

# Louisiana End-of-Course Tests

Executive Summary

December 2007 to May 2014



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## TABLE OF CONTENTS

Introduction.....	1
Test Content .....	1
Form Design.....	2
Test Administration .....	3
Scoring .....	4
Raw Scores, Scale Scores, and Achievement Levels .....	4
Population Performance.....	5
Reliability.....	34
Validity .....	44
Conclusion .....	45
References.....	46

## LIST OF TABLES

Table 1. Phase-in Schedule of EOC Tests by Academic Year .....	1
Table 2. Number of Points by Item Type.....	3
Table 3. Scale Score Ranges and Achievement Levels .....	5
Table 4.1. Student Performance on Algebra I: 2007–2008 School Year.....	7
Table 4.2. Student Performance on Algebra I: 2008–2009 School Year.....	8
Table 4.3. Student Performance on Algebra I: 2009–2010 School Year.....	9
Table 4.4. Student Performance on Algebra I: 2010–2011 School Year.....	10
Table 4.5. Student Performance on Algebra I: 2011–2012 School Year.....	11
Table 4.6. Student Performance on Algebra I: 2012–2013 School Year.....	12
Table 4.7. Student Performance on Algebra I: 2013–2014 School Year.....	13
Table 4.8. Student Performance on English II: 2008–2009 School Year.....	14
Table 4.9. Student Performance on English II: 2009–2010 School Year.....	15
Table 4.10. Student Performance on English II: 2010–2011 School Year.....	16
Table 4.11. Student Performance on English II: 2011–2012 School Year.....	17
Table 4.12. Student Performance on English II: 2012–2013 School Year.....	18
Table 4.13. Student Performance on English II: 2013–2014 School Year.....	19
Table 4.14. Student Performance on Geometry: 2009–2010 School Year.....	20
Table 4.15. Student Performance on Geometry: 2010–2011 School Year.....	21
Table 4.16. Student Performance on Geometry: 2011–2012 School Year.....	22
Table 4.17. Student Performance on Geometry: 2012–2013 School Year.....	23
Table 4.18. Student Performance on Geometry: 2013–2014 School Year.....	24
Table 4.19. Student Performance on Biology: 2010–2011 School Year.....	25
Table 4.20. Student Performance on Biology: 2011–2012 School Year.....	26
Table 4.21. Student Performance on Biology: 2012–2013 School Year.....	27
Table 4.22. Student Performance on Biology: 2013–2014 School Year.....	28
Table 4.23. Student Performance on English III: 2011–2012 School Year.....	29
Table 4.24. Student Performance on English III: 2012–2013 School Year.....	30
Table 4.25. Student Performance on English III: 2013–2014 School Year.....	31
Table 4.26. Student Performance on U.S. History: 2012–2013 School Year.....	32
Table 4.27. Student Performance on U.S. History: 2013–2014 School Year.....	33
Table 5.1. Number-Correct (NC) Statistics and Reliability for Algebra I.....	34
Table 5.2. Number-Correct (NC) Statistics and Reliability for English II.....	35
Table 5.3. Number-Correct (NC) Statistics and Reliability for Geometry.....	35
Table 5.4. Number-Correct (NC) Statistics and Reliability for Biology.....	36
Table 5.5. Number-Correct (NC) Statistics and Reliability for English III.....	36
Table 5.6. Number-Correct (NC) Statistics and Reliability for U.S. History.....	36
Table 6.1. At-or-Above Classification Accuracy for Algebra I.....	38
Table 6.2. At-or-Above Classification Accuracy for English II.....	39
Table 6.3. At-or-Above Classification Accuracy for Geometry.....	39
Table 6.4. At-or-Above Classification Accuracy for Biology.....	40
Table 6.5. At-or-Above Classification Accuracy for English III.....	40
Table 6.6. At-or-Above Classification Accuracy for U.S. History.....	40
Table 7.1. At-or-Above Classification Consistency for Algebra I.....	41
Table 7.2. At-or-Above Classification Consistency for English II.....	42
Table 7.3. At-or-Above Classification Consistency for Geometry.....	42
Table 7.4. At-or-Above Classification Consistency for Biology.....	43
Table 7.5. At-or-Above Classification Consistency for English III.....	43
Table 7.6. At-or-Above Classification Consistency for U.S. History.....	44

## Introduction

Louisiana’s End-of-Course (EOC) testing program was initiated by the Louisiana High School Redesign Commission for the purpose of supporting consistent and rigorous standards in key high school courses throughout the state. Table 1 shows the phase-in schedule of the six EOC tests over a seven-year period beginning with the Algebra I test in the 2007–2008 school year and concluding with all tests in the 2013–2014 school year. Prior to the first-year operational administration of each test, a field test is administered to enable the construction of operational forms.

Table 1. Phase-in Schedule of EOC Tests by Academic Year

	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14
Algebra I	FT	OP						
English II		FT	OP	OP	OP	OP	OP	OP
Geometry			FT	OP	OP	OP	OP	OP
Biology				FT	OP	OP	OP	OP
English III					FT	OP	OP	OP
U.S. History						FT	OP	OP

*Note:* The label FT stands for field test; OP stands for operational administration.

This executive summary highlights technical results of Algebra I, English II, Geometry, Biology, English III, and U.S. History tests administered from December 2007 to May 2014, a period covering seven school years. The report focuses on student performance results, reliability, and validity information.

## Test Content

The validity of an educational test depends primarily on the test development process and on specifications for test content. The test development process for EOC tests follows industry-standard guidelines and procedures. Panels of qualified educators are assembled to provide input during key stages of the test development process. These stages include (1) developing the test blueprint, (2) writing and reviewing test items for relevant content and absence of bias, (3) deciding how scoring rubrics should be applied to student responses to constructed-response items or writing prompts, and (4) evaluating field-tested items on the basis of statistical evidence for technical quality and fairness. The test development process and key specifications, such as test blueprints, are documented in detail in technical reports (Louisiana Department of Education 2009, 2010, 2011b, 2011c, 2012, 2013b). All EOC tests conform to test blueprints. In the 2013–2014 school year, the blueprints differ from the blueprints for all previous operational forms due to a policy decision by LDOE to begin assessing the Common Core State Standards (CCSS) for mathematics and English language arts (see [www.corestandards.org/](http://www.corestandards.org/)), including Literacy in History/Social Studies, Science, and Technical Subjects. The new blueprints were established by content staff within LDOE in consultation with curriculum experts and educators within the state and with Pacific Metrics

content staff. The test development process for the forms used in the 2013–2014 school year are documented in detail in technical report addenda (Louisiana Department of Education 2014a, c, f–i).

## **Form Design**

EOC tests contain multiple-choice (MC) items and either a constructed-response (CR) item, an extended-response (ER) item as part of a task, or a writing prompt. MC items assess knowledge, conceptual understanding, and application of skills. These items include an interrogatory stem followed by four response options (A, B, C, and D). CR items, ER items, and writing prompts ask students to prepare a written response to a more complex question that often requires higher-order thinking skills.

CR items appear on the Algebra I and Geometry tests, and require students to develop an idea, demonstrate a problem-solving strategy, or justify an answer based on reasoning or evidence. Beginning with the 2013–2014 school year, tasks consisting of two MC items and an ER item appear on the Biology and U.S. History tests. These tasks require students to demonstrate understanding of key subject-area concepts in response to one or more source documents. Writing prompts appear on the English II and English III tests. The English II writing prompt requires students to read a passage and write an essay that includes evidence from the passage in the response; the English III writing prompt requires students to read two sources about an issue and write an essay that takes a position on the issue and includes evidence from both sources.

Table 2 shows the number of points in each operational EOC test by item type. This point structure is part of the new test blueprint, which has been in use since the 2013–2014 school year.

- The Algebra I and Geometry tests consist of 50 possible points. There are forty-six 1-point MC items and one 4-point CR item.
- The Biology and U.S. History tests consist of 52 possible points. There are forty-six 1-point MC items and one 6-point task, which consists of two MC items and one 4-point ER item.
- The English II and English III tests consist of 50 possible points.<sup>1</sup> There are thirty-eight 1-point MC items and one 12-point writing prompt. Responses to the writing prompt are scored on three different dimensions—Content, Style, and Conventions. Content and Style are scored using dimension-specific rubrics on a scale of 0–4 points each. The four Conventions facets (Sentence Formation, Usage, Mechanics, and Spelling) are each scored on a scale of 0–1 point.

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<sup>1</sup> Prior to the 2012–2013 school year, Content and Style were labeled Composing and Style/Audience Awareness in English II and Content and Voice in English III. Also, in the first year of operational testing for English II (2008–2009), Composing and Style/Audience Awareness were worth 8 points each for a total of 16 points for a prompt.

Table 2. Number of Points by Item Type

Item Type	Algebra I	English II	Geometry	Biology	English III	U.S. History
Multiple Choice	46	38	46	46	38	46
Constructed Response Task	4	12	4	6	12	6
Writing Prompt						
TOTAL:	50	50	50	52	50	52

To support the development of new test forms, each EOC test contains a small number of embedded field test items. These embedded items do not count toward the total score and are not represented in table 2.

Specific information about the content standards or grade-level expectations assessed on the EOC tests is available for English language arts, mathematics, science, and social studies (Louisiana Department of Education 2005a-c and 2011a, respectively). Sample test items are also available for each test (Louisiana Department of Education 2013a and 2014b). The content standards, grade-level expectations, and sample test items can be found on the Assessment Guidance page or the Toolbox page at <http://www.louisianabelieves.com>.

### Test Administration

The EOC tests are administered in December, May, and June. The December administration is for students who are on block schedules and for students needing to retest. The May administration is available to students who are on either semester or block schedules and to students who need to retest. The June administration, added in the 2010–2011 school year, provides an additional opportunity for students who did not previously pass an EOC test to take that test again. Each administration is followed by an administrative error retest, which provides an opportunity for students to retake an EOC test that was voided due to an administrative error during the regular test window (e.g., the student was not given enough time to complete the test, the student was not provided proper accommodations during the testing time, the teacher or administrator provided information or answers that resulted in the test being voided).

All Louisiana state public school students are required to take the EOC tests upon completion of specified high school courses. Accommodations for students who require them are implemented based on each student’s needs as documented in the student’s Individualized Education Program (IEP) or Individual Accommodation Plan (IAP). All students have access to certain online tools during the EOC tests. Depending on the content area, these tools include, but are not limited to, a scientific calculator, a reference sheet, a Writer’s Checklist/Typing Help, and an Extended-Response Checklist.

All EOC tests are divided into three sessions. The CR item or task or writing prompt are administered in one session and the MC items in two sessions. Each session must be opened and closed individually. The sessions may be completed in a single sitting, but are normally

completed in more than one sitting over a period of days. Though the EOC tests are not timed, the suggested testing time for each of the two MC item sessions is sixty minutes. For Algebra I and Geometry, the suggested testing time for the CR item session is forty minutes. For Biology and U.S. History, the suggested testing time for the task session is fifty minutes. For English II and English III, the suggested testing time for the writing prompt session is seventy-five minutes. Extended time is allowed as an accommodation. The completion rates show that the suggested testing times are sufficient.

More information on test administration can be found in the *End-of-Course Tests: Test Administration Manual* (Louisiana Department of Education 2014e), available at [http://www.louisianaec.org/Documents/EOC\\_Test\\_Administration\\_Manual.pdf](http://www.louisianaec.org/Documents/EOC_Test_Administration_Manual.pdf).

## Scoring

On the EOC tests, MC items are scored 0/1 (incorrect/correct) by a computer. Missing responses are scored as incorrect. CR items on the Algebra I and Geometry tests, and ER items on Biology and U.S. History tests are scored on a partial credit scale of 0–4 points. The English II and English III writing prompt responses are scored on three dimensions: Content, Style, and Conventions. Content and Style<sup>2</sup> each is scored on a partial-credit scale of 0–4 points (except in 2008–2009, the first year of operational testing for English II, when each dimension was worth 8 points). The four Conventions facets (Sentence Formation, Usage, Mechanics, and Spelling) are each scored on a scale of 0–1 point. A student’s total score on a writing prompt response is the sum of the scores on all three dimensions, with a maximum possible total score of 12 points.

## Raw Scores, Scale Scores, and Achievement Levels

Each of the EOC tests has multiple forms. The forms are intended to measure the same skills and knowledge and have the same total points possible (except for changes to the scoring of the writing prompt described on page 2). A student’s raw score is the total number of points the student earned on the test. Due to slight differences in difficulty across forms, raw scores cannot be compared across different forms of the same test.

In order to compare student performance across different forms of the same test, raw scores are translated into scores on a reporting scale (scale scores). Scale scores range from 600 to 800. A statistical process called equating is used to make scale scores comparable across forms within the same test. Equating methods for the EOC tests are based on the application of item response theory (IRT) models (Lord & Novick 1968; Lord 1980; Muraki 1992) to test data.

Through equating, each form has its own raw-score-to-scale-score transformation table. If one form is relatively easy, higher raw scores may be required in order to obtain the same scale scores associated with other forms.

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<sup>2</sup> Prior to the 2012–2013 school year, Content and Style were named Composing and Style/Audience Awareness for English II, and Content and Voice for English III. In the 2012–2013 school year, the dimensions were renamed to Content and Style for both English II and English III.

Results from a standard setting process are also used to define the reporting scale for EOC tests. In standard setting, cut scores are set for achievement levels of *Fair*, *Good*, and *Excellent*. The lowest achievement level, *Needs Improvement*, has no cut score. The *Good* cut score is associated with a scale score of 700 on all EOC tests. Table 3 shows the scale score ranges for each achievement level for current operational EOC tests.

Table 3. Scale Score Ranges and Achievement Levels

Achievement Level	Scale Score Range					
	Algebra I	English II	Geometry	Biology	English III	U.S. History
<i>Excellent</i>	739 to 800	739 to 800	731 to 800	740 to 800	741 to 800	748 to 800
<i>Good</i>	700 to 738	700 to 738	700 to 730	700 to 739	700 to 740	700 to 747
<i>Fair</i>	668 to 699	668 to 699	665 to 699	661 to 699	661 to 699	665 to 699
<i>Needs Improvement</i>	600 to 667	600 to 667	600 to 664	600 to 660	600 to 660	600 to 664

Although all EOC tests have the same scale score range (600 to 800) and the same *Good* cut score (700), scale scores are not comparable across tests. For example, the *Good* cut score does not have the same difficulty for Algebra I as it does for English II. Moreover, the Algebra I *Fair* cut score (668) is not necessarily more difficult than the Biology *Fair* cut score (661) just because it has a higher value. The difficulty of an achievement level cannot be compared across tests through the scale values of its cut score.

The standard setting process for EOC tests is based on a teacher survey and a standard setting method called the bookmark method (Lewis, Mitzel, & Green 1996; Mitzel, Lewis, Patz, & Green 2001; Schulz & Mitzel 2009). Details of the standard setting process are described in technical and standard setting reports available from LDOE.

More information on scale scores and cut scores can be found in the *End-of-Course Tests Interpretive Guide* (Louisiana Department of Education 2014d), available at <http://www.louisianaec.org/Documents/LDE-Interpretive-Guide.pdf>. For each test, detailed technical procedures are provided in their respective technical reports (Louisiana Department of Education 2009, 2010, 2011b, 2011c, 2012, 2013b).

## Population Performance

Tables 4.1 to 4.27 each summarize a student population for a specific test and school year. There is one table for each school year that an EOC test has been operational. For this executive summary (school year 2007–2008 to school year 2013–2014), the Algebra I test has been operational for seven school years, beginning with the 2007–2008 school year. The English II test has been operational for six school years (2008–2009 to 2013–2014). The Geometry test has been operational for five school years (2009–2010 to 2013–2014). The Biology test has been operational for four school years (2010–2011 to 2013–2014). The English III test has been operational for three school years (2011–2012 to 2013–2014). The U.S. History test has been operational for two school years (2012–2013 to 2013–2014).

The information in tables 4.1 to 4.27 may differ slightly from the corresponding information in statewide summary reports due to differences in inclusion criteria and demographic groupings. The subcategories in the tables are non-overlapping; therefore, for any related group of subcategories, the numbers will sum to the total number of students in that table. For example, the education classification counts for regular education, special education, and gifted and talented will sum to the total number of students in the overall table.

In the fall of 2010, new federal standards for reporting race and ethnicity information were implemented in Louisiana's EOC program. As a result, the race categories collected through the registration process were modified in the 2010–2011 school year to allow students to be identified by more than one race. Moreover, because students were required to enter at least one ethnicity to register for an EOC test, the “Missing” category, beginning in the 2010–2011 school year, was eliminated from the tables presented in this report.

While one may discern trends in achievement across years by comparing tables for the same test, such comparisons should be made with caution. Student motivation on EOC tests, which usually has significant effects on student performance, depends on when policies tied to EOC test scores became effective. Students tend to perform better when the test becomes high stakes. Policies connecting EOC test scores to course grades became effective in the 2010–2011 school year for all students. Policies connecting EOC test scores to graduation requirements became effective for students entering high school as freshmen in the fall of 2010.

Table 4.1. Student Performance on Algebra I: 2007–2008 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	48194	686	38	36	28	26	10
<u>Sex</u>							
Female	24158	686	37	34	29	27	10
Male	24036	685	39	37	27	26	11
<u>Race</u>							
Alaskan Native or American Indian	594	687	37	34	28	28	10
Asian or Pacific Islander	756	709	43	18	22	32	28
Black (not Hispanic)	20128	672	34	50	29	18	4
Hispanic	1240	682	39	40	26	25	9
White (not Hispanic)	25476	696	37	25	28	33	15
<u>Grade</u>							
7 or lower	252	739	42	8	9	25	59
8	4173	722	37	10	14	40	37
9	35220	686	36	34	29	27	9
10 or higher	8549	668	31	53	29	16	2
<u>Lunch Status</u>							
Free	21058	675	34	46	29	20	5
Paid	23383	696	39	26	26	32	16
Reduced	3753	687	35	33	30	29	8
<u>Migrant Status</u>							
Yes	115	678	36	42	32	20	6
No	48079	686	38	35	28	26	10
<u>Education Classification</u>							
Regular	42538	685	36	35	30	27	8
Special Education	2905	659	32	68	21	9	2
Gifted and Talented	2542	730	36	6	12	35	47
<u>Section 504</u>							
Yes	955	668	32	54	29	13	4
No	47212	686	38	35	28	27	10
<u>LEP Status</u>							
Fully English Proficient	47546	686	38	35	28	26	10
Limited English Proficient	648	676	42	50	21	20	10

Notes: The percent of students across achievement levels may not total 100 due to rounding. Counts for Section 504 and Education Classifications exclude 27 and 209 students, respectively, with missing values.

Table 4.2. Student Performance on Algebra I: 2008–2009 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	47827	689	39	34	28	27	12
<u>Sex</u>							
Female	23959	689	38	32	29	27	12
Male	23868	688	40	36	26	26	12
<u>Race</u>							
Alaskan Native or American Indian	426	689	37	34	27	29	10
Asian or Pacific Islander	807	719	44	16	17	31	36
Black (not Hispanic)	19844	675	35	46	30	19	5
Hispanic	1333	686	40	36	28	25	11
White (not Hispanic)	24402	699	38	24	27	33	17
Missing	1015	690	44	37	24	21	18
<u>Grade</u>							
7 or lower	198	741	42	9	6	26	59
8	4307	728	39	8	14	35	43
9	36793	686	37	35	29	27	9
10 or higher	6529	672	31	48	33	17	2
<u>Lunch Status</u>							
Free	20486	677	35	44	30	21	5
Paid	23759	698	40	26	26	31	18
Reduced	3582	688	38	33	29	27	11
<u>Migrant Status</u>							
Yes	111	682	37	43	23	26	7
No	47716	689	39	34	28	27	12
<u>Education Classification</u>							
Regular	42595	688	37	33	29	27	10
Special Education	2765	661	33	66	22	10	2
Gifted and Talented	2467	735	38	6	12	30	52
<u>Section 504</u>							
Yes	1130	671	33	53	27	16	4
No	46697	689	39	33	28	27	12
<u>LEP Status</u>							
Fully English Proficient	47135	689	39	34	28	27	12
Limited English Proficient	692	683	44	44	23	20	13

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.3. Student Performance on Algebra I: 2009–2010 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	43843	692	37	29	30	29	12
<u>Sex</u>							
Female	22197	693	36	28	31	31	11
Male	21646	691	38	31	29	28	12
<u>Race</u>							
Alaskan Native or American Indian	330	695	35	25	32	32	10
Asian or Pacific Islander	724	720	41	13	20	30	37
Black (not Hispanic)	18211	679	33	42	32	21	5
Hispanic	1241	691	37	30	28	30	12
White (not Hispanic)	22418	702	35	19	28	36	16
Missing	919	683	39	41	24	25	9
<u>Grade</u>							
7 or lower	202	741	41	9	6	19	65
8	4191	732	34	5	11	37	47
9	36954	689	34	31	32	30	8
10 or higher	2496	672	32	50	32	15	3
<u>Lunch Status</u>							
Free	19752	682	34	39	33	23	5
Paid	20566	702	37	21	26	36	18
Reduced	3525	692	35	28	31	30	10
<u>Migrant Status</u>							
Yes	48	691	34	33	35	19	13
No	43795	692	37	29	30	29	12
<u>Education Classification</u>							
Regular	38429	692	35	29	31	31	10
Special Education	2933	665	32	60	27	11	3
Gifted and Talented	2481	734	35	6	12	32	51
<u>Section 504</u>							
Yes	1054	678	30	43	35	20	3
No	42789	692	37	29	30	30	12
<u>LEP Status</u>							
Fully English Proficient	43348	692	37	29	30	30	12
Limited English Proficient	495	679	35	44	31	18	7

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.4. Student Performance on Algebra I: 2010–2011 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	46211	702	37	20	28	33	18
<u>Sex</u>							
Female	23368	703	36	19	28	34	18
Male	22843	701	38	21	29	32	18
<u>Race</u>							
American Indian or Alaska Native	378	705	32	14	30	39	17
Asian	852	735	37	6	11	31	52
Black or African American	19595	689	34	30	33	28	9
Hispanic/Latino	1628	701	38	22	28	32	18
Native Hawaiian or Pacific Islander	23	705	39	22	9	48	22
White	23438	711	36	13	25	38	25
Two or more races	297	706	38	18	27	31	24
<u>Grade</u>							
7 or lower	275	740	49	11	4	16	69
8	4641	738	31	3	8	34	55
9	38939	699	35	21	31	34	14
10 or higher	2356	676	33	46	33	17	4
<u>Lunch Status</u>							
Free	22827	692	35	28	33	29	11
Paid	20262	713	36	13	23	37	27
Reduced	3122	704	35	17	29	36	18
<u>Migrant Status</u>							
Yes	97	696	41	29	32	21	19
No	46114	702	37	20	28	33	18
<u>Education Classification</u>							
Regular	40223	702	35	19	30	35	17
Special Education	3315	672	33	51	29	15	4
Gifted and Talented	2673	741	34	4	9	27	60
<u>Section 504</u>							
Yes	1653	685	33	36	33	25	7
No	44558	703	37	20	28	33	19
<u>LEP Status</u>							
Fully English Proficient	45585	702	37	20	28	33	18
Limited English Proficient	626	687	39	36	29	23	12

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.5. Student Performance on Algebra I: 2011–2012 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				Needs Improvement	Fair	Good	Excellent
State	45384	704	40	21	23	34	22
<u>Sex</u>							
Female	22842	705	39	20	23	35	23
Male	22542	703	40	22	23	33	22
<u>Race</u>							
American Indian or Alaska Native	379	708	38	17	23	35	25
Asian	774	734	42	8	11	27	54
Black or African American	19218	689	37	32	28	29	11
Hispanic/Latino	20	685	42	35	35	20	10
Native Hawaiian or Pacific Islander	1622	702	43	24	21	31	24
White	23070	715	37	12	19	38	30
Two or more races	301	714	37	13	20	39	28
<u>Grade</u>							
7 or lower	227	757	27	1	3	15	81
8	5028	739	34	4	8	31	58
9	37025	702	37	21	25	36	19
10 or higher	3104	670	33	54	26	16	3
<u>Lunch Status</u>							
Free	22283	693	37	28	27	31	13
Paid	19736	716	39	13	18	36	32
Reduced	3365	707	37	17	24	37	23
<u>Migrant Status</u>							
Yes	115	700	42	26	23	30	21
No	45269	704	40	21	23	34	22
<u>Education Classification</u>							
Regular	39422	704	38	19	24	36	21
Special Education	3171	668	35	57	23	16	4
Gifted and Talented	2791	743	34	3	7	26	63
<u>Section 504</u>							
Yes	1873	687	36	34	28	28	10
No	43511	705	40	20	23	34	23
<u>LEP Status</u>							
Fully English Proficient	44775	704	40	21	23	34	22
Limited English Proficient	609	678	40	45	25	21	10

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.6. Student Performance on Algebra I: 2012–2013 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	47674	706	38	18	27	34	21
<u>Sex</u>							
Female	24083	708	37	16	27	36	22
Male	23591	705	39	20	27	32	21
<u>Race</u>							
American Indian or Alaska Native	384	708	35	13	29	40	19
Asian	782	739	39	5	12	26	57
Black or African American	20319	693	35	26	33	30	11
Hispanic/Latino	1779	706	39	19	26	35	21
Native Hawaiian or Pacific Islander	28	706	45	21	25	29	25
White	24036	716	37	11	22	37	29
Two or more races	346	718	37	12	19	38	32
<u>Grade</u>							
7 or lower	292	752	42	7	6	13	74
8	6341	741	33	3	9	32	57
9	37593	703	36	18	29	36	17
10 or higher	3448	675	33	46	34	16	5
<u>Lunch Status</u>							
Free	23307	696	36	24	32	31	13
Paid	21036	717	38	12	21	36	31
Reduced	3331	710	36	13	27	38	22
<u>Migrant Status</u>							
Yes	61	703	38	16	30	36	18
No	47613	706	38	18	27	34	21
<u>Education Classification</u>							
Regular	41063	707	36	16	28	36	20
Special Education	3506	671	33	53	28	15	4
Gifted and Talented	3105	745	34	3	9	27	62
<u>Section 504</u>							
Yes	2268	688	34	29	37	26	8
No	45406	707	38	17	26	34	22
<u>LEP Status</u>							
Fully English Proficient	47053	707	38	18	27	34	22
Limited English Proficient	621	686	37	35	33	21	10

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.7. Student Performance on Algebra I: 2013–2014 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	46957	708	38	18	26	34	23
<u>Sex</u>							
Female	23689	709	37	15	26	35	24
Male	23268	706	39	20	25	32	22
<u>Race</u>							
American Indian or Alaska Native	349	713	34	11	22	41	25
Asian	982	723	46	18	12	28	42
Black or African American	19685	694	35	27	32	30	12
Hispanic/Latino	2110	704	39	21	25	33	21
Native Hawaiian or Pacific Islander	203	701	46	39	12	23	27
White	23170	718	36	10	21	37	32
Two or more races	458	716	36	12	22	37	29
<u>Grade</u>							
7 or lower	255	756	40	5	6	12	76
8	5756	743	33	3	8	28	62
9	36675	705	35	17	27	36	19
10 or higher	4271	678	31	42	35	19	4
<u>Lunch Status</u>							
Free	24616	697	35	24	31	31	14
Paid	19173	720	38	11	19	35	35
Reduced	3168	712	35	12	25	38	24
<u>Migrant Status</u>							
Yes	76	708	36	16	28	37	20
No	46881	708	38	18	26	34	23
<u>Education Classification</u>							
Regular	40730	708	36	16	27	36	22
Special Education	3393	673	32	52	29	14	5
Gifted and Talented	2834	746	34	3	8	26	63
<u>Section 504</u>							
Yes	2642	691	34	29	32	28	10
No	44315	709	38	17	25	34	24
<u>LEP Status</u>							
Fully English Proficient	46138	708	38	17	26	34	23
Limited English Proficient	819	682	36	43	26	23	8

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.8. Student Performance on English II: 2008–2009 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	39357	697	40	24	27	34	16
<u>Sex</u>							
Female	20257	702	39	18	26	37	18
Male	19100	690	41	30	27	30	13
<u>Race</u>							
Alaskan Native or American Indian	351	698	35	21	32	33	13
Asian or Pacific Islander	732	712	41	15	20	37	27
Black (not Hispanic)	15747	681	38	36	32	26	6
Hispanic	996	693	41	29	25	32	15
White (not Hispanic)	21210	708	39	16	23	39	22
Missing	321	694	45	29	23	31	17
<u>Grade</u>							
9 or lower	2176	684	45	38	23	25	13
10	34985	699	40	22	27	35	16
11	1985	675	36	42	31	23	4
12	211	669	40	47	30	17	5
<u>Lunch Status</u>							
Free	15619	684	38	33	31	28	7
Paid	20728	706	40	18	23	37	22
Reduced	3010	696	38	22	28	37	12
<u>Migrant Status</u>							
Yes	68	686	40	34	26	32	7
No	39289	697	40	24	27	34	16
<u>Education Classification</u>							
Regular	35220	695	39	24	28	35	14
Special Education	1914	665	38	55	26	15	4
Gifted and Talented	2223	739	37	6	7	29	58
<u>Section 504</u>							
Yes	838	678	36	38	35	22	4
No	38519	697	40	24	26	34	16
<u>LEP Status</u>							
Fully English Proficient	38966	697	40	24	27	34	16
Limited English Proficient	391	674	37	46	31	18	5

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.9. Student Performance on English II: 2009–2010 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	40202	701	39	20	26	36	18
<u>Sex</u>							
Female	20890	705	38	16	26	38	20
Male	19312	697	40	24	27	33	16
<u>Race</u>							
Alaskan Native or American Indian	333	705	33	11	31	44	14
Asian or Pacific Islander	748	717	40	12	20	34	34
Black (not Hispanic)	16732	685	37	32	33	28	8
Hispanic	1110	694	40	26	26	34	14
White (not Hispanic)	20703	714	36	10	21	42	27
Missing	576	693	39	25	28	35	13
<u>Grade</u>							
9 or lower	2488	687	43	35	27	25	14
10	36799	703	39	18	26	37	19
11	771	676	38	41	32	23	5
12	144	675	42	44	22	28	6
<u>Lunch Status</u>							
Free	17158	688	37	29	32	31	9
Paid	20040	712	38	13	22	39	27
Reduced	3004	701	37	19	26	40	15
<u>Migrant Status</u>							
Yes	57	690	32	26	35	28	11
No	40145	701	39	20	26	36	18
<u>Education Classification</u>							
Regular	35691	700	37	19	27	38	16
Special Education	2048	665	35	55	29	13	3
Gifted and Talented	2463	742	34	4	7	25	65
<u>Section 504</u>							
Yes	925	681	33	36	37	23	5
No	39277	702	39	20	26	36	19
<u>LEP Status</u>							
Fully English Proficient	39769	701	39	20	26	36	18
Limited English Proficient	433	668	35	53	30	14	3

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.10. Student Performance on English II: 2010–2011 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	42401	710	35	12	28	41	20
<u>Sex</u>							
Female	21847	713	33	9	26	42	23
Male	20554	705	36	14	29	39	18
<u>Race</u>							
American Indian or Alaska Native	285	712	32	9	30	41	20
Asian	774	724	39	8	20	35	38
Black or African American	17784	695	32	19	38	35	9
Hispanic/Latino	1491	706	34	14	29	39	18
Native Hawaiian or Pacific Islander	37	704	39	19	22	43	16
White	21745	721	32	5	19	46	30
Two or more races	285	716	33	8	24	42	26
<u>Grade</u>							
9 or lower	2718	699	40	22	30	30	18
10	38778	711	34	10	27	42	21
11	787	684	34	31	37	27	5
12	118	681	40	39	29	25	8
<u>Lunch Status</u>							
Free	19521	698	33	17	35	37	10
Paid	19918	721	33	6	20	43	31
Reduced	2962	709	32	10	29	45	16
<u>Migrant Status</u>							
Yes	83	692	29	20	45	30	5
No	42318	710	35	11	27	41	20
<u>Education Classification</u>							
Regular	37323	709	32	10	29	43	18
Special Education	2468	674	32	43	36	18	2
Gifted and Talented	2610	748	29	1	5	25	69
<u>Section 504</u>							
Yes	1435	691	32	24	40	29	7
No	40966	710	35	11	27	41	21
<u>LEP Status</u>							
Fully English Proficient	41904	710	35	11	27	41	21
Limited English Proficient	497	677	28	37	44	18	1

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.11. Student Performance on English II: 2011–2012 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	44023	712	34	10	24	42	24
<u>Sex</u>							
Female	22693	715	33	8	23	43	26
Male	21330	709	35	12	26	41	21
<u>Race</u>							
American Indian or Alaska Native	362	714	32	7	25	46	22
Asian	867	725	37	8	16	36	40
Black or African American	18768	698	32	17	35	38	11
Hispanic/Latino	1512	708	34	12	26	42	20
Native Hawaiian or Pacific Islander	21	714	41	14	19	38	29
White	22210	724	31	4	16	46	34
Two or more races	283	721	35	7	18	39	36
<u>Grade</u>							
9 or lower	2933	702	39	20	29	31	20
10	40286	714	33	9	24	43	24
11	711	686	34	30	36	28	6
12	93	693	36	27	25	40	9
<u>Lunch Status</u>							
Free	20943	701	33	15	32	40	13
Paid	20044	724	32	5	17	44	35
Reduced	3036	714	31	8	24	45	23
<u>Migrant Status</u>							
Yes	86	703	36	20	19	47	15
No	43937	713	34	10	24	42	24
<u>Education Classification</u>							
Regular	38466	713	32	8	25	45	22
Special Education	2986	675	34	42	35	19	4
Gifted and Talented	2571	748	28	1	5	26	68
<u>Section 504</u>							
Yes	1859	694	32	20	39	33	8
No	42164	713	34	9	24	42	24
<u>LEP Status</u>							
Fully English Proficient	43466	713	34	10	24	42	24
Limited English Proficient	557	681	30	34	38	25	3

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.12. Student Performance on English II: 2012–2013 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	43329	719	32	7	18	48	27
<u>Sex</u>							
Female	21997	722	31	5	16	49	30
Male	21332	715	33	9	19	48	24
<u>Race</u>							
American Indian or Alaska Native	369	722	28	4	15	49	32
Asian	841	732	34	5	11	38	46
Black or African American	18212	706	31	11	27	49	13
Hispanic/Latino	1539	716	34	9	19	47	26
Native Hawaiian or Pacific Islander	28	716	36	14	14	46	25
White	22018	729	29	3	10	49	38
Two or more races	322	728	31	4	12	47	37
<u>Grade</u>							
9 or lower	3484	705	38	17	24	38	21
10	38721	721	30	5	17	50	28
11	973	687	38	33	26	32	9
12	151	682	36	36	26	33	4
<u>Lunch Status</u>							
Free	20155	708	31	10	25	49	16
Paid	20314	728	31	4	11	47	39
Reduced	2860	721	29	4	16	53	26
<u>Migrant Status</u>							
Yes	63	709	32	11	24	52	13
No	43266	719	32	7	18	48	27
<u>Education Classification</u>							
Regular	37696	720	29	5	18	52	26
Special Education	2962	678	33	39	32	24	4
Gifted and Talented	2671	751	25	0	3	27	70
<u>Section 504</u>							
Yes	1865	701	30	13	34	43	10
No	41464	719	32	6	17	49	28
<u>LEP Status</u>							
Fully English Proficient	42775	719	32	6	18	49	27
Limited English Proficient	554	687	29	25	37	37	2

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.13. Student Performance on English II: 2013–2014 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	45058	717	32	7	21	48	24
<u>Sex</u>							
Female	23210	720	32	5	19	49	28
Male	21848	712	33	9	23	47	21
<u>Race</u>							
American Indian or Alaska Native	366	719	28	3	19	55	23
Asian	1370	717	38	9	21	39	30
Black or African American	18579	704	30	11	30	46	12
Hispanic/Latino	1682	715	33	8	21	47	24
Native Hawaiian or Pacific Islander	629	712	31	9	22	48	21
White	22052	727	30	3	13	49	34
Two or more races	380	725	30	4	13	52	31
<u>Grade</u>							
9 or lower	3193	707	37	15	28	36	21
10	40688	718	31	6	20	49	25
11	1023	687	34	30	32	31	6
12	154	684	39	38	26	27	9
<u>Lunch Status</u>							
Free	21643	707	30	10	28	48	14
Paid	20601	726	32	4	14	46	35
Reduced	2814	719	29	4	18	52	25
<u>Migrant Status</u>							
Yes	49	707	34	14	20	49	16
No	45009	717	32	7	21	48	24
<u>Education Classification</u>							
Regular	39176	717	30	5	21	51	23
Special Education	3172	679	31	37	38	22	3
Gifted and Talented	2710	751	27	0	4	26	70
<u>Section 504</u>							
Yes	2289	699	30	15	36	40	9
No	42769	717	32	7	20	48	25
<u>LEP Status</u>							
Fully English Proficient	44528	717	32	7	21	48	25
Limited English Proficient	530	685	29	28	39	31	2

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.14. Student Performance on Geometry: 2009–2010 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	42358	684	37	34	32	22	12
<u>Sex</u>							
Female	21850	683	36	34	33	22	11
Male	20508	685	38	34	31	22	13
<u>Race</u>							
Alaskan Native or American Indian	344	685	33	30	36	26	8
Asian or Pacific Islander	788	713	40	13	22	31	34
Black (not Hispanic)	17536	668	33	50	32	14	4
Hispanic	1234	680	37	38	32	21	9
White (not Hispanic)	21768	696	36	21	33	29	17
Missing	688	674	37	45	29	19	8
<u>Grade</u>							
9 or lower	5463	711	43	18	17	27	39
10	31683	682	35	34	35	23	9
11	4431	667	30	49	35	13	2
12	781	664	32	56	29	12	2
<u>Lunch Status</u>							
Free	17871	672	33	45	34	16	5
Paid	21302	693	38	25	30	27	17
Reduced	3185	684	35	32	36	23	10
<u>Migrant Status</u>							
Yes	61	677	33	43	30	21	7
No	42297	684	37	34	32	22	12
<u>Education Classification</u>							
Regular	37747	682	35	34	34	23	9
Special Education	2026	657	31	67	24	7	2
Gifted and Talented	2585	727	36	7	13	27	52
<u>Section 504</u>							
Yes	979	666	32	55	30	12	4
No	41379	684	37	34	32	22	12
<u>LEP Status</u>							
Fully English Proficient	41890	684	37	34	32	22	12
Limited English Proficient	468	667	35	55	27	12	6

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.15. Student Performance on Geometry: 2010–2011 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	42575	693	36	25	34	25	16
<u>Sex</u>							
Female	21884	692	36	24	35	25	15
Male	20691	694	37	25	33	25	17
<u>Race</u>							
American Indian or Alaska Native	296	693	33	20	42	25	13
Asian	751	722	41	10	20	26	44
Black or African American	17760	678	33	38	38	18	6
Hispanic/Latino	1434	694	36	23	35	24	17
Native Hawaiian or Pacific Islander	29	690	36	24	31	31	14
White	22021	704	34	14	32	31	23
Two or more races	284	699	38	19	33	28	20
<u>Grade</u>							
9 or lower	5812	721	41	13	15	24	48
10	33391	690	33	25	37	26	12
11	2750	674	32	43	37	16	4
12	622	675	35	41	37	15	6
<u>Lunch Status</u>							
Free	19509	681	33	34	38	21	7
Paid	20080	704	36	16	30	29	25
Reduced	2986	693	34	22	39	25	14
<u>Migrant Status</u>							
Yes	87	684	34	31	39	21	9
No	42488	693	36	25	34	25	16
<u>Education Classification</u>							
Regular	37634	692	34	24	36	26	14
Special Education	2354	663	32	58	31	8	3
Gifted and Talented	2587	735	33	4	12	23	61
<u>Section 504</u>							
Yes	1428	678	33	40	37	16	7
No	41147	694	36	24	34	25	16
<u>LEP Status</u>							
Fully English Proficient	42112	693	36	24	34	25	16
Limited English Proficient	463	677	36	41	35	17	8

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.16. Student Performance on Geometry: 2011–2012 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	42999	699	36	19	31	30	19
<u>Sex</u>							
Female	22307	697	35	19	32	31	18
Male	20692	700	37	19	31	30	21
<u>Race</u>							
American Indian or Alaska Native	351	701	33	15	32	34	19
Asian	873	729	38	6	16	26	52
Black or African American	17983	683	32	31	39	23	8
Hispanic/Latino	1532	696	36	22	32	29	18
Native Hawaiian or Pacific Islander	23	696	37	26	17	39	17
White	21952	710	34	10	26	36	28
Two or more races	285	705	38	15	29	28	27
<u>Grade</u>							
9 or lower	6530	723	40	11	13	27	49
10	33783	695	33	19	35	32	15
11	2217	677	32	39	35	20	6
12	469	679	35	37	36	18	9
<u>Lunch Status</u>							
Free	20083	687	33	27	37	26	10
Paid	19861	710	35	11	25	34	29
Reduced	3055	700	34	17	32	32	20
<u>Migrant Status</u>							
Yes	72	696	40	24	33	21	22
No	42927	699	36	19	31	30	19
<u>Education Classification</u>							
Regular	37766	698	34	18	33	32	18
Special Education	2638	666	34	53	30	13	4
Gifted and Talented	2595	737	33	3	10	24	63
<u>Section 504</u>							
Yes	1665	682	33	33	38	21	8
No	41334	699	36	18	31	31	20
<u>LEP Status</u>							
Fully English Proficient	42470	699	36	19	31	30	20
Limited English Proficient	529	683	38	36	31	18	14

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.17. Student Performance on Geometry: 2012–2013 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	42191	702	36	17	28	32	23
<u>Sex</u>							
Female	21709	702	35	16	28	32	23
Male	20482	702	37	17	28	32	24
<u>Race</u>							
American Indian or Alaska Native	376	704	34	13	30	31	26
Asian	806	731	36	5	12	27	56
Black or African American	17259	687	32	27	36	27	10
Hispanic/Latino	1480	703	36	18	26	32	24
Native Hawaiian or Pacific Islander	28	702	34	14	32	36	18
White	21940	713	34	9	23	36	33
Two or more races	302	713	35	8	26	33	33
<u>Grade</u>							
9 or lower	7374	723	41	12	13	24	51
10	31738	700	33	16	31	35	19
11	2648	678	32	38	35	21	6
12	431	673	34	46	29	19	6
<u>Lunch Status</u>							
Free	19180	691	33	24	34	29	13
Paid	20126	713	35	10	22	34	33
Reduced	2885	704	34	13	29	34	24
<u>Migrant Status</u>							
Yes	61	706	41	20	16	26	38
No	42130	702	36	17	28	32	23
<u>Education Classification</u>							
Regular	37085	702	34	15	29	34	22
Special Education	2385	668	31	52	30	13	4
Gifted and Talented	2721	739	34	3	8	23	65
<u>Section 504</u>							
Yes	1790	684	33	31	35	24	9
No	40401	703	36	16	28	32	24
<u>LEP Status</u>							
Fully English Proficient	41689	702	36	16	28	32	24
Limited English Proficient	502	682	35	35	33	22	10

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.18. Student Performance on Geometry: 2013–2014 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	42956	705	37	17	28	29	26
<u>Sex</u>							
Female	22403	706	36	16	27	30	27
Male	20553	704	38	18	28	27	26
<u>Race</u>							
American Indian or Alaska Native	355	707	35	15	24	34	27
Asian	1274	716	42	14	23	24	39
Black or African American	17208	691	33	26	35	26	13
Hispanic/Latino	1681	705	37	18	29	28	26
Native Hawaiian or Pacific Islander	611	701	33	15	31	35	18
White	21427	716	36	10	22	31	37
Two or more races	400	710	37	15	23	31	31
<u>Grade</u>							
9 or lower	7924	730	38	8	12	23	57
10	31712	702	34	17	31	31	21
11	2803	681	32	37	35	21	7
12	517	673	32	49	30	16	5
<u>Lunch Status</u>							
Free	20182	694	34	24	33	27	16
Paid	19970	716	37	11	22	30	37
Reduced	2804	708	35	14	28	31	28
<u>Migrant Status</u>							
Yes	42	698	41	29	29	19	24
No	42914	705	37	17	28	29	26
<u>Education Classification</u>							
Regular	37601	704	35	16	29	31	24
Special Education	2455	672	31	51	30	14	5
Gifted and Talented	2900	744	33	2	9	19	70
<u>Section 504</u>							
Yes	2081	688	34	31	35	22	12
No	40875	706	37	16	27	29	27
<u>LEP Status</u>							
Fully English Proficient	42470	705	37	17	28	29	27
Limited English Proficient	486	688	36	32	34	21	13

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.19. Student Performance on Biology: 2010–2011 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	44800	693	38	21	37	31	12
<u>Sex</u>							
Female	22680	692	37	20	39	31	10
Male	22120	694	40	21	34	31	13
<u>Race</u>							
American Indian or Alaska Native	324	698	34	13	39	39	10
Asian	801	713	41	11	25	36	28
Black or African American	18824	675	34	34	43	19	3
Hispanic/Latino	1542	689	40	23	37	29	11
Native Hawaiian or Pacific Islander	29	678	40	34	34	21	10
White	22985	707	35	9	32	40	18
Two or more races	295	699	36	15	36	37	12
<u>Grade</u>							
9 or lower	6459	698	42	20	32	30	18
10	35129	693	37	20	37	32	11
11	2624	677	36	33	41	21	5
12	588	680	35	26	45	24	5
<u>Lunch Status</u>							
Free	20422	680	35	30	42	23	5
Paid	21380	705	37	12	31	38	19
Reduced	2998	693	36	18	40	33	9
<u>Migrant Status</u>							
Yes	79	679	36	28	44	23	5
No	44721	693	38	21	37	31	12
<u>Education Classification</u>							
Regular	39454	692	36	20	39	32	10
Special Education	2668	661	35	52	34	11	3
Gifted and Talented	2678	735	33	3	11	37	48
<u>Section 504</u>							
Yes	1608	678	36	32	42	20	5
No	43192	693	38	20	37	31	12
<u>LEP Status</u>							
Fully English Proficient	44308	693	38	20	37	31	12
Limited English Proficient	492	658	34	54	35	9	2

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.20. Student Performance on Biology: 2011–2012 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	44308	701	37	13	35	37	15
<u>Sex</u>							
Female	22665	700	35	13	37	37	13
Male	21643	702	38	14	33	36	16
<u>Race</u>							
American Indian or Alaska Native	351	706	33	8	37	38	17
Asian	847	721	39	6	23	36	35
Black or African American	19220	684	34	23	46	26	5
Hispanic/Latino	1479	697	37	16	37	34	13
Native Hawaiian or Pacific Islander	19	697	33	5	53	32	11
White	22112	715	33	5	27	46	22
Two or more races	280	709	37	9	27	43	21
<u>Grade</u>							
9 or lower	7364	701	41	17	32	32	19
10	35090	702	35	12	36	38	14
11	1504	688	39	25	39	25	11
12	350	683	35	25	43	27	6
<u>Lunch Status</u>							
Free	21350	689	34	20	43	30	7
Paid	19828	714	35	7	27	43	23
Reduced	3130	703	34	10	35	41	14
<u>Migrant Status</u>							
Yes	85	693	38	18	41	32	9
No	44223	701	37	13	35	37	15
<u>Education Classification</u>							
Regular	38829	701	35	12	37	38	13
Special Education	3024	670	35	40	40	16	3
Gifted and Talented	2455	740	31	1	9	36	54
<u>Section 504</u>							
Yes	1867	686	35	23	45	26	7
No	42441	702	36	13	35	37	15
<u>LEP Status</u>							
Fully English Proficient	43755	701	36	13	35	37	15
Limited English Proficient	553	673	33	35	43	19	3

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.21. Student Performance on Biology: 2012–2013 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	42811	705	38	13	29	40	18
<u>Sex</u>							
Female	21952	704	37	13	30	40	17
Male	20859	706	39	14	27	40	19
<u>Race</u>							
American Indian or Alaska Native	374	710	33	6	31	44	20
Asian	773	725	37	7	15	41	37
Black or African American	17669	687	35	24	38	31	6
Hispanic/Latino	1492	703	38	16	28	40	17
Native Hawaiian or Pacific Islander	25	718	31	.	24	56	20
White	22226	718	34	5	22	46	27
Two or more races	252	716	35	7	23	44	25
<u>Grade</u>							
9 or lower	7926	702	42	19	27	35	20
10	32887	707	36	11	29	42	18
11	1721	691	39	23	35	31	11
12	277	687	42	28	30	31	11
<u>Lunch Status</u>							
Free	19722	692	36	20	36	35	9
Paid	20227	717	35	7	22	44	27
Reduced	2862	708	35	9	29	44	18
<u>Migrant Status</u>							
Yes	61	704	44	20	28	31	21
No	42750	705	38	13	29	40	18
<u>Education Classification</u>							
Regular	37605	705	36	12	30	42	17
Special Education	2650	668	36	46	33	17	3
Gifted and Talented	2556	741	30	1	8	34	56
<u>Section 504</u>							
Yes	1899	689	36	23	37	33	7
No	40912	706	38	13	28	40	19
<u>LEP Status</u>							
Fully English Proficient	42291	705	37	13	29	40	18
Limited English Proficient	520	674	35	37	38	22	3

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.22. Student Performance on Biology: 2013–2014 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	45527	707	36	11	28	42	18
<u>Sex</u>							
Female	23371	707	35	11	28	43	17
Male	22156	707	37	12	27	41	19
<u>Race</u>							
American Indian or Alaska Native	346	713	33	8	23	47	21
Asian	1354	708	42	16	25	35	24
Black or African American	18699	692	34	19	38	36	7
Hispanic/Latino	1741	706	36	11	30	42	17
Native Hawaiian or Pacific Islander	757	713	34	8	25	44	23
White	22234	719	33	5	20	48	27
Two or more races	396	715	35	8	21	48	23
<u>Grade</u>							
9 or lower	9270	708	39	13	25	40	22
10	33905	707	35	10	28	43	18
11	1999	695	36	18	36	35	10
12	353	684	38	27	38	29	7
<u>Lunch Status</u>							
Free	21959	696	35	17	35	38	10
Paid	20634	718	35	7	21	46	27
Reduced	2934	711	32	7	26	48	19
<u>Migrant Status</u>							
Yes	56	695	36	18	30	43	9
No	45471	707	36	11	28	42	18
<u>Education Classification</u>							
Regular	39775	707	34	10	29	44	17
Special Education	2951	671	37	43	34	19	4
Gifted and Talented	2801	742	29	1	6	35	57
<u>Section 504</u>							
Yes	2286	691	35	20	40	32	9
No	43241	708	36	11	27	43	19
<u>LEP Status</u>							
Fully English Proficient	45037	707	36	11	28	42	18
Limited English Proficient	490	679	35	30	42	23	4

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.23. Student Performance on English III: 2011–2012 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	40118	699	38	18	31	35	15
<u>Sex</u>							
Female	20743	701	37	15	32	36	16
Male	19375	696	39	21	31	34	14
<u>Race</u>							
American Indian or Alaska Native	306	702	34	15	27	45	12
Asian	747	716	39	11	21	39	29
Black or African American	16704	682	35	29	39	26	6
Hispanic/Latino	1414	697	38	18	32	36	14
Native Hawaiian or Pacific Islander	32	695	41	25	22	38	16
White	20622	711	36	9	26	43	22
Two or more races	293	711	40	13	22	39	26
<u>Grade</u>							
9 or lower	80	664	35	49	36	13	3
10	2249	692	43	27	30	27	16
11	36053	700	38	17	31	37	16
12	1736	678	35	34	38	24	4
<u>Lunch Status</u>							
Free	17750	686	35	26	38	29	7
Paid	19475	711	37	11	25	41	23
Reduced	2893	699	35	15	35	38	12
<u>Migrant Status</u>							
Yes	62	686	30	19	48	29	3
No	40056	699	38	18	31	35	15
<u>Education Classification</u>							
Regular	35646	698	36	17	33	37	13
Special Education	2017	660	34	58	29	11	2
Gifted and Talented	2455	741	32	2	8	32	58
<u>Section 504</u>							
Yes	1542	679	36	35	36	22	6
No	38576	700	38	17	31	36	15
<u>LEP Status</u>							
Fully English Proficient	39688	699	38	18	31	36	15
Limited English Proficient	430	667	30	45	40	13	1

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.24. Student Performance on English III: 2012–2013 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	40731	706	36	11	30	41	17
<u>Sex</u>							
Female	21278	709	35	9	30	43	19
Male	19453	703	37	14	31	40	15
<u>Race</u>							
American Indian or Alaska Native	358	705	34	9	33	41	17
Asian	817	722	38	6	18	43	33
Black or African American	17279	691	33	19	41	34	6
Hispanic/Latino	1365	707	36	11	29	44	16
Native Hawaiian or Pacific Islander	29	702	35	10	38	31	21
White	20622	718	33	5	22	47	25
Two or more races	261	718	37	7	24	39	30
<u>Grade</u>							
9 or lower	175	662	31	51	39	9	2
10	2979	692	42	26	32	27	15
11	36540	708	35	10	30	43	17
12	1037	684	35	26	41	26	7
<u>Lunch Status</u>							
Free	18027	693	33	17	39	36	8
Paid	20027	717	35	6	23	45	25
Reduced	2677	707	33	9	30	45	16
<u>Migrant Status</u>							
Yes	44	704	39	18	25	41	16
No	40687	706	36	11	30	41	17
<u>Education Classification</u>							
Regular	35795	706	34	10	32	44	15
Special Education	2445	669	34	46	35	16	3
Gifted and Talented	2491	744	32	2	8	31	59
<u>Section 504</u>							
Yes	1758	686	34	24	43	27	6
No	38973	707	36	11	30	42	17
<u>LEP Status</u>							
Fully English Proficient	40332	706	36	11	30	41	17
Limited English Proficient	399	676	31	32	46	21	2

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.25. Student Performance on English III: 2013–2014 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	39806	709	34	8	31	42	19
<u>Sex</u>							
Female	20640	712	33	6	30	44	20
Male	19166	706	35	10	32	41	18
<u>Race</u>							
American Indian or Alaska Native	308	710	30	6	28	51	15
Asian	1270	709	40	13	27	35	25
Black or African American	15967	695	32	13	42	37	8
Hispanic/Latino	1494	709	35	9	28	43	20
Native Hawaiian or Pacific Islander	449	706	29	7	33	50	10
White	19976	720	32	4	22	47	27
Two or more races	342	720	32	3	23	46	28
<u>Grade</u>							
9 or lower	191	695	37	18	38	34	10
10	3021	703	37	14	33	36	17
11	35548	710	33	7	30	43	19
12	1046	687	35	23	41	29	7
<u>Lunch Status</u>							
Free	17942	698	32	12	40	39	10
Paid	19351	719	33	5	22	45	27
Reduced	2513	711	31	6	31	45	19
<u>Migrant Status</u>							
Yes	48	695	35	19	31	38	13
No	39758	709	34	8	31	42	19
<u>Education Classification</u>							
Regular	35190	709	32	7	32	45	17
Special Education	2106	671	33	39	42	16	3
Gifted and Talented	2510	745	30	1	7	29	63
<u>Section 504</u>							
Yes	1758	689	34	20	45	26	8
No	38048	710	34	8	30	43	19
<u>LEP Status</u>							
Fully English Proficient	39437	709	34	8	31	43	19
Limited English Proficient	369	674	32	37	43	17	3

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.26. Student Performance on U.S. History: 2012–2013 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				Needs Improvement	Fair	Good	Excellent
State	41546	704	39	18	29	38	15
<u>Sex</u>							
Female	21525	700	38	19	32	37	12
Male	20021	708	41	16	27	38	19
<u>Race</u>							
American Indian or Alaska Native	376	702	38	17	31	40	12
Asian	825	723	41	9	18	44	29
Black or African American	17607	688	36	28	35	31	6
Hispanic/Latino	1391	707	39	16	28	38	18
Native Hawaiian or Pacific Islander	35	711	35	11	29	43	17
White	21035	715	38	10	25	43	22
Two or more races	277	718	38	9	22	46	23
<u>Grade</u>							
9 or lower	241	665	34	54	29	16	1
10	2825	684	40	36	31	25	8
11	36300	706	39	15	29	40	16
12	2180	689	37	28	36	28	8
<u>Lunch Status</u>							
Free	18539	691	37	25	35	32	8
Paid	20266	715	39	11	24	43	22
Reduced	2741	705	38	16	30	40	15
<u>Migrant Status</u>							
Yes	43	696	40	23	35	33	9
No	41503	704	39	18	29	38	15
<u>Education Classification</u>							
Regular	36446	703	38	16	31	39	14
Special Education	2615	674	37	47	29	19	4
Gifted and Talented	2485	741	35	3	10	39	48
<u>Section 504</u>							
Yes	1825	689	40	29	33	29	9
No	39721	704	39	17	29	38	16
<u>LEP Status</u>							
Fully English Proficient	41104	704	39	17	29	38	15
Limited English Proficient	442	678	34	38	34	25	3

Note: The percent of students across achievement levels may not total 100 due to rounding.

Table 4.27. Student Performance on U.S. History: 2013–2014 School Year

	Number	Mean	Standard Deviation	Percent by Achievement Level			
				<i>Needs Improvement</i>	<i>Fair</i>	<i>Good</i>	<i>Excellent</i>
State	40391	712	37	12	24	44	19
<u>Sex</u>							
Female	20976	709	36	13	26	45	16
Male	19415	716	38	11	22	44	23
<u>Race</u>							
American Indian or Alaska Native	304	709	34	9	32	45	13
Asian	1286	716	42	12	23	38	26
Black or African American	16245	698	36	20	31	39	9
Hispanic/Latino	1534	715	36	10	23	47	20
Native Hawaiian or Pacific Islander	557	712	35	10	25	48	17
White	20133	723	35	6	18	49	26
Two or more races	332	725	36	5	20	43	32
<u>Grade</u>							
9 or lower	184	682	38	40	29	26	5
10	3132	704	40	20	26	39	16
11	35270	714	37	11	24	45	20
12	1805	698	37	22	31	38	10
<u>Lunch Status</u>							
Free	18287	701	36	18	30	41	11
Paid	19577	723	36	7	19	47	27
Reduced	2527	715	35	9	24	48	19
<u>Migrant Status</u>							
Yes	55	697	38	18	33	42	7
No	40336	712	37	12	24	44	19
<u>Education Classification</u>							
Regular	35707	712	36	11	25	46	18
Special Education	2185	683	38	38	31	25	6
Gifted and Talented	2499	745	32	2	6	39	53
<u>Section 504</u>							
Yes	1797	696	38	24	31	34	11
No	38594	713	37	12	24	45	20
<u>LEP Status</u>							
Fully English Proficient	39970	713	37	12	24	45	19
Limited English Proficient	421	689	34	27	35	32	6

Note: The percent of students across achievement levels may not total 100 due to rounding.

## Reliability

Traditional statistics for test forms include the mean, standard deviation, standard error of measurement, and reliability of the raw score or number-correct (NC) score. These statistics are reported in tables 5.1 through 5.6 for test forms that were administered during the period covered by this report (2007–2014). All statistics in these tables are based on data from May administrations. If a form was administered in more than one May administration, statistics for that form are based on the first May administration. Because forms were designed to be approximately equal in difficulty within a test, differences of more than 1 point in the average raw score among forms are likely due to differences, or trends, in student achievement across years. Due to the aforementioned change in points for the writing prompt, English II forms A through H are not strictly comparable to later forms (J, K, M, N, P, Q, and S) in terms of NC statistics and reliability.

The reliability coefficients that are of particular importance are the Spearman Brown coefficient and Cronbach’s alpha coefficient. Coefficients greater than 0.80 are considered very good, and those above 0.85 are considered excellent. The NC standard error of measurement (NC SEM), calculated from the conventional Cronbach reliability coefficient, is the average measurement error associated with the NC score. It is expected that about two-thirds of all students would score within one SEM of their observed score if they were to take a form statistically identical to the one taken.

Table 5.1. Number-Correct (NC) Statistics and Reliability for Algebra I

Form	Number of Items	Total Score Points	NC Mean	NC Standard Deviation	NC SEM	Reliability	
						Spearman Brown	Cronbach
A	48	50	23.3	8.2	3.18	0.85	0.85
B	48	50	23.8	7.6	3.04	0.85	0.84
C	48	50	23.4	7.9	3.16	0.84	0.84
D	48	50	24.1	7.9	3.16	0.85	0.84
E	48	50	26.0	8.7	3.15	0.87	0.87
M	48	50	26.6	9.0	3.12	0.89	0.88
P	47	50	26.7	8.2	3.11	0.86	0.86

Table 5.2. Number-Correct (NC) Statistics and Reliability for English II

Form	Number of Items	Total Score Points	NC Mean	NC Standard Deviation	NC SEM	Reliability	
						Spearman Brown	Cronbach
A	42	56	34.1	10.2	3.6	0.89	0.88
B	42	56	33.3	10.3	3.7	0.89	0.87
C	42	56	34.3	9.6	3.6	0.88	0.86
D	42	56	34.4	9.6	3.6	0.88	0.86
E	42	56	34.1	10.1	3.6	0.89	0.87
F	42	56	33.4	10.5	3.6	0.90	0.88
G	42	56	34.3	10.0	3.6	0.89	0.87
H	42	56	34.6	9.3	3.6	0.87	0.85
J	42	48	29.7	8.2	3.1	0.88	0.86
K	42	48	31.1	7.5	3.0	0.86	0.84
M	42	48	32.5	7.6	2.9	0.87	0.85
N	42	48	32.5	7.5	2.9	0.87	0.85
P	42	48	32.6	7.6	2.9	0.87	0.85
Q	42	48	32.2	7.5	2.9	0.87	0.85
S	44	50	31.9	8.1	3.0	0.88	0.87

Table 5.3. Number-Correct (NC) Statistics and Reliability for Geometry

Form	Number of Items	Total Score Points	NC Mean	NC Standard Deviation	NC SEM	Reliability	
						Spearman Brown	Cronbach
A	48	50	24.0	9.0	3.1	0.88	0.88
B	48	50	24.1	8.8	3.2	0.87	0.87
C	48	50	24.7	8.6	3.1	0.87	0.87
M	48	50	27.7	8.8	3.2	0.88	0.87
P	47	50	25.3	8.9	3.2	0.87	0.87

Table 5.4. Number-Correct (NC) Statistics and Reliability for Biology

Form	Number of Items	Total Score Points	NC Mean	NC Standard Deviation	NC SEM	Reliability	
						Spearman Brown	Cronbach
A	48	50	29.39	8.59	2.98	0.88	0.88
B	48	50	29.35	8.87	3.05	0.89	0.88
C	48	50	28.64	8.48	3.05	0.88	0.87
D	48	50	28.97	8.34	3.07	0.87	0.86
E	48	50	31.28	9.02	3.00	0.89	0.89
J	49	52	33.52	8.64	3.16	0.87	0.87

Table 5.5. Number-Correct (NC) Statistics and Reliability for English III

Form	Number of Items	Total Score Points	NC Mean	NC Standard Deviation	NC SEM	Reliability	
						Spearman Brown	Cronbach
A	42	48	29.30	8.02	2.97	0.88	0.86
B	42	48	29.29	7.87	2.92	0.88	0.86
C	42	48	29.42	7.81	2.95	0.88	0.86
M	42	48	30.18	7.68	2.92	0.88	0.86
N	42	48	30.30	7.68	2.93	0.88	0.86
P	42	48	30.18	7.56	2.90	0.87	0.85
Q	42	48	30.00	7.77	2.95	0.88	0.86
S	44	50	31.15	8.29	2.99	0.88	0.87

Table 5.6. Number-Correct (NC) Statistics and Reliability for U.S. History

Form	Number of Items	Total Score Points	NC Mean	NC Standard Deviation	NC SEM	Reliability	
						Spearman Brown	Cronbach
A	48	50	28.2	8.8	3.17	0.87	0.87
C	49	52	29.5	8.9	3.16	0.87	0.87

## Classification Accuracy and Consistency

One of the primary functions of EOC tests is to classify students into achievement levels. For the EOC tests, the achievement levels are *Needs Improvement*, *Fair*, *Good*, and *Excellent*. Students are classified into these levels on the basis of their raw score on the test form taken. Raw scores are mapped to scale scores, which in turn are mapped to achievement levels.

As pointed out in the *Standards* (American Educational Research Association 1999), reliability coefficients and standard errors of measurement do not directly address the technical performance of classification tests. To provide more direct information about the reliability and accuracy of classification decisions, two indices are provided for EOC tests: (1) classification accuracy and (2) classification consistency.

Indices of classification accuracy provide information about the effects of measurement error on a classification test. There are two types of classification error. A “false positive” error (also called a “too high” error) occurs when an examinee is classified into a level that is *higher* than his or her true level. A “false negative” error (also called a “too low” error) occurs when an examinee is classified into a level that is *lower* than his or her true level. As a proportion, classification accuracy is 1 minus the sum of these two types of error rates, has a theoretical range of 0 to 1 (perfect accuracy), and may also be expressed as a percentage ranging from 0% to 100%.

Classification consistency is the proportion or percentage of examinees who would be classified the same way if they took the test again. As a proportion, classification consistency has the same range as the reliability coefficient—0 to 1, with 1 meaning that all students would receive the same classification if they took the test again. As a percentage, classification consistency ranges from 0% to 100%.

Indices of classification accuracy and consistency for the EOC tests were derived using methods described in Schulz, Kolen, and Nicewander (1999). These methods are internally based (*Standards* 1999). Classification consistency and accuracy estimates for a given form (e.g., form A) are based only on the IRT item parameter estimates for that form and the assumption that the true distribution of student achievement on the theta scale (which is shared with the item *b* parameter) is normal and has a mean of 0 and a standard deviation of 1. This theta-distribution assumption is the same assumption used to calibrate the items and is commonly used to compute internal reliability indices. Traditional reliability coefficients, such as Cronbach’s alpha and the Spearman Brown coefficient, are also internally based, and are generally considered to be slightly higher than the result one would obtain with the test-retest method of estimating reliability.

### *Classification Accuracy*

Tables 6.1 through 6.6 show classification accuracy rates for whether a student is at or above a given achievement level. These rates are predictions based on item parameter estimates and the assumption that student ability is normally distributed on the IRT ability metric. For example, if all students were classified for Algebra I form B as being at-or-above *Good*

or not, 89% of the students would be classified accurately, 5% would be classified too high (classified as at-or-above *Good*, but would be below *Good*; false positives), and 7% would be classified too low (classified as being below *Good*, but would be at-or-above *Good*; false negatives). These percentages may not sum to 100 due to rounding.

Table 6.1. At-or-Above Classification Accuracy for Algebra I

Form	Accurate Classifications			False Positives			False Negatives		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	86%	88%	96%	7%	6%	2%	8%	6%	2%
B	86%	89%	96%	6%	5%	2%	8%	7%	2%
C	85%	88%	96%	7%	5%	2%	8%	6%	2%
D	86%	89%	96%	6%	5%	2%	8%	6%	2%
E	87%	90%	96%	6%	4%	2%	7%	6%	2%
L	85%	89%	96%	8%	4%	2%	7%	7%	2%
M	85%	89%	96%	7%	3%	1%	8%	8%	2%
N	85%	87%	96%	7%	4%	1%	9%	9%	3%
P	84%	88%	96%	6%	4%	2%	9%	8%	2%

Table 6.2. At-or-Above Classification Accuracy for English II

Form	Accurate Classifications			False Positives			False Negatives		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	92%	91%	94%	4%	4%	2%	3%	5%	3%
B	92%	91%	94%	4%	5%	3%	3%	5%	3%
C	92%	90%	93%	5%	5%	4%	3%	4%	3%
D	92%	90%	93%	4%	6%	4%	4%	4%	3%
E	92%	91%	94%	4%	5%	3%	3%	5%	4%
F	92%	91%	94%	4%	4%	3%	4%	5%	2%
G	92%	90%	95%	5%	4%	2%	3%	5%	3%
H	92%	90%	93%	5%	4%	4%	3%	6%	3%
J	92%	90%	93%	5%	5%	3%	3%	5%	3%
K	91%	90%	94%	5%	4%	3%	4%	6%	4%
L	92%	92%	94%	4%	4%	3%	4%	4%	2%
M	92%	91%	94%	5%	5%	3%	4%	4%	3%
N	92%	91%	94%	4%	5%	3%	4%	4%	3%
P	92%	91%	94%	4%	4%	3%	5%	4%	3%
Q	91%	91%	94%	4%	4%	3%	4%	5%	4%
R	92%	91%	95%	2%	2%	2%	5%	7%	3%
S	93%	91%	94%	4%	5%	2%	4%	4%	3%

Table 6.3. At-or-Above Classification Accuracy for Geometry

Form	Accurate Classifications			False Positives			False Negatives		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	87%	91%	96%	5%	3%	2%	8%	5%	2%
B	88%	91%	96%	6%	4%	2%	7%	5%	3%
C	88%	90%	96%	5%	3%	2%	7%	6%	2%
L	87%	91%	96%	7%	4%	2%	6%	4%	2%
M	86%	90%	96%	6%	5%	2%	8%	5%	2%
N	82%	88%	95%	8%	5%	1%	9%	7%	3%
P	84%	90%	96%	6%	3%	2%	10%	7%	2%

Table 6.4. At-or-Above Classification Accuracy for Biology

Form	Accurate Classifications			False Positives			False Negatives		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	92%	90%	95%	5%	5%	3%	3%	6%	3%
B	92%	90%	95%	5%	4%	2%	4%	6%	3%
C	91%	90%	95%	5%	4%	2%	5%	6%	3%
D	91%	90%	95%	6%	4%	2%	3%	6%	3%
E	91%	90%	95%	4%	5%	2%	4%	4%	3%
G	91%	90%	95%	6%	4%	2%	3%	6%	3%
H	91%	90%	95%	4%	4%	3%	4%	6%	2%
J	92%	90%	95%	5%	5%	2%	4%	5%	3%

Table 6.5. At-or-Above Classification Accuracy for English III

Form	Accurate Classifications			False Positives			False Negatives		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	92%	90%	93%	4%	5%	4%	4%	5%	3%
B	92%	89%	93%	4%	6%	3%	4%	5%	4%
C	92%	89%	93%	5%	6%	3%	3%	5%	3%
L	92%	90%	94%	5%	4%	3%	3%	5%	3%
M	92%	90%	93%	4%	6%	3%	4%	4%	3%
N	92%	90%	93%	5%	4%	3%	4%	6%	3%
P	92%	90%	93%	4%	6%	3%	4%	4%	4%
Q	92%	90%	93%	5%	6%	3%	3%	5%	4%
R	92%	90%	94%	3%	3%	2%	5%	7%	4%
S	92%	91%	95%	5%	4%	3%	3%	5%	2%

Table 6.6. At-or-Above Classification Accuracy for U.S. History

Form	Accurate Classifications			False Positives			False Negatives		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	90%	88%	95%	5%	5%	3%	4%	7%	3%
B	90%	89%	95%	7%	5%	2%	4%	6%	3%
C	90%	89%	95%	5%	5%	2%	5%	6%	3%

### Classification Consistency

Tables 7.1 through 7.6 present classification consistency rates for at-or-above decisions. Classification consistency rates are estimates of the percentage of students who would be classified the same way if they were to retake the test using a form statistically identical to the one taken. For example, if the students who took Algebra I form A took another test form statistically identical to form A and were classified with respect to whether they were at-or-above *Good* on both occasions, 84% would be classified the same way on both occasions (see table 7.1). Classification consistency rates above 80% are considered very good for all at-or-above classifications.

Classification consistency rates are slightly lower than classification accuracy rates. For example, the *Fair*-or-higher classification accuracy rate for English II form A is 92% in table 6.2, while the corresponding classification consistency rate is 89% in table 7.2. Classification consistency rates are lower because measurement error is factored in twice. That is, classification accuracy is based on only one hypothetical measurement with a given test form, while classification consistency is based on two hypothetical measurements with a given test form. The classification consistency rates for all EOC test forms are acceptable.

Table 7.1. At-or-Above Classification Consistency for Algebra I

Form	Classification Consistency		
	$\geq$ <i>Fair</i>	$\geq$ <i>Good</i>	$\geq$ <i>Excellent</i>
A	81%	84%	93%
B	80%	84%	92%
C	80%	84%	93%
D	81%	85%	93%
E	82%	86%	93%
L	80%	85%	93%
M	80%	86%	93%
N	79%	83%	93%
P	79%	85%	92%

Table 7.2. At-or-Above Classification Consistency for English II

Form	Classification Consistency		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	89%	87%	90%
B	90%	87%	90%
C	90%	86%	88%
D	89%	86%	88%
E	90%	87%	89%
F	89%	88%	90%
G	89%	87%	91%
H	90%	86%	88%
J	89%	86%	88%
K	88%	86%	89%
L	89%	88%	90%
M	89%	87%	89%
N	89%	88%	89%
P	89%	88%	89%
Q	88%	87%	89%
R	89%	89%	91%
S	90%	87%	91%

Table 7.3. At-or-Above Classification Consistency for Geometry

Form	Classification Consistency		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	83%	88%	93%
B	83%	87%	92%
C	83%	87%	92%
L	82%	88%	93%
M	81%	87%	92%
N	76%	84%	93%
P	79%	87%	92%

Table 7.4. At-or-Above Classification Consistency for Biology

Form	Classification Consistency		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	89%	86%	90%
B	89%	87%	91%
C	87%	86%	91%
D	88%	86%	91%
E	88%	86%	91%
G	88%	86%	91%
H	88%	87%	91%
J	88%	86%	91%

Table 7.5. At-or-Above Classification Consistency for English III

Form	Classification Consistency		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	88%	85%	88%
B	89%	85%	88%
C	89%	84%	88%
L	90%	87%	89%
M	89%	86%	88%
N	89%	85%	88%
P	89%	85%	88%
Q	89%	85%	89%
R	88%	86%	91%
S	90%	87%	91%

Table 7.6. At-or-Above Classification Consistency for U.S. History

Form	Classification Consistency		
	$\geq$ Fair	$\geq$ Good	$\geq$ Excellent
A	87%	84%	90%
B	87%	84%	92%
C	87%	85%	91%

## Validity

Validity is the most fundamental consideration in educational and psychological testing. Validity evidence is frequently reported for state assessments (Yu & Zhao 2009). This section provides a brief summary of information pertaining to the validity of the EOC tests.

### *Content Validity*

The validity of an educational test depends chiefly on its content and the procedures used in test development. The section of this report entitled “Test Content” provides some information pertaining to the content validity of the EOC tests. More detailed information is provided in technical reports (Louisiana Department of Education 2009, 2010, 2011b, 2011c, 2012, 2013b). As shown in the reports, all test forms conform to the established test blueprints and have been subjected to extensive reviews and processes that meet or exceed industry standard guidelines for content validity.

### *External Validity*

External validity depends on the relationship of test scores to external variables such as course grades, scores on tests that measure similar or related content, and success in subsequent courses or educational programs. External validity studies already conducted within the EOC program have examined the relationships between

- Algebra I test scores and course grades in the 2007–2008 school year;
- Algebra I test scores in 2007–2008 and LEAP Mathematics test scores in spring 2007;
- Algebra I test scores in 2007–2008 and iLEAP Mathematics test scores in spring 2008;
- English II test scores and course grades in the 2008–2009 school year;
- English II test scores in 2008–2009 and scores on the GEE English Language Arts test in spring 2009;
- Algebra I test scores and course grades in Algebra II for students who took Algebra I in 2007–2008 and Algebra II in 2009–2010; and
- Algebra I test scores in 2007–2008 and subsequent performance on the ACT in or after June 2009.

These studies are documented in reports submitted to LDOE. They may be repeated periodically, or conducted with other EOC tests in the future, in order to help inform policy decisions regarding the use of EOC tests or to help evaluate the impact of policies.

The purpose of external validity studies is to inform and support particular uses of test scores. Therefore, validity is not so much an attribute of a test as it is an attribute of actions or policies based on test scores. The policies established for the use of EOC tests for grading, graduation, and school accountability have been and will continue to be informed by external validity studies.

## **Conclusion**

The EOC tests were constructed with careful attention to criteria for validity and technical quality. Committees of state educators were involved in all key aspects of test development, in defining the characteristics of the online administration, and in setting achievement levels. Operational forms were constructed from items that demonstrated good technical quality through field testing and satisfied many other criteria for content, clarity, and fairness. Operational forms were assembled using detailed guidelines for content validity, form equivalence, and technical quality. Methods based on IRT were used to equate test forms, estimate student achievement, and support the standard setting process. These efforts resulted in tests that meet generally accepted standards for validity and reliability.

As noted in the beginning, this executive summary highlights the technical results of the EOC tests administered in the December 2007 to May 2014 period. Detailed information on any of the technical procedures can be found in technical reports prepared for each of the tests (Louisiana Department of Education 2009, 2010, 2011b, 2011c, 2012, 2013b).

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