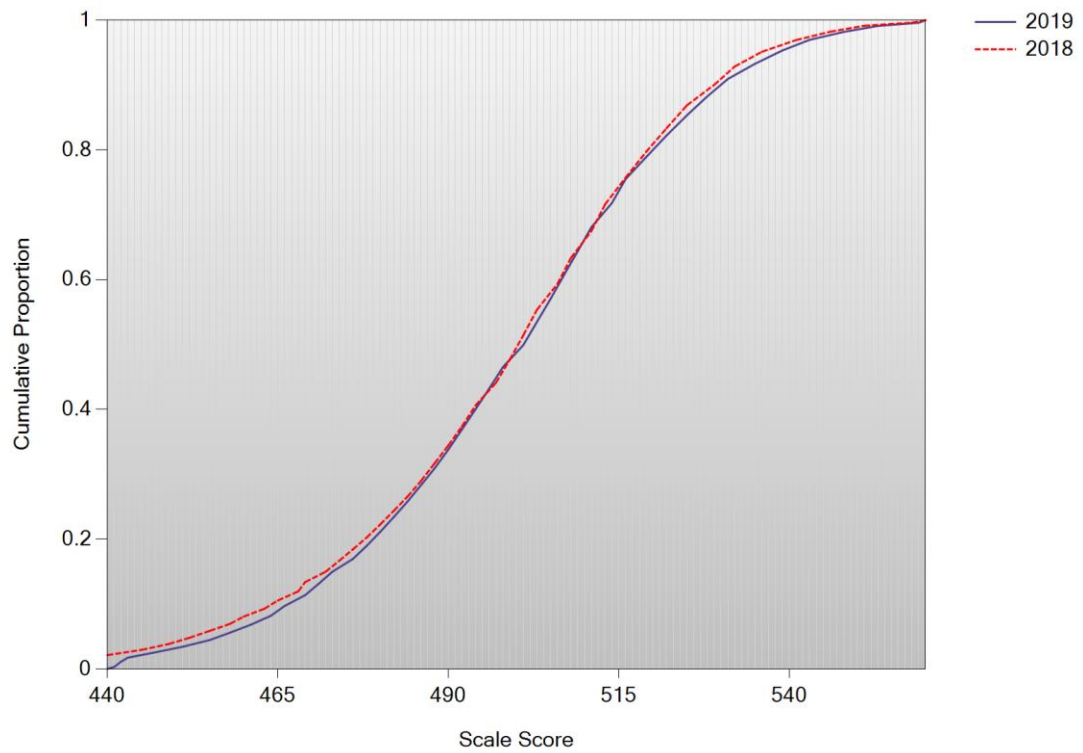


Figure N-7. Cumulative Scale Score Distributions—ELA Grade 10

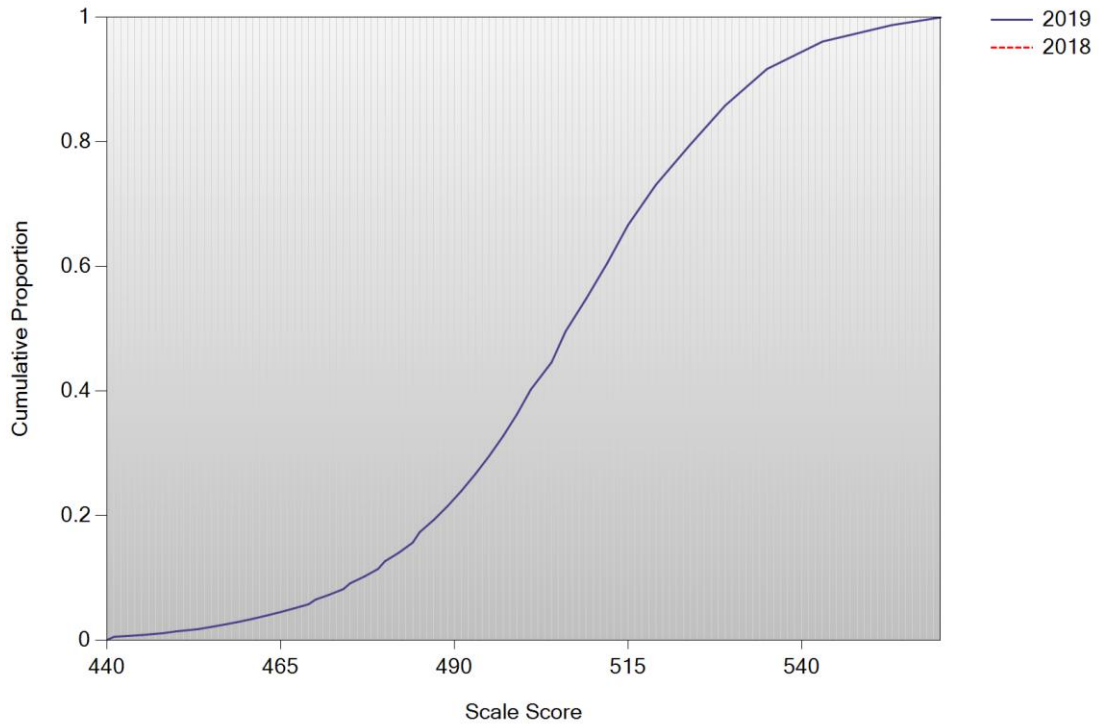


Figure N-8. Cumulative Scale Score Distributions—Mathematics Grade 3

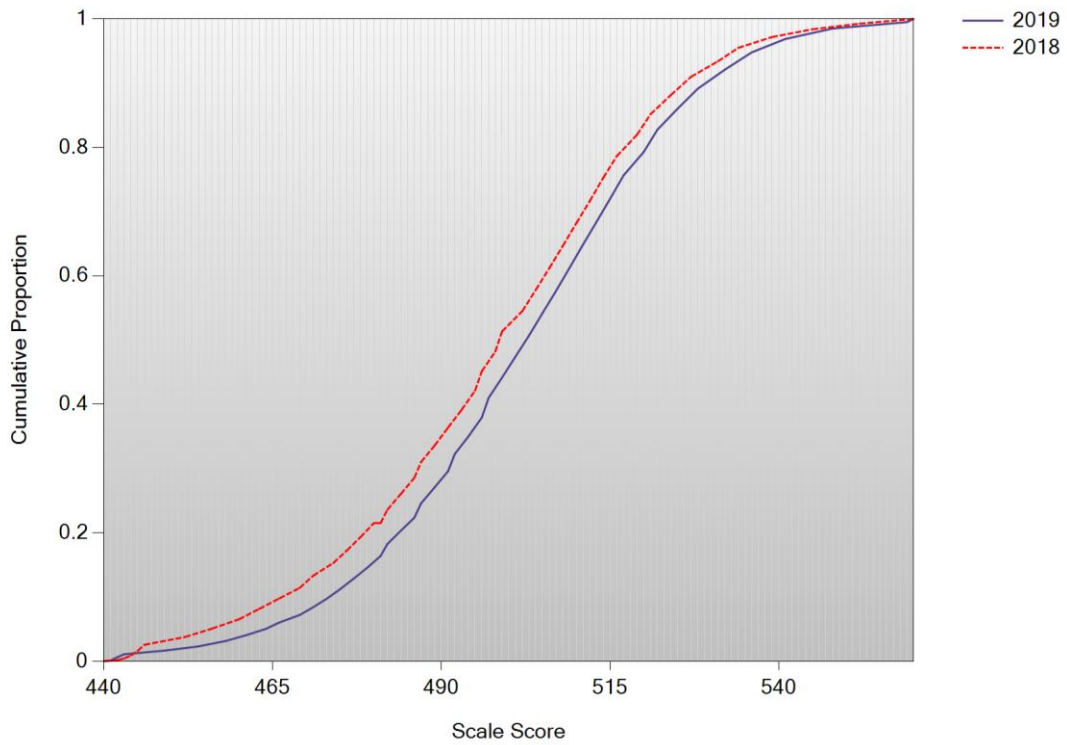


Figure N-9. Cumulative Scale Score Distributions—Mathematics Grade 4

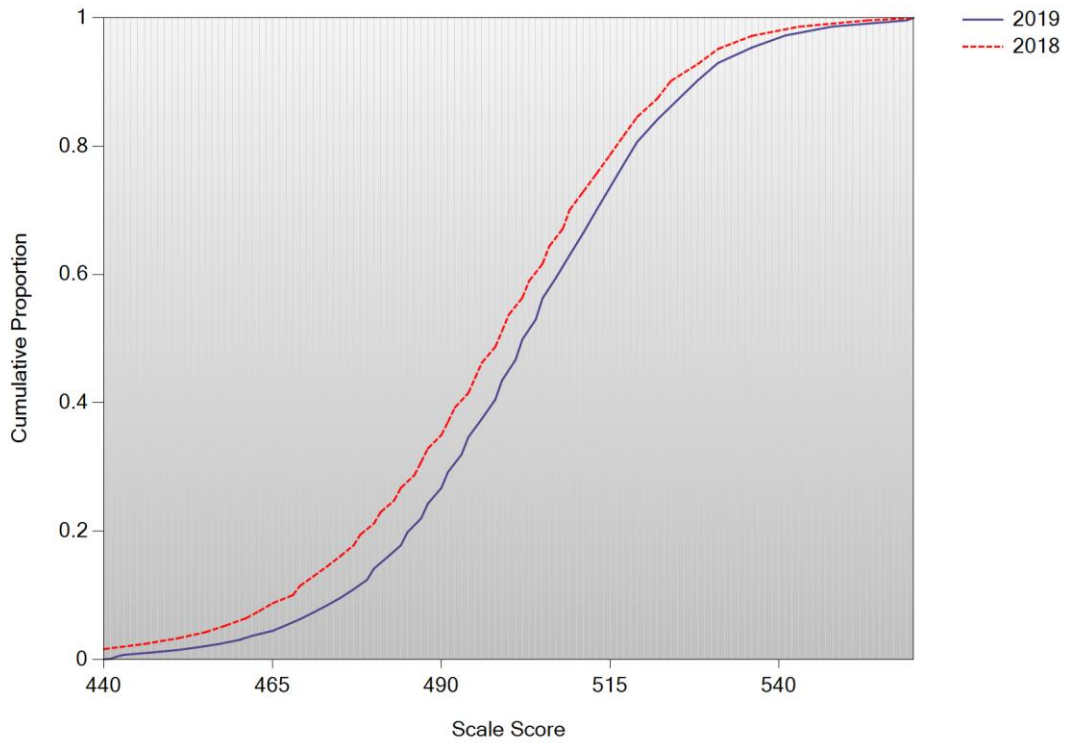


Figure N-10. Cumulative Scale Score Distributions—Mathematics Grade 5

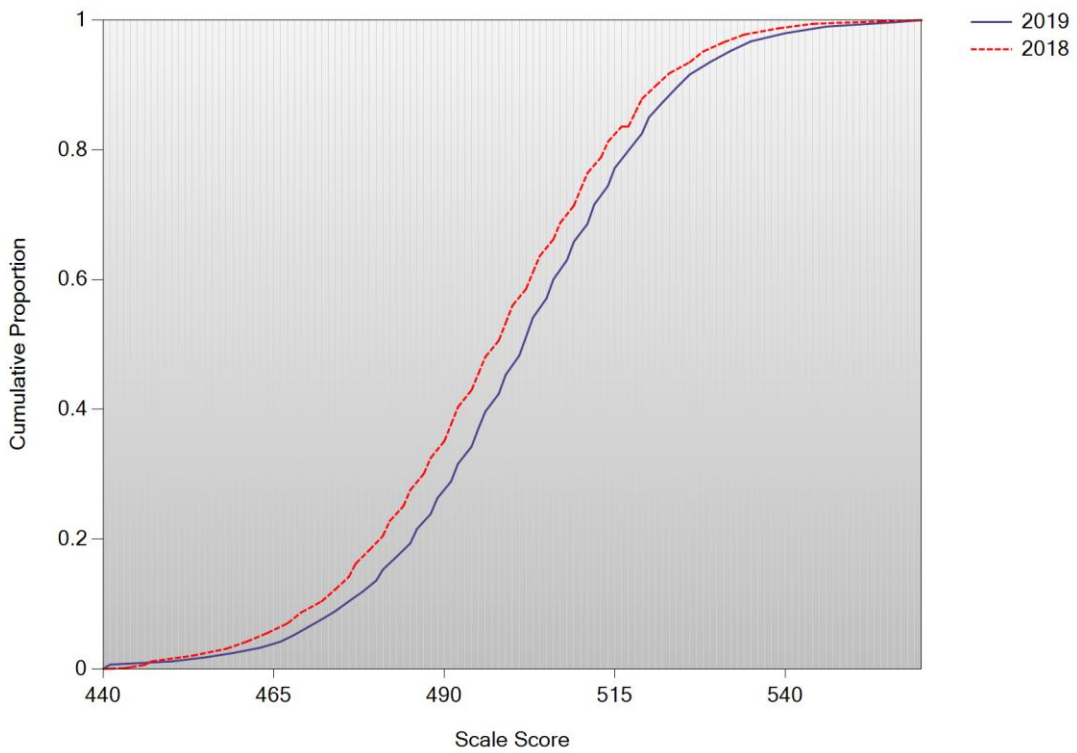


Figure N-11. Cumulative Scale Score Distributions—Mathematics Grade 6

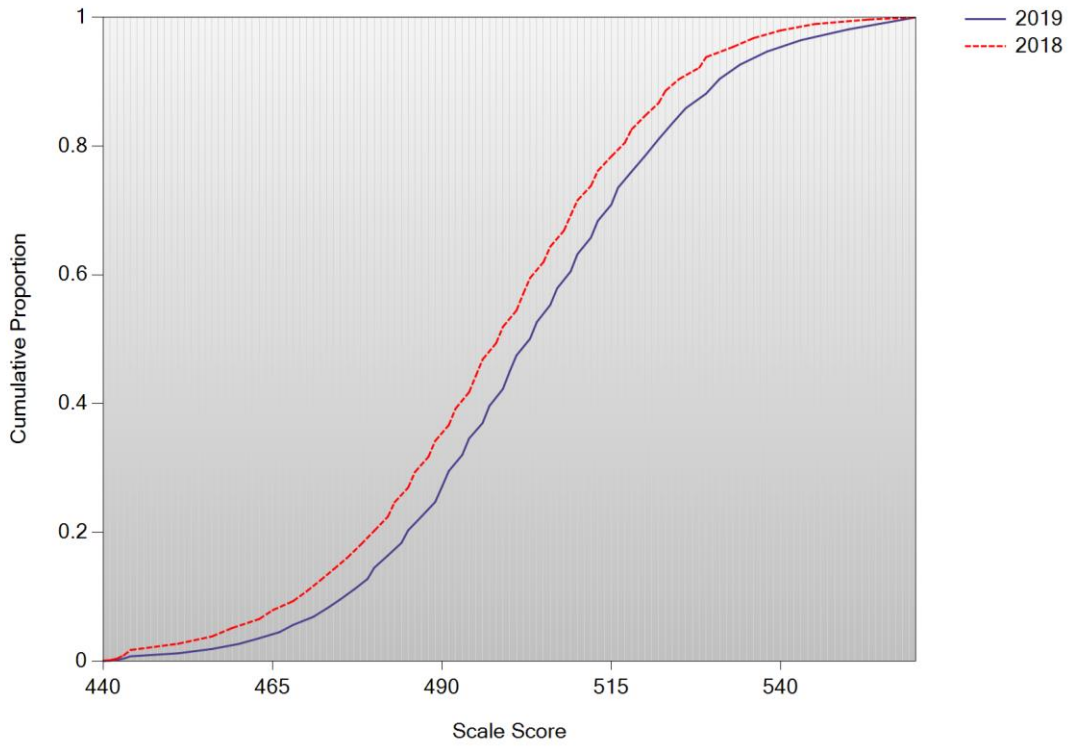


Figure N-12. Cumulative Scale Score Distributions—Mathematics Grade 7

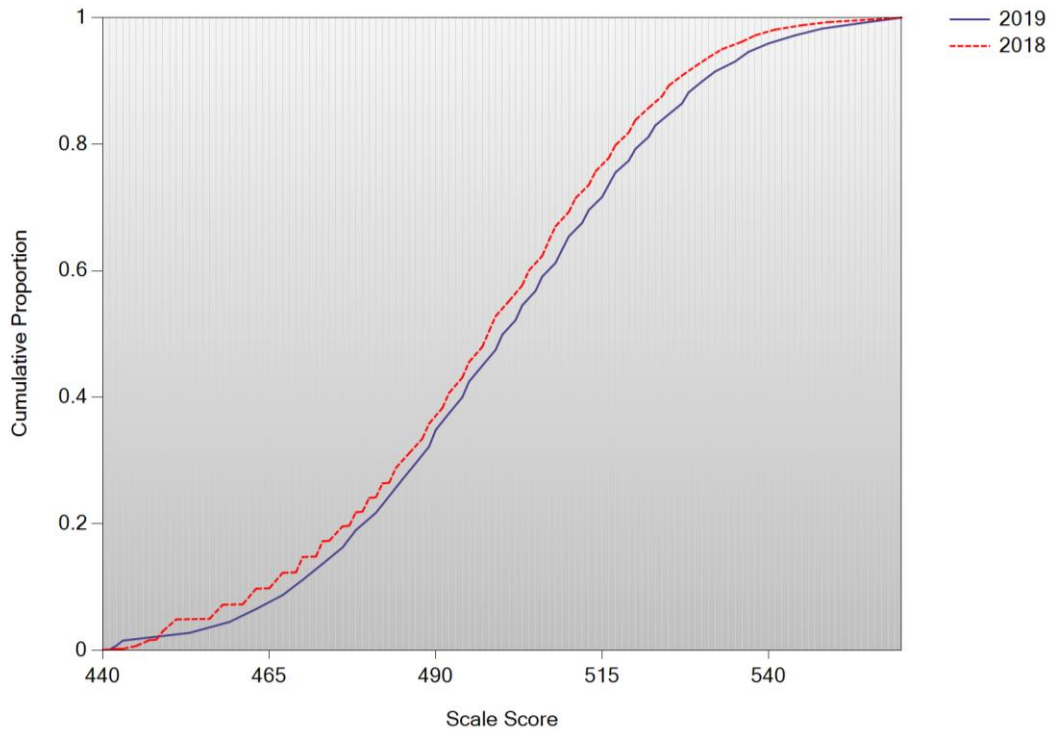


Figure N-13. Cumulative Scale Score Distributions—Mathematics Grade 8

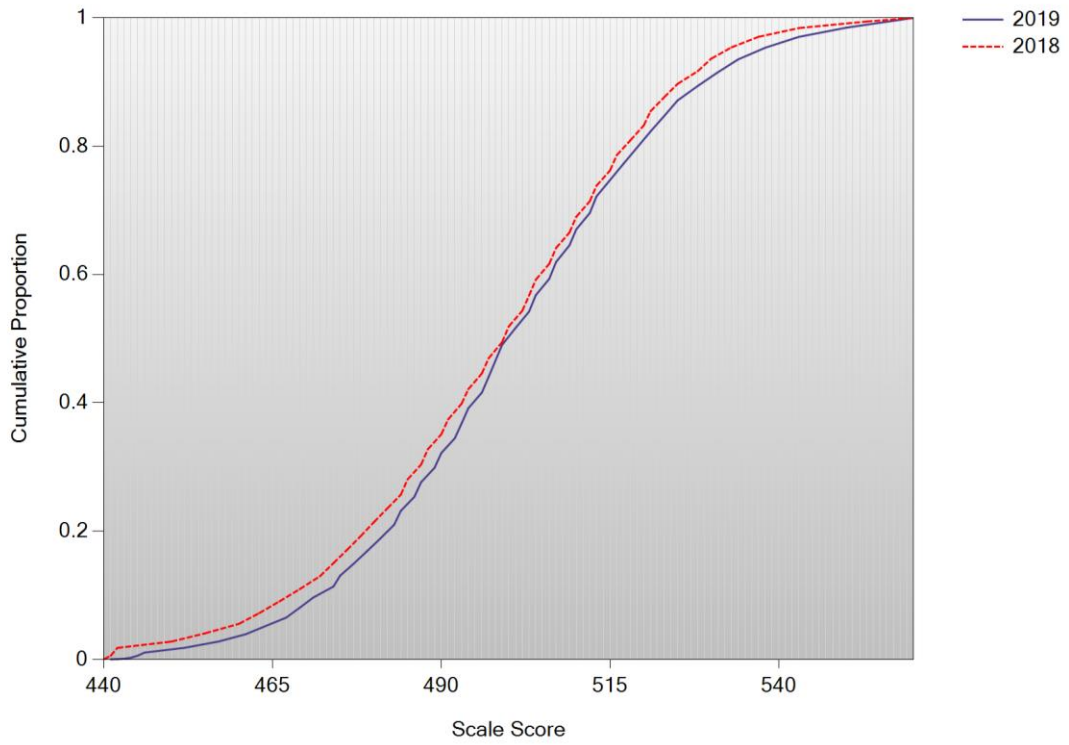


Figure N-14. Cumulative Scale Score Distributions—Mathematics Grade 10

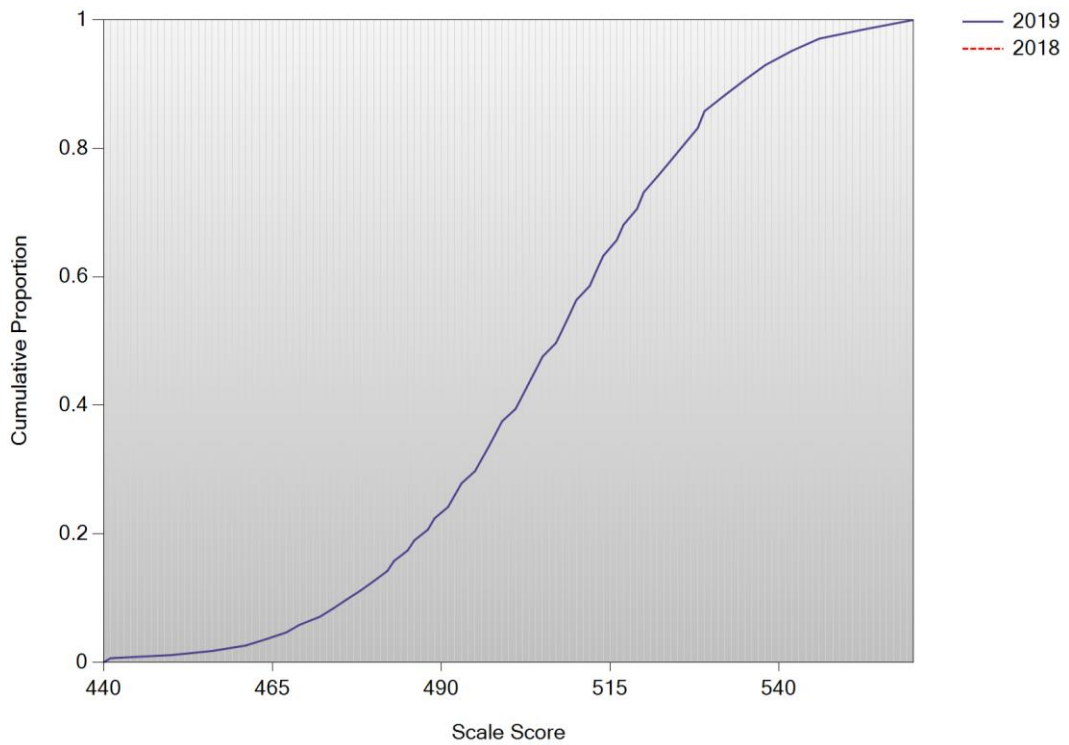


Figure N-15. Cumulative Scale Score Distributions—STE Grade 5

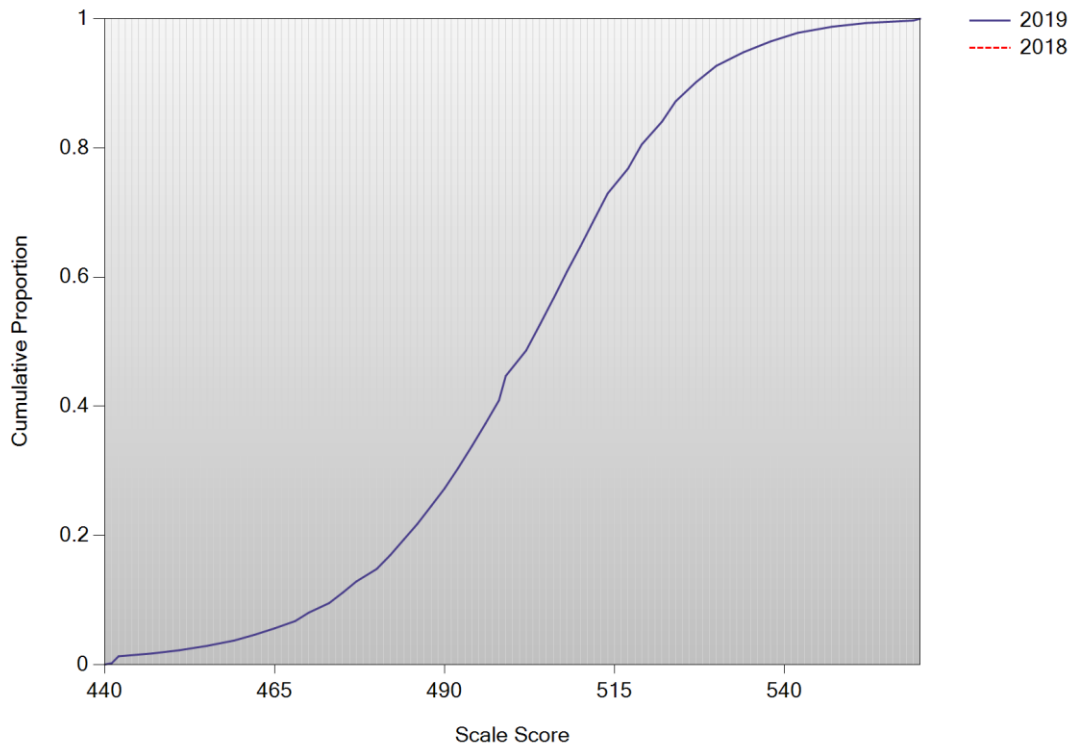


Figure N-16. Cumulative Scale Score Distributions—STE Grade 8

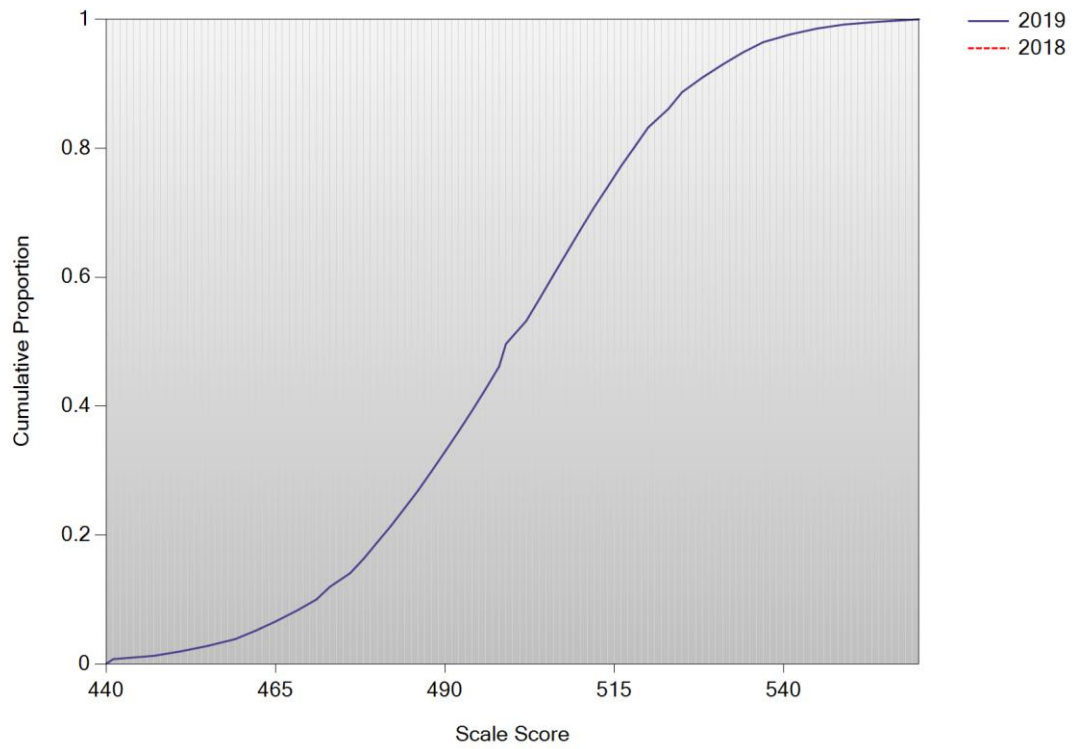


Table N-1. Raw Score to Scaled Score Lookup Tables—ELA Grade 3

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-3.173	3.02	10.0	440	440	1	1
1	-3.122	3.16	10.0	441	441	1	1
2	-3.071	3.31	10.0	442	442	1	1
3	-3.020	3.46	10.0	443	443	1	1
4	-2.969	3.61	9.9	444	444	1	1
5	-2.918	3.75	9.7	445	444	1	1
6	-2.967	3.90	9.5	446	445	1	1
7	-2.706	4.60	8.8	451	453	1	1
8	-2.383	5.18	8.3	455	458	1	1
9	-2.184	5.70	7.9	459	462	1	1
10	-2.003	6.17	7.6	462	466	1	1
11	-1.835	6.58	7.3	465	469	1	1
12	-1.677	6.89	7.2	468	472	1	2
13	-1.526	7.10	7.1	471	474	2	2
14	-1.380	7.21	7.0	474	476	2	2
15	-1.237	7.23	7.0	476	478	2	2
16	-1.096	7.19	7.0	479	481	2	2
17	-0.957	7.12	7.1	482	483	2	2
18	-0.819	7.05	7.1	484	485	2	2
19	-0.681	7.00	7.1	487	486	2	2
20	-0.543	6.99	7.1	490	488	2	2
21	-0.406	7.03	7.1	492	490	2	2
22	-0.270	7.11	7.1	495	493	2	2
23	-0.133	7.22	7.0	497	495	2	2
24	0.003	7.34	7.0	499	497	2	2
25	0.139	7.44	6.9	502	499	3	2
26	0.277	7.51	6.9	505	502	3	3
27	0.417	7.51	6.9	508	504	3	3
28	0.559	7.44	6.9	510	507	3	3
29	0.706	7.28	7.0	513	510	3	3
30	0.858	7.03	7.1	516	513	3	3
31	1.018	6.69	7.3	519	516	3	3
32	1.187	6.27	7.5	522	519	3	3
33	1.368	5.79	7.8	526	523	3	3
34	1.564	5.27	8.2	529	527	3	3
35	1.777	4.72	8.7	533	530	4	4
36	2.014	4.16	9.2	538	534	4	4
37	2.279	3.64	9.9	543	539	4	4
38	2.577	3.19	10.0	548	543	4	4
39	2.915	2.91	10.0	555	548	4	4
40	3.196	2.53	10.0	560	554	4	4
41	3.196	2.53	10.0	560	560	4	4
42	3.196	2.53	10.0	560	560	4	4
43	3.196	2.53	10.0	560	560	4	4
44	3.196	2.53	10.0	560	560	4	4

Table N-2. Raw Score to Scaled Score Lookup Tables—ELA Grade 4

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-3.153	2.22	10.0	440	440	1	1
1	-3.119	2.31	10.0	441	440	1	1
2	-3.085	2.40	10.0	441	440	1	1
3	-3.051	2.49	10.0	442	440	1	1
4	-3.017	2.59	10.0	443	440	1	1
5	-2.984	2.79	10.0	443	440	1	1
6	-2.761	3.78	9.7	449	445	1	1
7	-2.413	4.78	8.6	454	450	1	1
8	-2.207	5.69	7.9	458	453	1	1
9	-2.029	6.50	7.4	461	456	1	1
10	-1.870	7.23	7.0	464	459	1	1
11	-1.725	7.88	6.7	467	462	1	1
12	-1.589	8.44	6.5	469	465	1	1
13	-1.462	8.92	6.3	472	467	2	1
14	-1.340	9.33	6.2	474	469	2	1
15	-1.222	9.65	6.1	476	471	2	2
16	-1.108	9.90	6.0	479	474	2	2
17	-0.997	10.08	5.9	481	476	2	2
18	-0.886	10.19	5.9	483	478	2	2
19	-0.777	10.25	5.9	485	480	2	2
20	-0.668	10.25	5.9	487	482	2	2
21	-0.559	10.21	5.9	489	484	2	2
22	-0.449	10.12	5.9	491	486	2	2
23	-0.338	10.00	6.0	493	488	2	2
24	-0.225	9.85	6.0	495	490	2	2
25	-0.111	9.66	6.1	497	492	2	2
26	0.007	9.44	6.1	499	494	2	2
27	0.128	9.18	6.2	502	496	3	2
28	0.253	8.89	6.3	504	498	3	2
29	0.382	8.56	6.4	507	501	3	3
30	0.517	8.19	6.6	509	503	3	3
31	0.659	7.79	6.8	512	506	3	3
32	0.808	7.36	6.9	515	509	3	3
33	0.967	6.93	7.2	518	512	3	3
34	1.135	6.51	7.4	521	516	3	3
35	1.316	6.10	7.6	524	519	3	3
36	1.510	5.71	7.9	528	523	3	3
37	1.719	5.32	8.2	532	527	4	3
38	1.948	4.89	8.5	536	532	4	4
39	2.202	4.39	9.0	541	537	4	4
40	2.491	3.81	9.7	546	544	4	4
41	2.935	3.16	10.0	553	551	4	4
42	3.215	2.53	10.0	560	560	4	4
43	3.215	2.53	10.0	560	560	4	4
44	3.215	2.53	10.0	560	560	4	4

Table N-3. Raw Score to Scaled Score Lookup Tables—ELA Grade 5

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-3.360	2.03	10.0	440	440	1	1
1	-3.320	2.12	10.0	441	440	1	1
2	-3.281	2.21	10.0	441	441	1	1
3	-3.241	2.30	10.0	442	441	1	1
4	-3.202	2.40	10.0	443	442	1	1
5	-3.162	2.50	10.0	443	448	1	1
6	-3.123	2.71	10.0	444	453	1	1
7	-2.930	3.52	9.4	449	457	1	1
8	-2.594	4.42	8.4	454	460	1	1
9	-2.393	5.26	7.7	457	463	1	1
10	-2.217	6.02	7.2	460	465	1	1
11	-2.058	6.68	6.8	463	467	1	1
12	-1.912	7.24	6.5	466	469	1	1
13	-1.775	7.71	6.3	468	471	1	2
14	-1.644	8.09	6.2	470	473	2	2
15	-1.519	8.40	6.1	472	475	2	2
16	-1.398	8.63	6.0	475	477	2	2
17	-1.279	8.81	6.0	477	478	2	2
18	-1.162	8.94	5.9	479	480	2	2
19	-1.047	9.04	5.9	481	482	2	2
20	-0.932	9.11	5.9	483	483	2	2
21	-0.818	9.16	5.8	485	485	2	2
22	-0.703	9.20	5.8	487	487	2	2
23	-0.589	9.23	5.8	489	488	2	2
24	-0.474	9.24	5.8	491	490	2	2
25	-0.359	9.24	5.8	493	492	2	2
26	-0.243	9.23	5.8	495	493	2	2
27	-0.126	9.18	5.8	497	495	2	2
28	-0.008	9.10	5.9	499	497	2	2
29	0.112	8.98	5.9	501	499	3	2
30	0.234	8.81	6.0	503	501	3	3
31	0.359	8.60	6.0	506	503	3	3
32	0.487	8.34	6.1	508	505	3	3
33	0.619	8.05	6.2	510	507	3	3
34	0.756	7.75	6.4	513	509	3	3
35	0.898	7.43	6.5	515	512	3	3
36	1.047	7.13	6.6	518	514	3	3
37	1.202	6.84	6.8	521	517	3	3
38	1.365	6.56	6.9	523	520	3	3
39	1.537	6.25	7.1	527	523	3	3
40	1.721	5.90	7.3	529	526	3	3
41	1.920	5.47	7.6	533	529	4	3
42	2.138	4.95	8.0	537	534	4	4
43	2.386	4.35	8.5	542	539	4	4
44	2.772	3.76	9.1	547	545	4	4
45	3.013	3.17	9.9	553	552	4	4
46	3.430	2.49	10.0	560	559	4	4
47	3.430	2.49	10.0	560	560	4	4
48	3.430	2.49	10.0	560	560	4	4

Table N-4. Raw Score to Scaled Score Lookup Tables—ELA Grade 6

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-3.171	2.96	10.0	440	440	1	1
1	-3.166	2.97	10.0	440	440	1	1
2	-3.161	2.98	10.0	440	441	1	1
3	-3.157	2.90	10.0	440	441	1	1
4	-3.152	2.91	10.0	440	442	1	1
5	-3.147	2.93	10.0	440	442	1	1
6	-2.963	3.86	9.7	446	448	1	1
7	-2.732	4.74	8.7	450	453	1	1
8	-2.434	5.53	8.1	454	457	1	1
9	-2.259	6.22	7.6	457	460	1	1
10	-2.100	6.79	7.3	460	463	1	1
11	-1.953	7.25	7.1	463	466	1	1
12	-1.815	7.60	6.9	466	468	1	1
13	-1.683	7.87	6.8	468	470	1	2
14	-1.556	8.05	6.7	471	473	2	2
15	-1.433	8.19	6.6	473	475	2	2
16	-1.313	8.28	6.6	475	477	2	2
17	-1.195	8.37	6.6	478	479	2	2
18	-1.079	8.45	6.5	480	480	2	2
19	-0.964	8.53	6.5	482	482	2	2
20	-0.851	8.62	6.5	484	484	2	2
21	-0.739	8.70	6.4	486	486	2	2
22	-0.627	8.78	6.4	488	488	2	2
23	-0.516	8.84	6.4	490	490	2	2
24	-0.405	8.88	6.4	493	492	2	2
25	-0.294	8.87	6.4	495	494	2	2
26	-0.182	8.83	6.4	497	496	2	2
27	-0.069	8.75	6.4	499	498	2	2
28	0.046	8.63	6.5	501	499	3	2
29	0.163	8.50	6.5	503	502	3	3
30	0.282	8.34	6.6	506	504	3	3
31	0.404	8.18	6.6	508	506	3	3
32	0.529	8.03	6.7	510	508	3	3
33	0.658	7.87	6.8	513	510	3	3
34	0.790	7.71	6.8	515	513	3	3
35	0.926	7.53	6.9	518	515	3	3
36	1.067	7.32	7.0	520	517	3	3
37	1.213	7.08	7.1	523	520	3	3
38	1.366	6.78	7.3	526	523	3	3
39	1.526	6.44	7.5	529	526	3	3
40	1.696	6.05	7.7	532	529	4	3
41	1.877	5.63	8.0	536	532	4	4
42	2.070	5.20	8.3	540	535	4	4
43	2.278	4.77	8.7	543	539	4	4
44	2.504	4.36	9.1	548	543	4	4
45	2.850	3.97	9.5	552	548	4	4
46	3.022	3.62	10.0	558	553	4	4
47	3.150	3.47	10.0	560	559	4	4
48	3.150	3.47	10.0	560	560	4	4
49	3.150	3.47	10.0	560	560	4	4
50	3.150	3.47	10.0	560	560	4	4
51	3.150	3.47	10.0	560	560	4	4

Table N-5. Raw Score to Scaled Score Lookup Tables—ELA Grade 7

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-3.131	2.91	10.0	440	440	1	1
1	-3.097	3.03	10.0	441	440	1	1
2	-3.064	3.14	10.0	441	440	1	1
3	-3.031	3.27	10.0	442	441	1	1
4	-2.998	3.39	10.0	443	441	1	1
5	-2.964	3.52	10.0	443	441	1	1
6	-2.931	3.65	10.0	444	441	1	1
7	-2.771	4.75	8.8	449	442	1	1
8	-2.458	5.71	8.0	453	445	1	1
9	-2.274	6.53	7.5	456	449	1	1
10	-2.110	7.20	7.1	459	452	1	1
11	-1.961	7.75	6.9	462	455	1	1
12	-1.822	8.21	6.7	465	457	1	1
13	-1.692	8.59	6.5	467	460	1	1
14	-1.568	8.93	6.4	469	462	1	1
15	-1.450	9.23	6.3	472	464	2	1
16	-1.337	9.51	6.2	474	466	2	1
17	-1.227	9.76	6.1	476	468	2	1
18	-1.120	10.01	6.0	478	469	2	1
19	-1.016	10.23	6.0	480	472	2	2
20	-0.914	10.43	5.9	482	473	2	2
21	-0.814	10.61	5.9	484	475	2	2
22	-0.714	10.76	5.8	486	477	2	2
23	-0.616	10.87	5.8	488	479	2	2
24	-0.518	10.95	5.8	490	480	2	2
25	-0.419	10.98	5.8	492	482	2	2
26	-0.321	10.96	5.8	494	484	2	2
27	-0.221	10.89	5.8	496	486	2	2
28	-0.121	10.77	5.8	497	488	2	2
29	-0.019	10.61	5.9	499	489	2	2
30	0.086	10.42	5.9	501	491	3	2
31	0.193	10.19	6.0	503	493	3	2
32	0.302	9.96	6.1	506	495	3	2
33	0.416	9.71	6.1	508	497	3	2
34	0.533	9.46	6.2	510	499	3	2
35	0.654	9.21	6.3	512	501	3	3
36	0.780	8.94	6.4	515	503	3	3
37	0.912	8.66	6.5	517	506	3	3
38	1.050	8.35	6.6	520	508	3	3
39	1.195	8.00	6.8	523	511	3	3
40	1.349	7.60	6.9	526	514	3	3
41	1.513	7.14	7.1	529	517	3	3
42	1.690	6.60	7.4	532	520	4	3
43	1.882	6.01	7.8	536	524	4	3
44	2.094	5.42	8.2	540	528	4	3
45	2.328	4.88	8.6	544	532	4	4
46	2.591	4.41	9.1	549	537	4	4
47	2.988	3.95	9.6	555	543	4	4
48	3.153	3.52	10.0	560	549	4	4
49	3.153	3.52	10.0	560	556	4	4
50	3.153	3.52	10.0	560	560	4	4
51	3.153	3.52	10.0	560	560	4	4

Table N-6. Raw Score to Scaled Score Lookup Tables—ELA Grade 8

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-2.964	3.71	10.0	440	440	1	1
1	-2.945	3.78	10.0	440	440	1	1
2	-2.927	3.85	10.0	441	440	1	1
3	-2.908	3.92	10.0	441	440	1	1
4	-2.990	3.99	10.0	441	440	1	1
5	-2.971	4.06	9.9	442	440	1	1
6	-2.953	4.13	9.8	442	440	1	1
7	-2.934	4.20	9.7	443	440	1	1
8	-2.700	5.16	8.8	447	445	1	1
9	-2.400	6.01	8.1	451	449	1	1
10	-2.223	6.74	7.7	455	452	1	1
11	-2.064	7.35	7.3	458	455	1	1
12	-1.916	7.86	7.1	461	458	1	1
13	-1.778	8.27	6.9	464	460	1	1
14	-1.647	8.62	6.8	466	463	1	1
15	-1.522	8.92	6.7	469	465	1	1
16	-1.402	9.18	6.6	471	468	2	1
17	-1.286	9.43	6.5	473	469	2	1
18	-1.173	9.66	6.4	476	472	2	2
19	-1.063	9.88	6.3	478	474	2	2
20	-0.955	10.08	6.3	480	476	2	2
21	-0.849	10.26	6.2	482	478	2	2
22	-0.745	10.42	6.2	484	480	2	2
23	-0.641	10.56	6.1	486	482	2	2
24	-0.539	10.67	6.1	488	484	2	2
25	-0.437	10.75	6.1	490	486	2	2
26	-0.335	10.80	6.1	492	488	2	2
27	-0.233	10.83	6.0	494	490	2	2
28	-0.131	10.83	6.0	496	492	2	2
29	-0.028	10.80	6.1	498	494	2	2
30	0.076	10.74	6.1	501	497	3	2
31	0.182	10.66	6.1	503	499	3	2
32	0.290	10.53	6.1	505	501	3	3
33	0.399	10.37	6.2	507	503	3	3
34	0.512	10.16	6.2	509	506	3	3
35	0.628	9.90	6.3	511	508	3	3
36	0.748	9.57	6.4	514	511	3	3
37	0.873	9.19	6.6	516	513	3	3
38	1.004	8.75	6.7	519	516	3	3
39	1.142	8.25	6.9	522	519	3	3
40	1.289	7.72	7.2	525	522	3	3
41	1.446	7.17	7.4	528	525	3	3
42	1.615	6.61	7.7	531	529	4	3
43	1.798	6.06	8.1	535	532	4	4
44	1.998	5.52	8.5	539	536	4	4
45	2.217	5.01	8.9	543	541	4	4
46	2.460	4.56	9.3	548	546	4	4
47	2.832	4.18	9.7	553	551	4	4
48	3.043	3.75	10.0	559	558	4	4
49	3.066	3.71	10.0	560	560	4	4
50	3.066	3.71	10.0	560	560	4	4
51	3.066	3.71	10.0	560	560	4	4

Table N-7. Raw Score to Scaled Score Lookup Tables—ELA Grade 10

Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Achievement Levels
0	-3.157	5.89	8.70	440	1
1	-3.150	5.92	8.60	440	1
2	-3.144	5.96	8.60	440	1
3	-3.138	5.99	8.60	440	1
4	-3.132	6.03	8.60	441	1
5	-3.126	6.07	8.50	441	1
6	-3.119	6.10	8.50	441	1
7	-3.113	6.14	8.50	441	1
8	-3.107	6.17	8.40	441	1
9	-2.940	7.19	7.80	445	1
10	-2.793	8.13	7.40	448	1
11	-2.662	8.99	7.00	450	1
12	-2.542	9.78	6.70	453	1
13	-2.431	10.51	6.50	455	1
14	-2.327	11.20	6.30	457	1
15	-2.228	11.84	6.10	459	1
16	-2.134	12.44	6.00	461	1
17	-2.044	13.00	5.80	463	1
18	-1.957	13.51	5.70	465	1
19	-1.873	13.97	5.60	467	1
20	-1.790	14.37	5.50	469	1
21	-1.710	14.71	5.50	470	2
22	-1.630	14.97	5.40	472	2
23	-1.551	15.17	5.40	474	2
24	-1.473	15.29	5.40	475	2
25	-1.395	15.33	5.40	477	2
26	-1.317	15.31	5.40	479	2
27	-1.238	15.22	5.40	480	2
28	-1.159	15.08	5.40	482	2
29	-1.078	14.88	5.40	484	2
30	-0.997	14.63	5.50	485	2
31	-0.913	14.34	5.50	487	2
32	-0.827	14.01	5.60	489	2
33	-0.739	13.64	5.70	491	2
34	-0.649	13.23	5.80	493	2
35	-0.554	12.78	5.90	495	2
36	-0.456	12.28	6.00	497	2
37	-0.353	11.72	6.10	499	2
38	-0.245	11.12	6.30	501	3
39	-0.129	10.45	6.50	504	3
40	-0.006	9.73	6.70	506	3
41	0.127	8.95	7.00	509	3
42	0.273	8.13	7.40	512	3
43	0.434	7.27	7.80	515	3
44	0.615	6.39	8.30	519	3
45	0.823	5.49	9.00	524	3
46	1.067	4.58	9.80	529	3
47	1.365	3.71	10.00	535	4
48	1.737	3.03	10.00	543	4
49	2.203	2.60	10.00	553	4
50	2.559	2.22	10.00	560	4
51	2.559	2.22	10.00	560	4

Table N-8. Raw Score to Scaled Score Lookup Tables—Mathematics Grade 3

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-2.882	2.50	10.0	440	440	1	1
1	-2.853	2.70	10.0	441	441	1	1
2	-2.824	2.81	10.0	441	442	1	1
3	-2.795	2.93	10.0	442	443	1	1
4	-2.766	2.95	10.0	442	444	1	1
5	-2.738	3.07	10.0	443	445	1	1
6	-2.348	4.58	10.0	449	446	1	1
7	-2.131	6.06	8.7	454	452	1	1
8	-1.953	7.49	7.8	458	456	1	1
9	-1.802	8.84	7.2	461	460	1	1
10	-1.668	10.11	6.7	464	463	1	1
11	-1.548	11.28	6.4	466	466	1	1
12	-1.437	12.36	6.1	469	469	1	1
13	-1.333	13.35	5.8	471	471	2	2
14	-1.236	14.24	5.7	473	474	2	2
15	-1.143	15.03	5.5	475	476	2	2
16	-1.054	15.72	5.4	477	478	2	2
17	-0.968	16.32	5.3	479	480	2	2
18	-0.885	16.82	5.2	481	482	2	2
19	-0.803	17.23	5.1	482	484	2	2
20	-0.723	17.55	5.1	484	486	2	2
21	-0.643	17.78	5.1	486	487	2	2
22	-0.565	17.92	5.0	487	489	2	2
23	-0.487	17.98	5.0	489	491	2	2
24	-0.409	17.97	5.0	491	493	2	2
25	-0.331	17.87	5.1	492	495	2	2
26	-0.252	17.70	5.1	494	496	2	2
27	-0.173	17.46	5.1	496	498	2	2
28	-0.092	17.16	5.2	497	499	2	2
29	-0.011	16.79	5.2	499	502	2	3
30	0.072	16.38	5.3	501	504	3	3
31	0.157	15.91	5.4	503	506	3	3
32	0.244	15.39	5.4	505	508	3	3
33	0.334	14.83	5.5	507	510	3	3
34	0.426	14.23	5.7	509	512	3	3
35	0.522	13.59	5.8	511	514	3	3
36	0.622	12.92	5.9	513	516	3	3
37	0.726	12.21	6.1	515	519	3	3
38	0.836	11.46	6.3	517	521	3	3
39	0.953	10.67	6.5	520	524	3	3
40	1.077	9.83	6.8	522	527	3	3
41	1.212	8.95	7.1	525	531	3	4
42	1.361	8.00	7.6	528	534	3	4
43	1.528	6.98	8.1	532	539	4	4
44	1.722	5.87	8.8	536	545	4	4
45	1.959	4.66	9.9	541	552	4	4
46	2.275	3.30	10.0	548	560	4	4
47	2.889	1.73	10.0	559	560	4	4
48	2.937	1.62	10.0	560	560	4	4

Table N-9. Raw Score to Scaled Score Lookup Tables—Mathematics Grade 4

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-2.912	4.52	9.9	440	440	1	1
1	-2.893	4.61	9.8	440	440	1	1
2	-2.875	4.70	9.7	441	440	1	1
3	-2.856	4.79	9.6	441	440	1	1
4	-2.838	4.88	9.5	442	440	1	1
5	-2.820	4.97	9.4	442	440	1	1
6	-2.801	5.07	9.3	442	446	1	1
7	-2.783	5.16	9.2	443	451	1	1
8	-2.469	6.31	8.3	447	455	1	1
9	-2.289	7.32	7.7	451	458	1	1
10	-2.131	8.20	7.3	454	461	1	1
11	-1.989	8.99	7.0	457	463	1	1
12	-1.860	9.71	6.7	460	465	1	1
13	-1.739	10.36	6.5	462	468	1	1
14	-1.626	10.98	6.3	465	469	1	1
15	-1.520	11.58	6.2	467	471	1	2
16	-1.418	12.17	6.0	469	473	1	2
17	-1.321	12.87	5.9	471	475	2	2
18	-1.227	13.37	5.7	473	477	2	2
19	-1.137	13.99	5.6	475	478	2	2
20	-1.050	14.62	5.5	477	480	2	2
21	-0.966	15.27	5.4	479	481	2	2
22	-0.884	15.93	5.2	480	483	2	2
23	-0.804	16.59	5.1	482	484	2	2
24	-0.726	17.23	5.0	484	486	2	2
25	-0.649	17.86	5.0	485	487	2	2
26	-0.574	18.45	4.9	487	488	2	2
27	-0.499	19.00	4.8	488	490	2	2
28	-0.426	19.48	4.7	490	491	2	2
29	-0.353	19.90	4.7	491	492	2	2
30	-0.281	20.22	4.7	493	494	2	2
31	-0.209	20.45	4.6	494	495	2	2
32	-0.137	20.58	4.6	496	496	2	2
33	-0.064	20.59	4.6	498	498	2	2
34	0.009	20.48	4.6	499	499	2	2
35	0.083	20.25	4.7	501	500	3	3
36	0.159	19.90	4.7	502	502	3	3
37	0.236	19.43	4.8	504	503	3	3
38	0.315	18.85	4.8	505	505	3	3
39	0.397	18.16	4.9	507	506	3	3
40	0.482	17.37	5.0	509	508	3	3
41	0.570	16.49	5.2	511	509	3	3
42	0.663	15.52	5.3	513	511	3	3
43	0.762	14.48	5.5	515	513	3	3
44	0.867	13.38	5.7	517	515	3	3
45	0.979	12.23	6.0	519	517	3	3
46	1.102	11.03	6.3	522	519	3	3
47	1.236	9.81	6.7	525	522	3	3
48	1.386	8.57	7.2	528	524	3	3
49	1.557	7.32	7.7	531	528	4	3
50	1.757	6.06	8.5	536	531	4	4
51	2.003	4.75	9.6	541	536	4	4
52	2.331	3.33	10.0	548	543	4	4
53	2.967	1.70	10.0	559	553	4	4
54	2.920	1.59	10.0	560	560	4	4

Table N-10. Raw Score to Scaled Score Lookup Tables—Mathematics Grade 5

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-3.126	1.61	10.0	440	440	1	1
1	-3.116	1.63	10.0	440	441	1	1
2	-3.106	1.65	10.0	440	443	1	1
3	-3.095	1.68	10.0	441	444	1	1
4	-3.085	1.70	10.0	441	446	1	1
5	-3.075	1.73	10.0	441	447	1	1
6	-2.726	3.23	10.0	450	453	1	1
7	-2.334	4.78	8.7	455	458	1	1
8	-2.114	6.27	7.6	459	461	1	1
9	-1.936	7.65	6.9	463	464	1	1
10	-1.785	8.90	6.4	466	467	1	1
11	-1.651	10.02	6.0	468	469	1	1
12	-1.531	11.00	5.7	470	472	2	2
13	-1.420	11.85	5.5	472	474	2	2
14	-1.316	12.58	5.4	474	476	2	2
15	-1.218	13.21	5.2	476	477	2	2
16	-1.124	13.75	5.1	478	479	2	2
17	-1.034	14.20	5.1	480	481	2	2
18	-0.947	14.59	5.0	481	482	2	2
19	-0.863	14.93	4.9	483	484	2	2
20	-0.780	15.22	4.9	485	485	2	2
21	-0.699	15.48	4.8	486	487	2	2
22	-0.619	15.72	4.8	488	488	2	2
23	-0.541	15.93	4.8	489	490	2	2
24	-0.464	16.12	4.7	491	491	2	2
25	-0.387	16.31	4.7	492	492	2	2
26	-0.311	16.48	4.7	494	494	2	2
27	-0.236	16.64	4.7	495	495	2	2
28	-0.162	16.78	4.6	496	496	2	2
29	-0.087	16.92	4.6	498	498	2	2
30	-0.013	17.04	4.6	499	499	2	2
31	0.060	17.15	4.6	501	500	3	3
32	0.134	17.24	4.6	502	502	3	3
33	0.208	17.32	4.6	503	503	3	3
34	0.282	17.37	4.6	505	504	3	3
35	0.356	17.41	4.6	506	506	3	3
36	0.431	17.41	4.6	508	507	3	3
37	0.507	17.38	4.6	509	509	3	3
38	0.584	17.30	4.6	511	510	3	3
39	0.662	17.17	4.6	512	511	3	3
40	0.742	16.96	4.6	514	513	3	3
41	0.824	16.67	4.7	515	514	3	3
42	0.910	16.27	4.7	517	516	3	3
43	0.999	15.74	4.8	519	518	3	3
44	1.092	15.08	4.9	520	519	3	3
45	1.192	14.27	5.0	522	521	3	3
46	1.299	13.29	5.2	524	523	3	3
47	1.416	12.13	5.5	526	526	3	3
48	1.547	10.78	5.8	529	528	3	3
49	1.697	9.24	6.3	532	531	4	4
50	1.877	7.53	6.9	535	534	4	4
51	2.103	5.67	8.0	540	539	4	4
52	2.418	3.73	9.9	546	544	4	4
53	2.956	1.75	10.0	556	554	4	4
54	3.176	1.28	10.0	560	560	4	4

Table N-11. Raw Score to Scaled Score Lookup Tables—Mathematics Grade 6

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-3.028	2.00	10.0	440	440	1	1
1	-2.992	2.10	10.0	441	441	1	1
2	-2.955	2.20	10.0	441	442	1	1
3	-2.919	2.30	10.0	442	443	1	1
4	-2.982	2.41	10.0	443	444	1	1
5	-2.946	2.52	10.0	444	451	1	1
6	-2.495	3.91	10.0	451	456	1	1
7	-2.242	5.30	8.6	456	459	1	1
8	-2.042	6.67	7.7	460	463	1	1
9	-1.874	8.00	7.0	463	465	1	1
10	-1.728	9.24	6.5	466	468	1	1
11	-1.598	10.40	6.2	468	470	1	2
12	-1.480	11.45	5.9	471	472	2	2
13	-1.370	12.40	5.6	473	474	2	2
14	-1.268	13.24	5.5	475	476	2	2
15	-1.171	13.99	5.3	477	478	2	2
16	-1.079	14.65	5.2	479	480	2	2
17	-0.990	15.23	5.1	480	482	2	2
18	-0.905	15.75	5.0	482	483	2	2
19	-0.823	16.21	4.9	484	485	2	2
20	-0.742	16.63	4.9	485	486	2	2
21	-0.664	17.01	4.8	487	488	2	2
22	-0.587	17.36	4.8	489	489	2	2
23	-0.512	17.67	4.7	490	491	2	2
24	-0.437	17.95	4.7	491	492	2	2
25	-0.364	18.20	4.7	493	494	2	2
26	-0.292	18.42	4.6	494	495	2	2
27	-0.220	18.59	4.6	496	496	2	2
28	-0.148	18.73	4.6	497	498	2	2
29	-0.077	18.84	4.6	499	499	2	2
30	-0.006	18.91	4.6	500	501	3	3
31	0.065	18.94	4.6	501	502	3	3
32	0.136	18.93	4.6	503	503	3	3
33	0.208	18.89	4.6	504	505	3	3
34	0.280	18.82	4.6	506	506	3	3
35	0.353	18.70	4.6	507	508	3	3
36	0.427	18.54	4.6	509	509	3	3
37	0.502	18.32	4.6	510	510	3	3
38	0.579	18.05	4.7	512	512	3	3
39	0.657	17.71	4.7	513	513	3	3
40	0.738	17.29	4.8	515	515	3	3
41	0.821	16.78	4.9	516	517	3	3
42	0.908	16.18	4.9	518	518	3	3
43	0.998	15.47	5.1	520	520	3	3
44	1.094	14.66	5.2	522	522	3	3
45	1.196	13.73	5.4	524	523	3	3
46	1.306	12.78	5.6	526	525	3	3
47	1.426	11.49	5.9	529	528	3	3
48	1.562	10.15	6.2	531	529	4	3
49	1.718	8.63	6.8	534	533	4	4
50	1.906	6.93	7.5	538	536	4	4
51	2.148	5.07	8.8	543	540	4	4
52	2.497	3.12	10.0	550	545	4	4
53	3.011	1.52	10.0	560	553	4	4
54	3.011	1.52	10.0	560	560	4	4

Table N-12. Raw Score to Scaled Score Lookup Tables—Mathematics Grade 7

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-2.959	1.61	10.0	440	440	1	1
1	-2.932	1.69	10.0	441	442	1	1
2	-2.904	1.76	10.0	441	445	1	1
3	-2.877	1.84	10.0	442	447	1	1
4	-2.850	1.92	10.0	442	449	1	1
5	-2.822	2.01	10.0	443	451	1	1
6	-2.255	3.97	10.0	453	458	1	1
7	-1.965	5.60	8.8	459	463	1	1
8	-1.745	6.93	7.9	463	467	1	1
9	-1.564	8.04	7.3	467	470	1	2
10	-1.406	9.01	6.9	470	473	2	2
11	-1.265	9.92	6.6	473	476	2	2
12	-1.136	10.80	6.3	476	478	2	2
13	-1.018	11.67	6.1	478	480	2	2
14	-0.907	12.52	5.9	481	482	2	2
15	-0.803	13.33	5.7	483	484	2	2
16	-0.705	14.10	5.5	485	486	2	2
17	-0.610	14.81	5.4	487	488	2	2
18	-0.520	15.45	5.3	489	489	2	2
19	-0.433	16.04	5.2	490	491	2	2
20	-0.349	16.58	5.1	492	492	2	2
21	-0.267	17.07	5.0	494	494	2	2
22	-0.188	17.54	5.0	495	495	2	2
23	-0.110	17.98	4.9	497	497	2	2
24	-0.035	18.41	4.8	499	498	2	2
25	0.040	18.81	4.8	500	499	3	2
26	0.112	19.20	4.7	502	501	3	3
27	0.184	19.59	4.7	503	503	3	3
28	0.255	19.97	4.6	505	504	3	3
29	0.324	20.35	4.6	506	506	3	3
30	0.393	20.75	4.6	508	507	3	3
31	0.461	21.17	4.5	509	508	3	3
32	0.529	21.61	4.5	510	510	3	3
33	0.597	22.08	4.4	512	511	3	3
34	0.664	22.56	4.4	513	513	3	3
35	0.731	23.02	4.3	515	514	3	3
36	0.799	23.43	4.3	516	516	3	3
37	0.867	23.74	4.3	517	517	3	3
38	0.935	23.88	4.2	519	519	3	3
39	1.005	23.80	4.3	520	520	3	3
40	1.077	23.47	4.3	522	522	3	3
41	1.151	22.94	4.3	523	524	3	3
42	1.228	21.94	4.4	525	525	3	3
43	1.309	20.80	4.6	527	527	3	3
44	1.394	19.45	4.7	528	529	3	3
45	1.486	17.97	4.9	530	531	4	4
46	1.586	16.37	5.1	532	533	4	4
47	1.695	14.69	5.4	535	536	4	4
48	1.818	12.92	5.8	537	538	4	4
49	1.959	11.02	6.3	540	541	4	4
50	2.127	8.97	6.9	544	545	4	4
51	2.340	6.72	8.0	548	549	4	4
52	2.737	4.32	10.0	554	555	4	4
53	2.922	2.88	10.0	560	560	4	4
54	2.922	2.88	10.0	560	560	4	4

Table N-13. Raw Score to Scaled Score Lookup Tables—Mathematics Grade 8

Raw Score	Theta	Information	SE (Scale Score)	Scale Score		Achievement Levels	
				2019	2018	2019	2018
0	-2.983	2.07	10.0	440	440	1	1
1	-2.935	2.22	10.0	441	440	1	1
2	-2.988	2.38	10.0	442	441	1	1
3	-2.940	2.55	10.0	443	441	1	1
4	-2.893	2.84	10.0	444	441	1	1
5	-2.845	2.93	10.0	445	441	1	1
6	-2.798	3.15	10.0	446	442	1	1
7	-2.372	5.03	9.0	452	442	1	1
8	-2.137	6.92	7.7	457	450	1	1
9	-1.951	8.70	6.8	461	455	1	1
10	-1.796	10.28	6.3	464	460	1	1
11	-1.660	11.62	5.9	467	463	1	1
12	-1.539	12.84	5.7	469	466	1	1
13	-1.427	13.65	5.5	471	469	2	1
14	-1.322	14.43	5.3	474	472	2	2
15	-1.224	15.11	5.2	475	474	2	2
16	-1.130	15.76	5.1	477	476	2	2
17	-1.040	16.40	5.0	479	478	2	2
18	-0.955	17.04	4.9	481	480	2	2
19	-0.872	17.69	4.8	483	482	2	2
20	-0.792	18.33	4.7	484	484	2	2
21	-0.715	18.96	4.6	486	485	2	2
22	-0.639	19.56	4.6	487	487	2	2
23	-0.566	20.11	4.5	489	488	2	2
24	-0.494	20.60	4.4	490	490	2	2
25	-0.423	21.01	4.4	492	491	2	2
26	-0.353	21.36	4.4	493	493	2	2
27	-0.284	21.62	4.3	494	494	2	2
28	-0.215	21.80	4.3	496	496	2	2
29	-0.147	21.90	4.3	497	497	2	2
30	-0.079	21.91	4.3	499	499	2	2
31	-0.010	21.85	4.3	499	500	2	3
32	0.059	21.72	4.3	501	502	3	3
33	0.129	21.51	4.3	503	503	3	3
34	0.200	21.22	4.4	504	504	3	3
35	0.272	20.86	4.4	506	506	3	3
36	0.345	20.42	4.5	507	507	3	3
37	0.420	19.91	4.5	509	509	3	3
38	0.497	19.33	4.6	510	510	3	3
39	0.577	18.68	4.7	512	512	3	3
40	0.659	17.98	4.8	513	513	3	3
41	0.745	17.21	4.9	515	515	3	3
42	0.834	16.40	5.0	517	516	3	3
43	0.929	15.53	5.1	519	518	3	3
44	1.029	14.59	5.3	521	520	3	3
45	1.136	13.56	5.5	523	521	3	3
46	1.252	12.43	5.7	525	523	3	3
47	1.380	11.18	6.0	528	525	3	3
48	1.524	9.83	6.4	531	528	4	3
49	1.688	8.38	7.0	534	530	4	4
50	1.883	6.85	7.7	538	533	4	4
51	2.128	5.23	8.8	543	537	4	4
52	2.463	3.50	10.0	550	543	4	4
53	2.966	1.79	10.0	560	553	4	4
54	2.966	1.79	10.0	560	560	4	4

Table N-14. Raw Score to Scaled Score Lookup Tables—Mathematics Grade 10

Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Achievement Levels
0	-3.124	2.11	10.00	440	1
1	-3.113	2.15	10.00	440	1
2	-3.102	2.18	10.00	440	1
3	-3.090	2.21	10.00	441	1
4	-3.079	2.24	10.00	441	1
5	-3.068	2.27	10.00	441	1
6	-3.056	2.30	10.00	441	1
7	-2.648	3.89	10.00	450	1
8	-2.372	5.57	9.10	456	1
9	-2.163	7.27	7.90	461	1
10	-1.994	8.92	7.20	464	1
11	-1.851	10.47	6.60	467	1
12	-1.726	11.91	6.20	469	1
13	-1.614	13.25	5.90	472	2
14	-1.512	14.50	5.60	474	2
15	-1.417	15.66	5.40	476	2
16	-1.329	16.75	5.20	478	2
17	-1.246	17.78	5.10	480	2
18	-1.167	18.77	4.90	482	2
19	-1.092	19.72	4.80	483	2
20	-1.019	20.62	4.70	485	2
21	-0.950	21.48	4.60	486	2
22	-0.883	22.29	4.50	488	2
23	-0.818	23.06	4.50	489	2
24	-0.755	23.78	4.40	491	2
25	-0.693	24.44	4.30	492	2
26	-0.633	25.04	4.30	493	2
27	-0.574	25.58	4.20	495	2
28	-0.516	26.05	4.20	496	2
29	-0.458	26.45	4.20	497	2
30	-0.401	26.77	4.10	498	2
31	-0.345	27.02	4.10	499	2
32	-0.289	27.20	4.10	501	3
33	-0.233	27.29	4.10	502	3
34	-0.177	27.29	4.10	503	3
35	-0.121	27.22	4.10	504	3
36	-0.065	27.06	4.10	505	3
37	-0.008	26.81	4.10	507	3
38	0.050	26.49	4.20	508	3
39	0.108	26.09	4.20	509	3
40	0.168	25.62	4.20	510	3
41	0.228	25.08	4.30	512	3
42	0.290	24.47	4.30	513	3
43	0.354	23.80	4.40	514	3
44	0.420	23.08	4.40	516	3
45	0.489	22.29	4.50	517	3
46	0.560	21.46	4.60	519	3
47	0.634	20.58	4.70	520	3
48	0.712	19.64	4.80	522	3
49	0.795	18.64	5.00	524	3
50	0.883	17.56	5.10	526	3
51	0.977	16.40	5.30	528	3
52	1.080	15.14	5.50	529	3
53	1.194	13.74	5.80	532	4
54	1.322	12.22	6.10	535	4
55	1.469	10.59	6.60	538	4
56	1.644	8.87	7.20	542	4
57	1.859	7.08	8.00	546	4
58	2.144	5.11	9.50	553	4
59	2.490	3.20	10.00	560	4
60	2.490	3.20	10.00	560	4

Table N-15. Raw Score to Scaled Score Lookup Tables—STE Grade 5

Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Achievement Levels
0	-3.130	3.14	10.00	440	1
1	-3.119	3.16	10.00	440	1
2	-3.107	3.19	10.00	440	1
3	-3.095	3.21	10.00	441	1
4	-3.083	3.23	10.00	441	1
5	-3.071	3.26	10.00	441	1
6	-3.060	3.28	10.00	441	1
7	-3.048	3.31	10.00	442	1
8	-3.036	3.33	10.00	442	1
9	-3.024	3.35	10.00	442	1
10	-3.013	3.38	10.00	442	1
11	-2.774	3.88	10.00	447	1
12	-2.563	4.33	9.60	451	1
13	-2.373	4.75	9.10	455	1
14	-2.198	5.14	8.80	459	1
15	-2.037	5.53	8.50	462	1
16	-1.886	5.91	8.20	465	1
17	-1.744	6.28	7.90	468	1
18	-1.610	6.66	7.70	470	2
19	-1.483	7.03	7.50	473	2
20	-1.361	7.41	7.30	475	2
21	-1.244	7.79	7.10	477	2
22	-1.131	8.16	7.00	480	2
23	-1.022	8.51	6.80	482	2
24	-0.915	8.86	6.70	484	2
25	-0.812	9.18	6.60	486	2
26	-0.710	9.48	6.50	488	2
27	-0.610	9.74	6.40	490	2
28	-0.512	9.96	6.30	492	2
29	-0.414	10.14	6.20	494	2
30	-0.317	10.27	6.20	496	2
31	-0.219	10.35	6.20	498	2
32	-0.122	10.37	6.20	499	2
33	-0.023	10.35	6.20	502	3
34	0.076	10.26	6.20	504	3
35	0.178	10.13	6.20	506	3
36	0.281	9.94	6.30	508	3
37	0.387	9.70	6.40	510	3
38	0.496	9.42	6.50	512	3
39	0.609	9.09	6.60	514	3
40	0.727	8.73	6.70	517	3
41	0.850	8.32	6.90	519	3
42	0.979	7.87	7.10	522	3
43	1.116	7.39	7.30	524	3
44	1.263	6.88	7.60	527	3
45	1.420	6.34	7.90	530	4
46	1.592	5.76	8.30	534	4
47	1.782	5.15	8.80	538	4
48	1.994	4.52	9.40	542	4
49	2.237	3.85	10.00	547	4
50	2.526	3.16	10.00	552	4
51	2.884	2.43	10.00	559	4
52	2.907	2.39	10.00	560	4
52	2.907	2.39	10.00	560	4
54	2.907	2.39	10.00	560	4

Table N-16. Raw Score to Scaled Score Lookup Tables—STE Grade 8

Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Achievement Levels
0	-2.978	2.76	10.00	440	1
1	-2.971	2.78	10.00	440	1
2	-2.965	2.79	10.00	440	1
3	-2.959	2.80	10.00	440	1
4	-2.953	2.82	10.00	441	1
5	-2.946	2.83	10.00	441	1
6	-2.940	2.85	10.00	441	1
7	-2.934	2.86	10.00	441	1
8	-2.928	2.88	10.00	441	1
9	-2.652	3.58	10.00	447	1
10	-2.421	4.26	9.80	451	1
11	-2.220	4.93	9.10	455	1
12	-2.042	5.56	8.60	459	1
13	-1.879	6.16	8.20	462	1
14	-1.730	6.73	7.80	465	1
15	-1.592	7.28	7.50	468	1
16	-1.462	7.80	7.30	471	2
17	-1.339	8.31	7.00	473	2
18	-1.221	8.79	6.80	476	2
19	-1.109	9.26	6.70	478	2
20	-1.000	9.70	6.50	480	2
21	-0.895	10.11	6.40	482	2
22	-0.794	10.49	6.30	484	2
23	-0.694	10.82	6.20	486	2
24	-0.596	11.11	6.10	488	2
25	-0.500	11.35	6.00	490	2
26	-0.405	11.53	6.00	492	2
27	-0.311	11.67	5.90	494	2
28	-0.217	11.75	5.90	496	2
29	-0.124	11.78	5.90	498	2
30	-0.030	11.77	5.90	499	2
31	0.064	11.72	5.90	502	3
32	0.159	11.62	6.00	504	3
33	0.255	11.48	6.00	506	3
34	0.352	11.31	6.00	508	3
35	0.451	11.09	6.10	510	3
36	0.553	10.84	6.20	512	3
37	0.656	10.56	6.20	514	3
38	0.763	10.25	6.30	516	3
39	0.873	9.90	6.40	518	3
40	0.987	9.52	6.60	520	3
41	1.106	9.10	6.70	523	3
42	1.230	8.66	6.90	525	3
43	1.361	8.18	7.10	528	3
44	1.500	7.68	7.30	531	4
45	1.649	7.16	7.60	534	4
46	1.809	6.60	7.90	537	4
47	1.984	6.02	8.30	541	4
48	2.178	5.40	8.70	545	4
49	2.399	4.71	9.30	549	4
50	2.657	3.93	10.00	554	4
51	2.937	3.13	10.00	560	4
52	2.937	3.13	10.00	560	4
53	2.937	3.13	10.00	560	4
54	2.937	3.13	10.00	560	4