MAY 2008 OHIO ACHIEVEMENT TESTS ADMINISTRATION

STATISTICAL SUMMARY

This document provides a summary of information from the May 2008 administration of the Ohio Achievement Tests to students in grades three through eight. The statistics shown are computed from the entire population of Ohio public school students (including community school students) for each subject and grade tested. Tables 1-3 summarize parameters computed from the data. Tables 4-6 show the percent of students at each performance level for each grade and test. Tables 7 and 8 show the raw score cut points computed from test data. Subscale passing bands are shown in Tables 9-11. Tables 12-14 show the conversions of raw scores to scaled scores.

Table 1 - Summary of Parameters from the May 2008 Administration of the Ohio Achievement Tests for Grades 3 and 4.

Parameter	Grade 3		Grade 4		
	Reading	Math	Reading	Math	Writing
N-count	124,101	129,417	129,651	129,681	129,539
Max Raw Score	49	52	49	52	39
Max Scaled Score	494	516	534	552	514
Min Scaled Score	263	250	268	240	243
Raw Score Mean	36.50	36.84	30.18	31.67	24.71
Raw Score Standard Deviation	8.65	9.31	9.29	10.45	5.96
Raw Score SEM	3.25	3.23	3.42	3.42	3.58
Scaled Score Mean	414.04	420.79	421.59	419.62	420.39
Scaled Score Standard Deviation	25.76	29.77	27.23	35.15	26.20
Scaled Score SEM	9.67	10.33	10.03	11.49	15.76
Reliability	0.86	0.88	0.86	0.89	0.64

The Grade 3 Reading test is administered in both fall and spring. The number of examinees (N-count) in Table 1 include only students who were tested in the Spring, so the figures for Grade 3 Reading do not include some students who achieved a Proficient (or above) score on the fall test and did not retake the test during the spring administration.

Table 2 - Summary of Parameters from the May 2008 Administration of the Ohio Achievement Tests for Grades 5 and 6.

Parameter	Grade 5				Grade 6	
	Reading	Math	Science	Social Studies	Reading	Math
N-count	128,084	127,959	128,223	128,185	129,421	129,269
Max Raw Score	49	52	48	48	49	50
Max Scaled Score	530	561	554	543	552	578
Min Scaled Score	241	239	241	222	270	231
Raw Score Mean	32.03	28.06	27.23	26.39	27.28	27.70
Raw Score Standard Deviation	9.12	10.64	9.06	8.06	9.38	10.09
Raw Score SEM	3.10	3.30	3.27	3.21	3.39	3.39
Scaled Score Mean	413.78	408.62	411.45	407.32	422.91	424.68
Scaled Score Standard Deviation	31.60	36.34	31.26	30.30	27.44	37.91
Scaled Score SEM	10.73	11.26	11.29	12.05	9.93	12.73
Reliability	0.88	0.90	0.87	0.84	0.87	0.89

Table 3 – Summary of Parameters from the May 2008 Administration of the Ohio Achievement Tests for Grades 7 and 8.

Parameter	Grade 7			Grade 8			
	Reading	Math	Writing	Reading	Math	Science	Social Studies
N-count	133,907	133,556	133,669	135,718	135,630	135,592	135,449
Max Raw Score	48	50	41	48	46	48	48
Max Scaled Score	540	569	586	543	546	553	542
Min Scaled Score	267	275	260	259	291	243	239
Raw Score Mean	27.03	22.84	26.27	28.01	22.38	25.27	24.38
Raw Score Standard Deviation	9.35	10.21	6.21	9.39	9.40	8.90	9.31
Raw Score SEM	3.24	3.35	2.91	3.35	3.06	3.22	3.33
Scaled Score Mean	418.45	416.95	428.40	422.19	418.35	407.10	400.52
Scaled Score Standard Deviation	29.22	32.22	31.29	29.33	28.94	30.48	31.53
Scaled Score SEM	10.12	10.55	14.66	10.46	9.44	11.01	11.27
Reliability	0.88	0.89	0.78	0.87	0.89	0.87	0.87

Table 4 - Percentage of Students at Each Performance Level for Grades 3 and 4.

	Grade 3		Grade 4		
	Reading	**Math**	**Reading**	**Math**	**Writing**
Standard	**Percent**	**Percent**	**Percent**	**Percent**	**Percent**
Advanced	21.5	17.8	5.0	17.0	2.1
Accelerated	34.2	24.3	27.7	19.6	25.4
Proficient	18.3	36.9	48.3	37.7	54.0
Basic	13.7	12.6	10.6	14.6	11.3
Limited	12.4	8.4	8.4	11.1	7.2

Table 5 - Percentage of Students at Each Performance Level for Grades 5 and 6.

	Grade 5				Grade 6	
	Reading	**Math**	**Science**	**Social Studies**	**Reading**	**Math**
Standard	**Percent**	**Percent**	**Percent**	**Percent**	**Percent**	**Percent**
Advanced	6.0	22.1	13.9	13.8	11.5	28.4
Accelerated	16.4	11.3	30.2	24.2	26.2	20.2
Proficient	49.8	27.8	21.8	26.1	41.8	27.8
Basic	11.1	17.4	27.6	30.7	14.4	13.8
Limited	16.6	21.4	6.5	5.1	6.1	9.9

Table 6 - Percentage of Students at Each Performance Level for Grades 7 and 8.

	Grade 7			Grade 8			
	Reading	**Math**	**Writing**	**Reading**	**Math**	**Science**	**Social Studies**
Standard	**Percent**	**Percent**	**Percent**	**Percent**	**Percent**	**Percent**	**Percent**
Advanced	13.5	11.7	5.0	17.3	10.3	11.2	16.2
Accelerated	23.7	15.5	47.2	31.1	24.0	16.3	12.0
Proficient	39.7	41.1	33.4	30.8	38.3	34.0	24.5
Basic	12.7	23.2	13.3	14.0	19.5	29.4	35.9
Limited	10.4	8.5	1.2	6.8	8.0	9.0	11.4

Equating and Scaling: The Conversion of Raw Scores to Scaled Scores

Ohio uses the Rasch model (a single parameter logistic model) for computing item difficulties and student abilities. The Rasch model is based on the probabilities that examinees answered each item correctly. This model is used because of its widespread acceptance, its ease of use, and commercial availability of software for implementing it. The Rasch model provides estimates of the difficulties of each item on a linear scale in log-odds units, or logits.

Equating and Test Form Construction
Equating is a process where test forms comprised of different items are calibrated to the same performance standards. Because each test form is made up of items that have been field-tested, item difficulty estimates from the field test administration are used to pre-equate operational forms during form construction so that operational test forms are of approximately equal difficulty for each administration.

Common Item Equating
Following administration of the May 2008 Achievement Tests, item difficulty values were estimated using an early return sample for all grades. The early return sample was selected to be statistically representative of all Ohio public school students. Because item difficulty estimates were available from field tests, all the operational items could potentially serve as anchor items in the equating process.

Calibrating, equating and linking proceeded through four steps. First, the current administration difficulty values (from the early return sample) were computed and compared with the "bank" or reference difficulty values. The mean difference between the current and the bank difficulties of the anchor items is called the equating constant. Second, the equating constant was added to each difficulty value for items on the current test so that the mean item difficulties were equal. In step three, the "linked" current values were compared with the bank values to identify the item with the largest absolute difference between the two values. If the absolute value of the difference is greater than 0.3 logits, the item was eliminated as an anchor item. Fourth, this procedure was repeated until the largest difference between a linked current value and bank value was less than 0.3 logits. This procedure ensured that the items used to anchor the operational test to the reference scale were stable. When the equating process was complete, item difficulties from the current administration were calibrated to the same scale as the items used in setting performance standards.

Scaling
Ohio performance standards are expressed in scaled scores. Scaled scores are invariant while raw scores reflect minor differences in the difficulty of test items in any test administration. A scaled score of 400 for the May administration is the same as a scaled score of 400 from the October administration in terms of overall performance, but the number of raw score points corresponding to a 400 may shift slightly from administration to administration.

After the May 2008 operational test administration, test items were calibrated and test forms were equated. Rasch ability estimates (called theta scores) were computed for each

possible raw score. The Rasch ability estimates were then transformed to the appropriate Ohio Achievement Test scale scores, all of which are calibrated so that the proficient standard is equal to a scaled score of 400.

Ohio Rounding Rule

Raw scores are integers that rarely have associated integer scaled scores at the points used to define Ohio performance standards. Therefore Ohio uses a rounding rule to match the raw score with the scaled score nearest the performance standard (e.g. 400 scaled score for Proficient) to establish the raw score cut points (e.g. Proficient). For example, if a raw score of 31 is associated with an observed scaled score of 399.14, and 399.14 is the closest observed scaled score to the proficient level performance standard, the scaled score is rounded up to 400. For that test, an examinee must have a raw score of 31 or more to be judged proficient.

If the closest scaled score value for an integer raw score exceeds the standard, then that raw score serves as the raw score cut point. For example, suppose that a raw score of 30 produces a rounded scaled score of 398 and a raw score of 31 produces a rounded scaled score of 401. The cut would be 31 raw score points.

Table 7 - Cut Score Points for Basic, Proficient, Accelerated, and Advanced Standards, May 2008 Administration

Grade	Subject	Score	Limited	Basic	Proficient	Accelerated	Advanced
3	Reading	Raw	< 26	26	33	38	44
		Scaled	< 385	385	400	415	432
	Math	Raw	< 22	22	30	41	46
		Scaled	< 378	378	400	429	447
4	Reading	Raw	< 16	16	22	36	44
		Scaled	< 384	384	400	435	467
	Math	Raw	< 18	18	25	37	43
		Scaled	< 377	377	400	432	452
	Writing	Raw	< 16	16	20	29	36
		Scaled	< 383	383	400	436	472
5	Reading	Raw	< 23	23	28	40	44
		Scaled	< 384	384	400	441	459
	Math	Raw	< 19	19	25	34	38
		Scaled	< 382	382	400	424	439
	Science	Raw	< 13	13	24	30	38
		Scaled	< 363	363	400	417	448
	Social Studies	Raw	< 13	13	24	30	36
		Scaled	< 360	360	400	418	442

Table 8 - Cut Score Points for Basic, Proficient, Accelerated, and Advanced Standards, May 2008 Administration

Grade	Subject	Score	Limited	Basic	Proficient	Accelerated	Advanced
6	Reading	Raw	< 12	12	19	32	39
		Scaled	< 380	380	400	436	456
	Math	Raw	< 14	14	20	29	35
		Scaled	< 378	378	400	429	448
7	Reading	Raw	< 14	14	20	32	38
		Scaled	< 379	379	400	432	452
	Math	Raw	< 10	10	17	30	37
		Scaled	< 378	378	400	436	458
	Writing	Raw	< 11	11	20	27	36
		Scaled	< 357	357	400	430	485
8	Reading	Raw	< 13	13	20	30	38
		Scaled	< 378	378	400	428	451
	Math	Raw	< 10	10	16	27	36
		Scaled	< 379	379	400	432	459
	Science	Raw	< 13	13	23	32	37
		Scaled	< 365	365	400	427	445
	Social Studies	Raw	< 13	13	24	31	35
		Scaled	< 365	365	400	421	435

Note: The raw score cuts apply to the May 2008 administration only.

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Subscale bands

Subscale bands are estimated for all subjects tested. Subscale analysis data are provided for diagnostic purposes.

Table 9 - Subscale Bands for the Minimally Proficient Student in Grades 3 and 4.

	Content Standard	Raw Score Bands			
		Below	**At or Near Proficient**	**Above**	**Possible Score**
Grade 3 Reading	Vocabulary	0 - 5	6 - 7	8 - 9	9
	Reading process	0 - 9	10 - 13	14 - 18	18
	Informational text	0 - 5	6 - 8	9 - 10	10
	Literary text	0 - 5	6 - 8	9 - 12	12
Grade 3 Mathematics	Number, Number Sense, and Operations	0 - 6	7 - 10	11 - 15	15
	Measurement	0 - 4	5 - 7	8 - 9	9
	Geometry and Spatial Sense	0 - 3	4 - 6	7 - 9	9
	Patterns, Function, and Algebra	0 - 3	4 - 6	7 - 10	10
	Data Analysis and Probability	0 - 4	5 - 6	7 - 9	9
Grade 4 Reading	Vocabulary	0 - 3	4 - 5	6 - 8	8
	Reading process	0 - 6	7 - 9	10 - 17	17
	Informational text	0 - 3	4 - 6	7 - 13	13
	Literary text	0 - 3	4 - 5	6 - 11	11
Grade 4 Mathematics	Number, Number Sense, and Operations	0 - 4	5 - 7	8 - 14	14
	Measurement	0 - 2	3 - 5	6 - 8	8
	Geometry and Spatial Sense	0 - 3	4 - 6	7 - 10	10
	Patterns, Function, and Algebra	0 - 3	4 - 6	7 - 10	10
	Data Analysis and Probability	0 - 3	4 - 6	7 - 10	10
Grade 4 Writing	Writing Process & Applications	0 - 8	9 - 14	15 - 24	24
	Writing Conventions	0 - 7	8 - 10	11 - 15	15

Table 10 - Subscale Bands for the Minimally Proficient Student in Grades 5 and 6.

| | Content Standard | Raw Score Bands | | | |
		Below	At or Near Proficient	Above	Possible Score
Grade 5 Reading	Vocabulary	0 - 4	5 - 7	8 - 9	9
	Reading process	0 - 7	8 - 11	12 - 17	17
	Informational text	0 - 5	6 - 8	9 - 12	12
	Literary text	0 - 4	5 - 7	8 - 11	11
Grade 5 Mathematics	Number, Number Sense, and Operations	0 - 5	6 - 9	10 - 15	15
	Measurement	0 - 2	3 - 5	6 - 9	9
	Geometry and Spatial Sense	0 - 3	4 - 5	6 - 10	10
	Patterns, Function, and Algebra	0 - 2	3 - 5	6 - 9	9
	Data Analysis and Probability	0 - 4	5 - 7	8 - 9	9
Grade 5 Science	Earth Science	0 - 3	4 - 6	7 - 10	10
	Life Science	0 - 4	5 - 7	8 - 12	12
	Physical Science	0 - 4	5 - 7	8 - 12	12
	Scientific Processes	0 - 4	5 - 8	9 - 14	14
Grade 5 Social Studies	Economics, Government, Citizenship	0 - 5	6 - 9	10 - 14	14
	Peoples in Societies, Geography	0 - 4	5 - 8	9 - 14	14
	History	0 - 3	4 - 5	6 - 10	10
	Social Studies Methods and Skills	0 - 4	5 - 7	8 - 10	10
Grade 6 Reading	Vocabulary	0 - 1	2 - 4	5 - 8	8
	Reading process	0 - 2	3 - 5	6 - 12	12
	Informational text	0 - 4	5 - 8	9 - 14	14
	Literary text	0 - 3	4 - 7	8 - 15	15
Grade 6 Mathematics	Number, Number Sense, and Operations	0 - 4	5 - 8	9 - 14	14
	Measurement	0 - 1	2 - 4	5 - 8	8
	Geometry and Spatial Sense	0 - 2	3 - 5	6 - 9	9
	Patterns, Function, and Algebra	0 - 2	3 - 5	6 - 11	11
	Data Analysis and Probability	0 - 2	3 - 5	6 - 8	8

Table 11 - Subscale Bands for the Minimally Proficient Student in Grades 7 and 8.

| | Content Standard | Raw Score Bands | | | |
		Below	At or Near Proficient	Above	Possible Score
Grade 7 Reading	Vocabulary	0 - 3	4 - 6	7 - 9	9
	Reading process	0 - 3	4 - 6	7 - 11	11
	Informational text	0 - 4	5 - 7	8 - 14	14
	Literary text	0 - 3	4 - 6	7 - 13	13
Grade 7 Mathematics	Number, Number Sense, and Operations	0 - 2	3 - 5	6 - 11	11
	Measurement	0 - 1	2 - 3	4 - 9	9
	Geometry and Spatial Sense	0 - 2	3 - 5	6 - 10	10
	Patterns, Function, and Algebra	0 - 2	3 - 5	6 - 11	11
	Data Analysis and Probability	0 - 1	2 - 3	4 - 9	9
Grade 7 Writing	Writing Applications	0 - 7	8 - 10	11 - 20	20
	Writing Process	0 - 3	4 - 6	7 - 10	10
	Writing Conventions	0 - 4	5 - 7	8 - 11	11
Grade 8 Reading	Vocabulary	0 - 4	5 - 6	7 - 9	9
	Reading process	0 - 3	4 - 6	7 - 12	12
	Informational text	0 - 3	4 - 7	8 - 15	15
	Literary text	0 - 2	3 - 5	6 - 12	12
Grade 8 Mathematics	Number, Number Sense, and Operations	0 - 2	3 - 4	5 - 9	9
	Measurement	0 - 1	2 - 3	4 - 8	8
	Geometry and Spatial Sense	0 - 1	2 - 3	4 - 8	8
	Patterns, Function, and Algebra	0 - 3	4 - 6	7 - 11	11
	Data Analysis and Probability	0 - 2	3 - 4	5 - 10	10
Grade 8 Science	Earth Science	0 - 5	6 - 8	9 - 12	12
	Life Science	0 - 4	5 - 7	8 - 13	13
	Physical Science	0 - 2	3 - 5	6 - 10	10
	Scientific Processes	0 - 4	5 - 8	9 - 13	13
Grade 8 Social Studies	Economics, Government, Citizenship	0 - 5	6 - 8	9 - 13	13
	Peoples in Societies, Geography	0 - 4	5 - 8	9 - 13	13
	History	0 - 4	5 - 7	8 - 13	13
	Social Studies Methods and Skills	0 - 3	4 - 6	7 - 9	9

Tables of Concordance between Raw Scores and Cut Scores

Tables 12, 13 and 14 provide the concordance between raw scores and scaled scores for all tests in the May 2008 administration of the Ohio Achievement Tests[1].

Table 12 - Raw Score to Scaled Score Conversion, May 2008 Administration
Grades 3 and 4

Scaled Scores Corresponding to Raw Score Points for Each Grade and Subject					
	Grade 3		Grade 4		
Raw Score	Reading	Math	Reading	Math	Writing
0	263	250	268	240	243
1	281	270	288	263	261
2	299	290	308	286	279
3	310	302	321	301	293
4	318	311	330	311	305
5	325	318	337	320	316
6	330	324	343	327	326
7	335	329	349	333	335
8	339	334	354	339	343
9	343	338	358	344	350
10	346	342	363	348	356
11	350	346	367	353	361
12	353	349	370	357	367
13	356	353	374	361	371
14	358	356	377	365	376
15	361	359	380	368	380
16	363	362	**384**	372	**384**
17	366	365	386	375	389
18	368	368	389	**378**	393
19	370	370	392	381	397
20	373	373	395	384	**401**
21	375	376	398	388	405
22	377	**379**	**400**	391	409
23	379	381	403	393	413
24	381	384	405	396	417
25	383	386	408	**400**	421
26	**386**	389	410	402	425
27	388	392	413	405	429
28	390	394	415	407	433
29	392	397	418	410	**437**
30	394	**400**	420	413	442
31	396	402	422	416	446
32	399	404	425	418	451

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[1] Some students were administered a breach form to remedy some inadvertent testing irregularity. Students taking irregular forms may have different tables of concordance than those reported here as Tables 12 - 14.

Table 12 - Raw Score to Scaled Score Conversion, May 2008 Administration
Grades 3 and 4 (continued)

	Scaled Scores Corresponding to Raw Score Points for Each Grade and Subject				
	Grade 3		**Grade 4**		
Raw Score	**Reading**	**Math**	**Reading**	**Math**	**Writing**
33	**401**	407	427	421	456
34	403	409	430	424	461
35	406	412	433	427	468
36	408	414	**435**	430	**475**
37	411	417	438	**433**	484
38	**415**	420	441	436	499
39	416	423	444	439	514
40	419	426	448	442	
41	422	**429**	452	446	
42	426	432	456	449	
43	430	436	461	**454**	
44	**434**	440	**467**	458	
45	440	444	474	463	
46	447	**449**	482	469	
47	458	455	494	475	
48	476	461	514	483	
49	494	469	534	493	
50		480		506	
51		498		529	
52		516		552	

Table 13 - Raw Score to Scaled Score Conversion, May 2008 Administration Grades 5 and 6

	Scaled Scores Corresponding to Raw Score Points for Each Grade and Subject					
	Grade 5				**Grade 6**	
Raw Score	**Reading**	**Math**	**Science**	**Social Studies**	**Reading**	**Math**
0	241	239	241	222	270	231
1	263	263	265	248	292	259
2	284	286	289	275	314	286
3	297	300	303	291	328	302
4	307	311	314	303	337	314
5	315	319	323	312	345	324
6	321	326	330	320	352	332
7	327	332	337	327	358	340
8	332	338	342	333	363	346
9	337	343	348	339	367	352
10	341	347	352	344	372	357
11	345	352	357	349	376	362
12	349	356	361	354	**380**	367
13	353	359	**365**	**360**	383	372
14	356	363	369	362	386	**378**
15	360	367	372	366	390	380
16	363	370	376	370	393	384
17	366	374	379	374	396	388
18	369	377	382	378	398	392
19	372	**382**	386	381	**401**	395
20	375	383	389	385	404	**400**
21	378	386	392	389	407	402
22	381	389	395	392	409	405
23	**384**	393	398	395	412	409
24	387	396	**401**	**400**	414	412
25	390	**400**	403	402	417	415
26	393	402	406	406	419	419
27	396	405	409	409	422	422
28	**400**	408	412	412	424	425
29	402	411	415	416	427	**429**
30	405	414	**419**	**419**	429	432
31	408	416	422	423	432	435
32	411	419	425	426	**436**	438
33	414	422	428	430	437	441
34	417	**426**	432	434	440	445
35	421	429	435	438	443	**448**
36	424	432	439	**442**	446	452
37	428	435	443	446	449	456
38	432	**439**	**448**	451	453	459

Table 13 - Raw Score to Scaled Score Conversion, May 2008 Administration
Grades 5 and 6 (continued)

Scaled Scores Corresponding to Raw Score Points for Each Grade and Subject						
	Grade 5				Grade 6	
Raw Score	Reading	Math	Science	Social Studies	Reading	Math
39	435	442	451	456	**456**	463
40	**441**	445	456	461	460	467
41	444	449	462	467	464	472
42	449	453	468	474	469	477
43	454	457	475	481	474	482
44	**460**	462	483	490	480	488
45	467	467	493	502	487	495
46	476	473	507	517	496	503
47	488	480	531	543	509	513
48	509	488	554	569	530	528
49	530	499			552	553
50		513				578
51		537				
52		561				

Table 14 - Raw Score to Scaled Score Conversion, May 2008 Administration
Grades 7 and 8

Scaled Scores Corresponding to Raw Score Points for Each Grade and Subject						
	Grade 7			Grade 8		
Raw Score	**Reading**	**Math**	**Writing**	**Reading**	**Math**	**Science**	**Social Studies**
0	267	275	260	259	291	243	239
1	288	297	278	281	311	266	263
2	309	320	296	303	330	290	287
3	322	333	307	317	342	304	302
4	331	343	316	327	350	315	313
5	339	351	324	336	357	324	321
6	346	358	331	343	363	331	329
7	351	364	337	349	368	338	335
8	357	369	343	354	373	344	341
9	361	373	349	359	377	349	346
10	366	**378**	354	364	**381**	354	351
11	370	382	**359**	368	385	359	355
12	373	385	364	373	388	363	359
13	377	389	369	**378**	392	**367**	**365**
14	**381**	392	374	380	395	371	367
15	384	395	378	384	398	375	371
16	387	398	383	387	**401**	378	375
17	390	**401**	387	391	404	382	378
18	393	404	391	394	407	385	381
19	396	407	395	397	409	388	385
20	**400**	410	**400**	**400**	412	391	388
21	402	412	403	403	415	394	391
22	405	415	407	406	417	397	394
23	407	418	411	409	420	**400**	397
24	410	420	416	411	423	403	**400**
25	413	423	420	414	426	406	403
26	415	426	424	417	428	409	406
27	418	428	**430**	420	**432**	412	409
28	420	431	433	422	434	415	412
29	423	434	438	425	436	418	415
30	426	**437**	443	**428**	439	421	418
31	429	439	448	430	442	424	**421**
32	**432**	442	454	433	445	**428**	424
33	434	445	460	436	448	431	427
34	437	448	467	438	451	434	430
35	440	451	475	441	454	438	**435**
36	444	455	**485**	444	**459**	442	437
37	447	**458**	494	447	461	**446**	440
38	**452**	462	509	**451**	465	450	444

Table 14 - Raw Score to Scaled Score Conversion, May 2008 Administration
Grades 7 and 8 (continued)

	Grade 7			Grade 8			
Raw Score	**Reading**	**Math**	**Writing**	**Reading**	**Math**	**Science**	**Social Studies**
39	455	465	529	454	470	455	448
40	460	469	558	458	474	459	452
41	465	474	586	462	480	465	457
42	471	478		467	487	471	462
43	478	483		473	495	478	468
44	487	489		480	507	485	475
45	499	495		488	527	495	485
46	519	502		501	546	509	498
47	540	512		522		531	520
48		525		543		553	542
49		547					
50		569					
51							
52							

Scaled Scores Corresponding to Raw Score Points for Each Grade and Subject