

Maryland School Assessment 2003

Technical Report 2003

for

Maryland School Assessment

Submitted to Maryland State Department of Education

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HISTORICAL OVERVIEW

Overview

The Maryland School Assessment (MSA) program replaces the Maryland Student Performance Assessment Program (MSPAP), which had been administered from 1992 to 2002. In 2003, Reading and Mathematics for Grades 3, 5, 8, and 10 were administered. CTB/McGraw-Hill was in charge of Mathematics Grades 3, 5, and 8 and Reading Grade 10. In this paper, MSA represents Mathematics Grades 3, 5, and 8 and Reading Grade 10 only. MSA is composed of CTB/McGraw-Hill's *TerraNova* survey (TN) and custom selected response (SR) and constructed response (CR) items written to measure learning based on the Maryland content standards. Two types of scores were reported based on these items: Norm Referenced Test (NRT) scores and Criterion Referenced Test (CRT) scores. The NRT scores were computed using TN items only, and the CRT score was calculated using part of the TN items and augmented SR and CR items. These TN items were selected better align the assessment with Maryland's content standards. TN Form C was used for the NRT.

For Year 1, there was a standard setting conducted for Math and Reading. The Bookmark method was applied for this purpose. Item parameters based on an item response theory model were used for the standard setting. The performance levels obtained from the standard setting were applied to produce the percent of students performing at or above the "proficient" level, which will be reported to the federal government according to the "No Child Left Behind" act.

The main purpose of this document is to provide technical information about the 2003 operational administration of MSA. The information about standard setting procedures was not included, but can be found in a separate technical report, entitled "Maryland Standard Setting Technical Report," submitted to the Maryland Department of Education, August, 2003.

Purposes/Uses of the MSA Statewide Academic Learning Standards

The MSA Statewide Academic Learning Standards for reading and mathematics are, for the purposes of item development and review, referred to as the "Content Standards and Assessment Limits." During the development phase for the 2003 test administration, these documents underwent several revisions.

The first version of the documents was provided to CTB in late August, 2002 soon after the contract award for the purpose of writing items for the 2003 administration. Test items were written to measure content and skills identified at the "assessment limit" level. During the item content review meeting in late September, 2002, a revised version of the mathematics assessment limits were used. At this time, some items were recoded to reflect the change in the coding system, other items were reassigned to a different grade

level, and some items were deleted from the item pool because they no longer measured content expected of students at any grade level.

The Content Standards and Assessment Limits underwent further review and revision during the item development period for field testing in 2004. CTB used the version of the mathematics standards dated March 3, 2003 and a version of the reading standards dated April 28 for writing and editing items to take to the July 2003 item content review meeting. These were also the versions of the standards used to select items for the 2002 “Score Forms.”

The item development process used for MSA is an iterative process, involving multiple rounds of item review and revision. The processes used for developing items for the 2003 test administration were as described below. Item writing began in early September, and the item content review meeting was held September 30 – October 4, 2003.

1. MSDE and CTB staff attended item writer training sessions in Tacoma, Washington and Monterey, California (mathematics) and New York City (reading). MSDE staff trained the item writers on the Maryland content standards and assessment limits. CTB staff provided training on the item specifications documents.
2. Items were quickly edited by CTB staff and prepared for item content review.
3. Separate committees comprised of Maryland educators were convened for content and sensitivity. The content review committee members recommended edits, and then the sensitivity committee reviewed items. MSDE and CTB staff reviewed and reconciled all recommended edits during “side-by-side” reviews for two days.
4. Following the item content review meeting, test book manuscripts were prepared and the items were reviewed for style at the time manuscripts were processed. During the page production cycles, items underwent further content and style refinements.

Test Design and Specifications

Tables 1 and 2 below show the test design used to construct the 2003 Score Forms for mathematics, grades 3, 5, and 8 and for reading, grade 10. The test designs presented below represent the targeted test design for each grade and content area. The targeted test designs may not have been actualized by the final score form for each content area, grade level, and test for.

Table 1
Test Designs for Grades 3 and 5 Mathematics

Grade 3 Mathematics

	Content Standard	TerraNova Items that Contribute to CRT Score	Number of CRT SR Items	Number of CRT BCR Items	Points	Percent
1	Algebra, Patterns, and Functions	12	11	1	13	18%
2	Geometry	16, 17	5	1	8	11%
3	Measurement	10, 14	4	1	7	10%
4	Statistics	24	10	1	12	17%
5	Probability		2		2	3%
6	Number Relationships and Computation	1, 2, 4, 13, 18	8	3	16	22%
7	Process of Mathematics			7	14	19%
	Total Score Points		40	21	72	100%

Grade 5 Mathematics

	Content Standard	TerraNova Items that Contribute to CRT Score	Number of CRT SR Items	Number of CRT BCR Items	Number of CRT ECR Items	Points	Percent
1	Algebra, Patterns, and Functions	27, 28	11	1	1	15	20%
2	Geometry	13	4	1		6	8%
3	Measurement	17, 23, 26	4	1		8	11%
4	Statistics	12	7	1		9	12%
5	Probability	32	2	1		4	5%
6	Number Relationships and Computation	2, 4, 6, 8, 31	8	2		15	20%
7	Process of Mathematics			7	1	17	23%
	Total Score Points		40	21	4	74	99%

Table 2
Test Designs for Grade 8 Mathematics and Grade 10 Reading

Grade 8 Mathematics

	Content Standard	TerraNova Items that Contribute to CRT Score	Number of CRT SR Items	Number of CRT SPR Items	Number of CRT BCR Items	Number of CRT ECR Items	Points	Percent
1	Algebra, Patterns, and Functions	29	6	4	2	1	14	19%
2	Geometry	27	4	2	1	1	9	13%
3	Measurement	16	2	1			4	5%
4	Statistics	13	5	1	1	1	9	13%
5	Probability		2	2	1		5	7%
6	Number Relationships and Computation	6, 7, 20, 26	6	2			12	17%
7	Process of Mathematics				5	3	19	26%
	Total Score Points	8	25	12	15	12	72	100%

Grade 10 Reading

	Content Standard	TerraNova Items that Contribute to CRT Score	Number of CRT SR Items	Number of CRT CR Items	Score Points	Percentage of Score Points
G	General Reading Processes	3, 4, 23, 25, 32, 33, 34, 37, 43, 44, 45, 47, 48	4		17	28%
I	Informational Reading Processes	13, 14, 15, 16, 17, 22, 24, 26, 27, 46	6	2	22	36%
L	Literary Reading Processes	1, 2, 5, 6, 35, 36, 38, 51, 52, 53, 54	5	2	22	36%
	Total Score Points	34	15	12	61	100%

Table 3 below presents the summary of score points by reporting category for mathematics at each grade.

Table 3
Summary of Score Points

Reporting Category	Grade 3		Grade 5		Grade 8	
	Score Points	Percentage	Score Points	Percentage	Score Points	Percentage
1	13	18.1%	15	20.3%	14	19.4%
2&3	15	20.8%	14	18.9%	13	18.1%
4&5	14	19.4%	13	17.6%	14	19.4%
6	16	22.2%	15	20.3%	12	16.7%
7	14	19.4%	17	23.0%	19	26.4%
Total	72		74		72	

Processing and Scoring of Test Materials

CTB's primary goal in the scoring and processing of test documents is to deliver quality results to MSA according to established timelines. The accuracy and timeliness of reports are the primary concern of the team devoted to providing scoring services.

CTB's MSA scoring team is based in Monterey, California and Delran, New Jersey. This team of trained technical specialists has been responsible for coordinating all scoring and reporting activities related to the processing of MSA test documents. Document preparation, interdepartmental coordination and communication, processing specifications, and problem resolution are functions to be performed by a designated Scoring Project Manager from this team. The scoring team works closely with all CTB departments to ensure successful scoring and reporting of MSA.

Scoring Process Overview

CTB's Scoring process includes many quality assurance steps that are integrated into each step. Presented below, in order of occurrence, are quality assurance procedures applicable to the Scoring and Reporting process.

Pework

Prior to document arrival at CTB, the scoring team utilizes available customer data to prepare materials to expedite the document-handling process. Team members verify the accuracy of the following materials:

- Expected number of students by grade and school
- Test date
- Precoded headers generated from school/district enrollment files
- Return Shipping Labels
- Report services specifications
- Sample reports
- Report collation examples
- Report packing schematics
- Document type (i.e., selected response/constructed-response)
- Packing lists generated for report shipments
- Other requirements to meet *MSA* specifications

Prior to receipt of answer documents, detailed scoring specifications for *MSA* are distributed to the various workstations involved in the scoring and editing process.

Receiving

Shipments are tracked electronically, from the time of pickup at the sites, until delivery at CTB. After receipt, documents are organized by LAC. For each LAC the following steps were performed:

1. The box count is verified against the carrier's bill of lading and/or box count indicators as printed on the outside of the box. If a discrepancy is encountered, boxes are placed in a problem resolution area and discrepancy procedures are enforced. If missing boxes are not located within 24 hours, the Scoring Team is notified and they contact the LAC for resolution.
2. The shipment is checked for damaged materials. If the integrity of the documents are affected by any kind of damage, the Scoring Team is notified.

Depending on the severity of the problem, the team member contacts the LAC for resolution. A record of all damaged materials is maintained.

3. Before documents leave the Receiving area they are logged into the computerized tracking system which provides real-time information regarding the status of the documents throughout the scoring and editing process. The electronic profile for each LAC is updated with at least the following information:
 1. LEA name
 2. Date of receipt
 3. Box count
 4. Shipping carrier

CTB follows-up with each LAC whose test materials are not received by the date agreed upon by CTB and MSDE.

Login

Documents released by Receiving is transferred to Log-In, where the following activities are performed:

1. The headers (Group Information Sheets) are checked against School Group Lists (SGLs) to verify the number of students tested within each group (class).
2. The documents are grouped in manageable stacks and document alignment is checked to ensure proper scanning.
3. A scannable header is placed on top of each stack and a number is assigned to identify each unique stack of documents within a group.

Scanning

After login verifies all the information has been received and has prepared the documents for scanning, the documents are moved to the scanning area. Here they are cut into single sheets and electronically scanned. Scanners are calibrated periodically.

The scanners used by CTB have built-in checks for mis-calibration. Hardware bias checking is used in real-time to verify that the scanner calibration is maintained during the scanning process. Additional checks are implemented by CTB to reinforce the built-in hardware checks and to ensure optimal scanner setup.

CTB's scanning software utilizes the speed of the NCS 5000I optical scanners to capture document images and bubbled data without requiring specific document editing and resolution rules. Scanners are thus able to run at rated speed with no interruptions except for problems with the physical documents. All editing of the scanned documents is performed, in a subsequent step, in the raw scoring/editing system.

The scanning program evaluates every detectable mark on both sides of each page, and records the intensity and coordinates of solid marks for resolution in the subsequent raw scoring step. The form identification (i.e., “skunk marks”) determines the type of document, and the headers determine customer identification and district, school, and class.

Editing/Updates

Raw scoring and editing of scanned data is performed in a client/server system (WinScore), where a sophisticated system of edits are invoked to review the integrity of each batch scanned and to produce a list of error suspects. While the editors can view data from any document on-line, the error suspect list concentrates on the most likely problems based on pre-defined guidelines. This system reduces editing time and provides a high degree of quality control.

CTB continues to enhance the capability of editing software to simplify the detection and correction of errors. On-line editing screens focus an editor on potential problems and then provide related information. The actual scanned documents are always available to the editor, and the software supports the review and correction of any field in the scanned record. Entry and verification of the necessary corrections are enhanced to ensure each error is actually corrected.

As batches are extracted for scoring, a final edit is performed to ensure all requirements for scoring are met. This automated final edit flags a batch for further editing if any error is still detected. A batch containing errors cannot be extracted for reporting. This ensures a high level of accuracy of the scored data.

CTB has maintained a professional staff of specialized data processing technicians to lead the verification process to ensure the integrity of the student response data at both group and individual levels. This process includes the following error checks:

1. **Reliability.** This check ensures that the raw scores for each subtest are above chance levels. Scores not passing this edit are checked by a trained specialist to ensure that responses are being read correctly and that the correct form and level of the test is being used.
2. **Biographical data.** Electronic edits are performed on such elements as student name to ensure leading or embedded blanks are corrected when possible.
3. **Student counts.** Actual counts based on scanned records are electronically compared with expected counts, and discrepancies are flagged.
4. **School name/number.** Pre-assigned school numbers and names are verified against an electronic file.
5. **Custom edits.** Special edits can be performed using custom software that works in conjunction with our standard scoring process.

Document retention. When the editing process is completed, documents are moved to a staging area to be prepared for retention. Bundles are caged, warehoused in a recoverable location, and retained for possible retrieval during the specified retention period. Once this period is over, documents are destroyed according to procedures that ensure security is maintained.

Scoring/Reporting Software

The primary set of products utilizing CTB's mainframe scoring software (EISS) is *TerraNova* Survey and MSA.

- **Shelf software** supports each test available in the CTB annual catalog. When a customer's scoring request is entered on a scoring order screen, the software activates the scoring and reporting requested by the customer. Parameters from the scoring order screen control which scoring and reporting programs are executed, as well as the content and sequence of the printed output.
- **Custom software** is necessary to support contracts with unique requirements. CTB has developed many modules to meet customized scoring and reporting requirements. In addition, our large programming staff can develop new software to meet the needs of a new customization. CTB has the resources to develop custom software for very large and complex contracts.

EISS receives data from WinScore. The data is scored, summarized, sorted/selected, and reported according to the contract requirements. This system is optimized for efficient high volume processing, and providing for maximum flexibility to fulfill the contract's specific needs.

Advanced Function Printing (AFP)

The IBM Advanced Function Printing (AFP) system is a key factor in CTB's ability to print large volumes of reports with varied content and sequences. CTB provides the functionality to print reports in the actual shipping sequence, with no manual sorting or collation required. In addition, each page may contain complex graphics and the visual aids necessary to clearly convey the information to the wide variety of people who read the reports. CTB converted all mainframe systems to AFP and developing all new reports in this environment.

AFP operates on high-speed laser printers using large roll feeders for several hours of uninterrupted printing at a rate of over 200 pages per minute. The printers' output processors then separate packages, or sets, of reports.

AFP supports report collation. Reports can be printed in any desired sequence, since the contents of each set of reports can be predefined. The sequence in which these packages are printed is also predefined. A "break page" of control and routing information precedes each package of reports. For example, for a district-wide school package, the break page may contain test, type of report, report level/grade, school name, principal's name and school address information. Packages are produced in the final order for quality checks and packaging for shipment.

With AFP graphic capabilities, CTB can design more meaningful reports. Form and content can be varied at any time while printing, fonts can be mixed on a page, graphics can be added, and complex graphics can be inserted to represent variable data.

CTB adopts procedures to provide unprecedented flexibility in the reporting software. In many cases, an application program need not be changed to modify or enhance a report; the much simpler AFP page definition can be changed, leaving the application program intact. Thus, programming, testing, and quality assurance are all simplified.

Scoring Quality Assurance

The Technology and Scoring Departments at CTB both have quality assurance sections specifically charged with reviewing scoring data and reports during all stages of the process. The Technology quality assurance team verifies the accuracy of all reporting programs before they become operational. The Scoring quality assurance team verifies the accuracy of report information during the scoring process. After all data is entered into the scoring system and all reporting programs are completed, a sample of reports are printed and submitted to the Scoring quality assurance group. They review the sample reports extensively to verify the accuracy and correct presentation of all data.

Red Team Review

During the scoring process, numerous quality assurance checks are in place to ensure the complete accuracy of reports. Prior to delivering any electronic files or hard-copy score reports to schools, LAC's, or MSDE, all score reports underwent one final, extensive quality check, known as a "Red Team Review." Red Teams are comprised of individuals from every CTB department coming together to form an interdisciplinary team. Samples of each type of report are printed from the active scoring system, and the Red Team carefully reviews these samples for accuracy and correct format, as well as a number of other issues including:

- Verify contents of reports against scoring specifications, report schematics and the Department approve format
- Reports print on correct form/color
- Reports collate correctly
- Data reported is reasonable (A complete data reasonableness check done by Research is completed prior to Red Team Review)
- Student-level data is accurate, compared by hand with student rosters and other documentation
- Required footnotes are in place
- Proficiency ranges reported match with scaled score ranges
- Cut scores are correct.

- Reports are not sent out until all necessary corrections determined by the Red Team are resolved and samples of all reports sent to the Department are approved for distribution.

Handscoring Process

For MSA, the electronic handscoring system is used to score constructed response (CR) items. The imaging handscoring system presents images of scanned test books to trained readers, who assign scores for constructed response items. Scanned output is viewed on high quality 19" workstation monitors. Images of each student's responses are automatically routed to two or more readers when required, and images of specific subsets of test items are routed to designated groups of readers trained to score these items. In addition to increased reader reliability, significant gains in reader productivity are noticed following the implementation of this technology.

CTB is committed to using the finest imaging equipment, software presentation system, data management system, and quality control to provide valid, reliable, cost-efficient scoring.

Constructed-Response Scorers

Scoring Personnel

CTB recruits, trains, and manages a sufficient number of staff to complete all handscoring operations within the time lines of this contract. CTB's experience involves extensive consultations between CTB Scoring, Publishing, and the customer to review scoring rubrics, develop anchor papers and other reader training materials, and provide analyses of student responses to tryout forms.

Readers

Many CTB readers have a great deal of classroom teaching experience. Our reader pool includes editors, published authors, and a number of individuals with advanced degrees. The minimum qualification for all Scoring Center readers is a Bachelor's degree.

All MSA CR items are scored in Delran, NJ. Handscoring readers were recruited from the southern New Jersey and Philadelphia areas. In order to work as a Handscoring reader at CTB, one must possess, and show evidence, of having either a BA or BS degree. The evaluator staff is comprised of individuals from many walks of life -- from retired or current educators to engineers, all possessing BAs to PhDs.

Team Leaders

Team leaders are selected on the basis of having demonstrated a high degree of scoring accuracy and consistency, often across multiple subjects and grades. They must also possess good interpersonal and leadership skills in order to be effective when training and counseling readers. The ratio of readers to team leaders is no more than 10 to 1. While it is possible to conduct handscoring with more readers per team leader, it has been CTB's experience that inter-rater reliability and production goals are jeopardized unless a trained leader can frequently monitor all readers.

Scoring Supervisors

Scoring Supervisors are the core group at CTB scoring centers. They direct and organize the assessment process, and train team leaders and readers. Scoring Supervisors have extensive experience as Team Leaders prior to their qualification and selection. The Scoring Supervisors are subject area experts in the content(s) that they supervise and train.

Anchor and Training Papers

Prior to the actual scoring, the CTB Scoring Center create training materials. CR items for the MSA are assessed using MSDE holistic rubric with an X-point score scale. CTB randomly samples student answer documents to ensure that we are looking at a representative sample of the possible responses. A Rangefinder meeting is held with MSDE staff and representatives to select sample papers of each score point. These samples are used to construct scoring guides and training papers. MSDE and CTB's scoring team collaborates to make any revisions to the rubrics and selection of scoring guide and training papers.

The process includes several presorting steps and subsequent iterative/consensus processes in order to achieve ever-increasing agreement and precision through a kind of "round robin" scoring, followed by discussion and selection.

When all papers for a form are selected and assigned status as good anchors training, qualifying, or check-set papers, they are consolidated into training formats. Once approved by MSDE, the Scoring Guides (consisting of rubrics, anchors, and annotations) serves as a constant, setting the course for all subsequent training and scoring.

Training

Validation is a critical task in the assessment training process. It is the final determinant in reader readiness. All readers, including team leaders, must validate with a predetermined percent exact agreement on the qualifying round following training. Those readers not validating on the first attempt receive further training prior to taking an additional qualifying round. Only those training who successfully validate are qualified as readers and could score tests. Validation standards are set by the contract.

Intra-rater Reliability

Throughout the course of the handscoring process, calibration sets of pre-scored papers (check-sets) are administered daily to the team leaders as well as to the readers, to monitor scoring accuracy and to maintain a consistent focus on the established rubric and guidelines. Imaging permits this monitoring without reader knowledge of when a check-set is administered. Readers whose check-set scores fall below the qualifying level are removed from live scoring and are given additional training and another qualifying (validation) round. Readers unable to qualify are dismissed.

The “read-behind” is another valuable intra-rater reliability monitoring technique. On a daily basis, his/her team leader reads a random selection of each reader’s scored items. The scores are compared, and if they agree, the team leader is able to offer feedback, which enhances the reader’s confidence and ability to score quickly and accurately. However, if an individual is straying from the standard established in the training and validation samples, the aberrant scoring is detected, and the team leader is able to offer the guidance necessary to refocus the reader’s effort. Readers whose scoring is inconsistent are read behind more frequently by their team leaders. Thus, any scoring variation is corrected.

Inter-rater Reliability

An appropriate quantity of responses in each subject is scored by two or more readers to establish inter-rater reliability statistics for all readers and for the project as a whole. The percent of second reads is established by the contract. For MSA this was set at 100% second reads for 2003. With imaging, readers can score concurrently and without knowledge of their participation in inter-rater reliability monitoring.

Construction of Score Forms

The selection of test items that contributed to a student's score at each grade level for each form of the test was an iterative process between CTB and MSDE. First, because content standards had changed since the time the test forms were constructed, MSDE staff reassigned each test item to a reporting category and assessment limit. Some items no longer measured an assessment standard at the grade level, so these items were marked "do not use." The criteria for selecting items that contribute to the CRT score are as follows:

1. The item measures an assessment limit.
2. The item fulfills the blueprint requirements.
3. The item has an acceptable p-value.
4. The item has an acceptable point-biserial value and no distractors have a positive point-biserial.
5. The item is not flagged for differential item functioning.

CTB provided the initial identification of items for the Score Forms using the classical item statistics, and MSDE reviewed the selection and requested substitutions. A few iterations occurred until CTB and MSDE were satisfied that the Score Forms represented the best possible balance of meeting content and psychometric requirements.

Characteristics of the Test Population

Table 4 shows the ethnic characteristics of the total number of students who took the 2003 MSA. The percentages are rounded up to whole numbers. That is why in some cases, total sum of percents is not 100. As the table indicates, most of the students were white (50%-56% across grades), approximately 34% to 39% of the students were African American, and approximately 5% to 7% of the students were Hispanic. As expected, these ratios were similar across all test forms, because the test forms were spiraled within the classroom. As shown in Table 5, there were slightly more male students (maximum 6% difference in Grade 5 by form) than female students.

Table 4
2003 MSA Sample Characteristics by Ethnicity

Grade	Test Form	*Number of Students	Percent White	Percent African American	Percent Hispanic	Percent Others
3	Total	64373	50	39	7	5
	A	16381	50	38	7	5
	B	16163	50	39	7	5
	C	16017	50	39	6	5
	D	15812	50	39	6	5
5	Total	67615	51	38	6	5
	A	17199	51	39	6	5
	B	16967	51	38	6	5
	C	16838	51	38	6	5
	D	16611	51	38	6	5
8	Total	67301	53	37	5	5
	A	17000	53	37	5	5
	B	16878	53	37	5	5
	C	16778	53	37	5	5
	D	16645	54	37	5	5
10	Total	61455	55	34	5	6
	A	10408	56	34	5	6
	B	10372	55	34	5	6
	C	10252	55	34	5	6
	D	10198	55	34	5	5
	E	10138	55	34	5	6
	F	10087	55	34	5	6

*Students of unspecified ethnicity are not counted.

Table 5
2003 MSA Sample Characteristics by Gender

Grade	Test Form	*Number of Students	Percent Male	Percent Female
3	Total	64373	52	48
	A	16381	52	48
	B	16163	51	49
	C	16017	52	48
	D	15812	52	48
5	Total	67615	51	49
	A	17199	53	47
	B	16967	51	49
	C	16838	51	49
	D	16611	51	49
8	Total	67301	51	49
	A	17000	51	49
	B	16878	52	48
	C	16778	51	49
	D	16645	51	49
10	Total	61456	50	50
	A	10409	50	50
	B	10372	50	49
	C	10252	51	49
	D	10198	50	50
	E	10138	50	50
	F	10087	51	49

*Students of unspecified gender are not counted.

Norm Referenced Test (NRT)

NRT Test Design

In 2003, Mathematics *TerraNova* Survey (TN) Form C was administered to Grades 3, 5, and 8 students and Reading TN Form C was administered to Grade 10 students. CTB's *TerraNova* is an assessment system designed to measure concepts, processes, and skills taught throughout the nation. *TerraNova* Survey consists of SR items only. The number of items and scale score ranges can be found in Table 6. As a reporting score, scale scores based on the item response theory (IRT) model were reported. Note: TN Reading for Grade 10 consists of Reading and Language tests. Reading consists of 34 items and Language consists of 26 items. Although students took both tests, only their Reading scores were reported.

Table 6
The Number of Items and Scale Score Range

Content Grade	SR Items	Scale Score Range
MA3	30	385-740
MA5	32	430-797
MA8	31	502-872
RD10	34	529-838

MA: Mathematics RD: Reading

NRT Position Effect Study

Mathematics TN Form C was administered to Maryland Grade 3, 5, and 8 students. Four alternate forms were constructed and each form consisted of TN and the augmented items for the CRT. In this paper, augmented items mean all items except for TN items. Note that TN items were located at the beginning of Forms A, B, and C, and at the end of Form D. These four forms were spiraled in the classroom and students responded to the items in the order that were presented on the test forms. This implies that students who took Forms A, B, or C took TN in test session 1 and students who took Form D took TN in test session 5. The main purpose of this study was to examine possible position effects for TN. In other words, do the students' scores on Form D differ significantly from students' scores on the other three forms?

In order to study possible position effects, a number of characteristics of the data were investigated for both number-correct scores and scale scores. In addition, the proportions of students in seven national percentile rank (NP) ranges, which were arbitrarily selected, were also examined for each form. NP was examined because NP is

the only score that will be reported to the individual student. At the item level, item p-values were examined.

The expectation was that if different positions have no effect on students' scores, there should be no difference in scores on the four forms except for random sampling error, because the same form was administered to four randomly equivalent groups. The maximum random error among the three Forms A, B, and C administered during the same session was used as a criterion for evaluating possible position effects.

Table 7 shows the mean, standard deviation (SD), skewness, kurtosis, reliability via Cronbach's alpha (KR20), and standard error of measurement (SEM) based on number-correct scores. For Grade 3, the maximum mean difference between Forms A, B, and C was 0.233, which can be considered a maximum random error among the three forms. This criterion value of 0.233 was compared to the values in the fourth column - the mean difference between Forms A, B, and C from Form D. All difference values, 0.494, 0.727, and 0.647, respectively, are larger than the criterion value. For the other two grades, the same results were found such that all values were larger than the criterion value (0.355 for Grade 5 and 0.113 for Grade 8). These results imply the existence of unique effects for Form D, although their effects are considered small. Also note that the mean of Form D was the lowest of all grades, and the SD for Form D was larger than the SDs for the other forms. The large SD for Form D may have caused the large KR20 for Form D. There was no clear difference between forms regarding skewness and kurtosis.

Table 8 shows the summary statistics based on TN scale scores. These scale scores were obtained by applying existing TN item parameters to students' responses. A similar pattern was found such that the mean of Form D was the smallest, while the SD of Form D was the largest among the four forms. Mean differences between Form D and the other forms were larger than the criterion values (2.2 for Grade 3; 2.7 for Grade 5; and 1.1 for Grade 8) for all grades.

Table 9 presents the proportions of students on seven NP rank ranges. It is important to examine percentile ranks because the TN national percentile ranks based on pattern scoring will be reported to the test takers and test users. The 7 ranges were selected such that the range is narrow at the middle percentile ranks and wide at the extreme percentile ranks. Form D had the lowest mean scale score among the four forms for all grades. The lower scale score means for Form D resulted in the smallest proportion of students in higher NP and the largest in lower NP, compared to other Forms.

Tables 10, 11, and 12 show the item easiness (p-value) for all items. Items in boldface type represent those that contribute to CRT scoring. Across all items, most p-values for Form D were lower than those for the other forms for all grades. This difference in p-value suggests that Form D was more difficult for students than the other forms, and may suggest a higher degree of fatigue on Form D. P-values for two items (item 32 for Grade 5 and item 27 for Grade 8) show differences that are equal to or larger than 0.05. Note that these two items showed a reverse pattern. That is, these two p-values on Form D were higher than those for the other forms.

The results based on the criterion, i.e., the maximum random error among Forms A, B, and C, showed slight unique effects for Form D.

Table 7
NRT Summary Statistics based on Number-Correct Scores

Grade and test forms	N	Mean	Mean difference from Form D	SD	Skewness	Kurtosis	KR20	SEM
3A	16379	22.757	0.494	4.961	-1.001	4.413	0.837	2.004
3B	16161	22.990	0.727	4.882	-1.049	4.642	0.835	1.983
3C	16016	22.910	0.647	4.876	-1.031	4.595	0.832	1.997
3D	15811	22.263		5.193	-1.001	4.372	0.845	2.043
5A	17200	22.548	0.545	6.172	-0.565	2.822	0.867	2.247
5B	16966	22.843	0.840	6.054	-0.579	2.819	0.864	2.231
5C	16838	22.903	0.900	6.069	-0.605	2.876	0.866	2.225
5D	16611	22.003		6.478	-0.580	2.840	0.876	2.279
8A	16999	20.085	0.708	6.214	-0.526	3.241	0.868	2.258
8B	16878	20.018	0.641	6.201	-0.517	3.198	0.867	2.264
8C	16777	20.131	0.754	6.088	-0.515	3.243	0.862	2.263
8D	16645	19.377		6.474	-0.451	3.011	0.874	2.298

* The maximum mean differences among Forms A, B, and C are **0.233, 0.355, and 0.113** for Grades 3, 5, & 8, respectively.

Table 8
Summary Statistics based on Scale Scores for NRT

Grade and test forms	N	Mean	Mean difference from Form D	SD	Skewness	Kurtosis
3A	16379	607.3	4.2	47.472	-0.064	5.978
3B	16161	609.5	6.4	47.539	-0.093	6.138
3C	16016	609.1	6.0	46.413	-0.067	6.123
3D	15811	603.1		48.459	-0.397	6.549
5A	17200	647.9	5.4	51.628	0.168	5.065
5B	16966	650.3	7.8	50.688	0.240	4.963
5C	16838	650.6	8.1	51.347	0.172	5.019
5D	16611	642.5		54.109	-0.212	5.302
8A	16999	694.4	6.6	52.969	-0.334	6.076
8B	16878	693.6	5.8	52.772	-0.392	6.087
8C	16777	694.7	6.9	51.249	-0.353	6.175
8D	16645	687.8		56.798	-0.426	5.479

* The maximum mean differences among Forms A, B, and C are **2.2, 2.7, and 1.1** for Grades 3, 5, & 8, respectively.

Table 9
Proportions of Students on Seven National Percentile Rank Classifications

Grade and test forms	Percentile Rank						
	91-99	71-90	61-70	51-60	41-50	31-40	1-30
3A	0.102	0.192	0.090	0.089	0.093	0.097	0.336
3B	0.111	0.205	0.088	0.096	0.087	0.091	0.322
3C	0.094	0.252	0.091	0.086	0.078	0.065	0.334
3D	0.089	0.183	0.085	0.089	0.090	0.096	0.368
5A	0.133	0.168	0.084	0.086	0.082	0.099	0.348
5B	0.139	0.185	0.081	0.083	0.084	0.098	0.330
5C	0.143	0.184	0.083	0.082	0.083	0.098	0.327
5D	0.118	0.167	0.079	0.080	0.080	0.098	0.378
8A	0.125	0.218	0.108	0.108	0.111	0.095	0.235
8B	0.123	0.213	0.115	0.107	0.110	0.092	0.239
8C	0.123	0.217	0.117	0.110	0.110	0.095	0.229
8D	0.115	0.194	0.101	0.103	0.106	0.093	0.288

Table 10
Item P- values for Grade 3 Mathematics

Item	A	B	C	D
1	0.84	0.84	0.83	0.83
2	0.90	0.90	0.90	0.87
3	0.90	0.90	0.90	0.87
4	0.87	0.87	0.87	0.84
5	0.65	0.66	0.66	0.62
6	0.93	0.94	0.93	0.91
7	0.64	0.65	0.65	0.59
8	0.67	0.68	0.67	0.64
9	0.80	0.81	0.81	0.80
10	0.86	0.87	0.86	0.87
11	0.89	0.90	0.90	0.88
12	0.87	0.89	0.89	0.90
13	0.84	0.85	0.85	0.82
14	0.84	0.84	0.84	0.80
15	0.80	0.80	0.80	0.76
16	0.89	0.89	0.85	0.87
17	0.86	0.86	0.87	0.83
18	0.96	0.96	0.97	0.95
19	0.63	0.63	0.64	0.62
20	0.61	0.61	0.61	0.57
21	0.55	0.55	0.56	0.55
22	0.72	0.73	0.73	0.70
23	0.87	0.86	0.87	0.86
24	0.96	0.96	0.96	0.95
25	0.87	0.88	0.88	0.85
26	0.69	0.70	0.70	0.69
27	0.65	0.67	0.66	0.65
28	0.48	0.49	0.49	0.48
29	0.34	0.35	0.35	0.33
30	0.40	0.41	0.41	0.37

* Boldface represents items that contribute to CRT scoring.

Table 11
Item P- values for Grade 5 Mathematics

Item	A	B	C	D
1	0.81	0.82	0.82	0.76
2	0.63	0.65	0.65	0.61
3	0.67	0.68	0.67	0.70
4	0.61	0.62	0.62	0.57
5	0.70	0.71	0.72	0.68
6	0.76	0.78	0.78	0.70
7	0.71	0.72	0.72	0.68
8	0.57	0.58	0.58	0.55
9	0.89	0.90	0.90	0.88
10	0.90	0.90	0.90	0.87
11	0.92	0.92	0.92	0.89
12	0.68	0.70	0.69	0.71
13	0.75	0.75	0.76	0.72
14	0.67	0.68	0.68	0.63
15	0.79	0.80	0.80	0.75
16	0.89	0.90	0.90	0.86
17	0.66	0.66	0.66	0.64
18	0.97	0.98	0.97	0.95
19	0.59	0.61	0.60	0.59
20	0.94	0.95	0.95	0.91
21	0.79	0.79	0.80	0.75
22	0.71	0.72	0.72	0.70
23	0.63	0.64	0.64	0.60
24	0.45	0.47	0.46	0.44
25	0.53	0.53	0.54	0.52
26	0.47	0.48	0.49	0.49
27	0.53	0.54	0.54	0.52
28	0.61	0.62	0.63	0.58
29	0.78	0.80	0.80	0.77
30	0.66	0.68	0.68	0.65
31	0.57	0.58	0.59	0.55
32	0.70	0.72	0.72	0.75

* Boldface represents items that contribute to CRT scoring.

Table 12
Item P- values for Grade 8 Mathematics

Item	A	B	C	D
1	0.82	0.81	0.81	0.79
2	0.53	0.53	0.53	0.50
3	0.33	0.32	0.33	0.29
4	0.87	0.86	0.87	0.83
5	0.78	0.77	0.78	0.74
6	0.57	0.57	0.57	0.58
7	0.64	0.65	0.65	0.62
8	0.84	0.83	0.84	0.82
9	0.67	0.67	0.66	0.64
10	0.88	0.88	0.88	0.86
11	0.89	0.89	0.89	0.86
12	0.79	0.79	0.79	0.77
13	0.89	0.88	0.89	0.85
14	0.78	0.79	0.78	0.74
15	0.64	0.64	0.63	0.61
16	0.86	0.86	0.87	0.83
17	0.72	0.72	0.72	0.69
18	0.57	0.57	0.57	0.55
19	0.66	0.65	0.66	0.61
20	0.30	0.30	0.29	0.30
21	0.70	0.70	0.71	0.65
22	0.65	0.65	0.65	0.64
23	0.77	0.76	0.77	0.72
24	0.52	0.51	0.52	0.46
25	0.64	0.63	0.64	0.61
26	0.43	0.43	0.42	0.41
27	0.41	0.41	0.41	0.48
28	0.56	0.56	0.56	0.53
29	0.53	0.53	0.54	0.51
30	0.41	0.41	0.41	0.41
31	0.46	0.45	0.45	0.47

* Boldface represents items that contribute to CRT scoring.

Distributions of Scale Scores by Ethnicity and Gender

Tables 13 and 14 show the mean scale score statistics, along with the appropriate standard deviations of the ethnicity and gender subgroups for each form. The results show how each subgroup performed compared to other students by test form. White students performed better than the other ethnicity groups. There was almost one standard deviation (40) difference between the score of white students and the other two ethnic groups across grades 5, 8 and 10. For grade 3, the difference was almost 30 scale score points. Note that *TerraNova* scores are vertically scaled so that scale score across grades can be compared. That is, the scale score difference in one grade implies the same size difference in other grades. Across grades, SDs of African American students were smaller than SDs of white and Hispanic students, and there was not much difference between African American and Hispanic students' SDs. For Reading Grade 10, female students performed slightly better than male students, and for Mathematics there was no difference in performance between female and male students. Across all grades and content areas, SDs of male students were larger than those of female students.

Table 13
NRT Scale Score Descriptive Statistics by Ethnicity

Grade	Test Form	White				African American				Hispanic			
		Mean	SD	MIN	MAX	Mean	SD	MIN	MAX	Mean	SD	MIN	MAX
3	A	622.16	44.80	385	740	590.04	38.73	385	740	592.17	42.14	385	740
	B	624.14	44.24	385	740	591.92	39.02	385	740	594.31	43.66	385	740
	C	623.57	44.17	385	740	591.05	38.49	385	740	596.86	38.82	385	740
	D	618.02	43.74	385	740	585.25	40.78	385	740	593.60	41.40	385	740
5	A	664.26	49.39	430	797	626.88	40.32	430	797	632.27	47.47	430	797
	B	666.60	48.37	430	797	628.62	40.34	430	797	638.12	45.47	430	797
	C	667.09	48.51	430	797	628.67	40.79	430	797	635.28	47.14	430	797
	D	659.33	49.82	430	797	620.70	44.25	430	797	632.01	48.77	430	797
8	A	710.67	45.68	502	872	674.58	40.88	502	872	681.27	45.15	502	872
	B	710.52	45.17	502	872	673.86	41.62	502	872	679.32	46.22	502	796
	C	711.16	44.39	502	872	675.20	40.54	502	872	681.71	43.80	502	872
	D	705.44	50.00	502	872	667.67	44.94	502	872	675.32	46.50	502	872
10	A	704.94	44.74	529	838	669.75	43.85	529	838	672.56	43.76	529	816
	B	705.37	43.88	529	838	671.27	44.08	529	838	671.72	48.96	529	816
	C	704.89	43.61	529	838	670.64	43.61	529	838	671.22	49.92	529	816
	D	705.05	44.68	529	838	672.58	42.41	529	838	674.52	48.59	529	838
	E	704.73	45.23	529	838	671.12	43.27	529	838	671.39	52.14	529	838
	F	705.25	45.51	529	838	671.42	42.97	529	838	675.92	47.77	529	816

Table 14
NRT Scale Score Descriptive Statistics by Gender

Grade Content	Test Form	Male				Female			
		Mean	SD	MIN	MAX	Mean	SD	MIN	MAX
MA3	A	609.09	47.25	385	740	607.11	43.56	385	740
	B	612.17	47.82	385	740	608.43	43.05	385	740
	C	610.82	46.71	385	740	608.59	42.91	385	740
	D	604.87	47.74	385	740	603.70	43.28	385	740
MA5	A	649.18	51.74	430	797	648.09	48.13	430	797
	B	651.89	51.09	430	797	649.81	47.38	430	797
	C	652.55	51.74	430	797	649.95	47.93	430	797
	D	643.26	53.90	430	797	644.30	49.29	430	797
MA8	A	698.92	50.89	502	872	694.93	45.41	502	872
	B	697.80	51.45	502	872	694.51	44.26	502	872
	C	698.57	49.79	502	872	695.42	43.57	502	872
	D	691.33	56.20	502	872	690.50	47.06	502	872
RD10	A	687.86	50.47	529	838	695.90	44.05	529	838
	B	688.23	49.21	529	838	695.71	45.23	529	838
	C	687.15	49.31	529	838	696.23	44.25	529	838
	D	689.00	48.93	529	838	696.46	44.61	529	838
	E	687.37	50.75	529	838	696.35	44.48	529	838
	F	687.32	49.81	529	838	697.48	44.58	529	838

Criterion Referenced Test (CRT)

CRT Test Design

CRT is composed of some TN items and augmented, custom selected response (SR) and constructed response (CR) items written to measure learning based on the Maryland content standards. Only Mathematics grade 8 contains gridded response (GR) items. Some TN items were selected to align Maryland content standards. “CON” in Table 15 shows the number of NRT items that contribute to CRT scores. For Reading grade 10, all items contribute to CRT scores. TN Form C was used for the NRT. Note that all items are field-tested items except for items from TN. As can be seen in the table, for Mathematics, there were some variations of the number of items and total score points according to test form. Table 16 shows the number of items by item function (i.e., whether or not they were treated as common or unique items). Common items were used for linking alternate forms. The number of unique items was different across forms within the same grade.

Table 15
The Number of Items by Item Type

Grade Content	Form	NRT		Custom			Total Score Point
		SR	CON	SR	CR	GR	
MA3	A	30	11	41	11	-	69
	B	30	11	39	14	-	71
	C	30	11	39	14	-	71
	D	30	11	41	10	-	67
MA5	A	32	13	36	16	-	74
	B	32	13	40	8	-	66
	C	32	13	37	14	-	72
	D	32	13	38	10	-	67
MA8	A	31	8	31	12	8	67
	B	31	8	35	9	6	63
	C	31	8	33	12	7	69
	D	31	8	33	10	7	65
RD10	A	34	34	15	4	-	61
	B	34	34	18	3	-	61
	C	34	34	15	4	-	61
	D	34	34	15	4	-	61
	E	34	34	15	4	-	61
	F	34	34	15	4	-	61

Table 16
The Number of Items by Function

Content Grade	Form	Total Items	Common Items	Unique Items	Total Score Points
MA3	A	63	39	24	69
	B	64	39	25	71
	C	64	39	25	71
	D	62	39	23	67
MA5	A	65	38	27	74
	B	61	38	23	66
	C	64	38	26	72
	D	61	38	23	67
MA8	A	59	25	34	67
	B	58	25	33	63
	C	60	25	35	69
	D	58	25	33	65
RD10	A	53	34	19	61
	B	55	34	21	61
	C	53	34	19	61
	D	53	34	19	61
	E	53	34	19	61
	F	53	34	19	61

Tables 17-20 present the number of items and score points by Maryland content standards. There are five standards for Mathematics across grades, and three standards for Reading Grade 10. The number of items and score points for each standard were similar across forms. Relatively large differences were found in Standard 07 for Grades 5 and 8.

Table 17
The Number of Items and Score Points by Maryland Content Standard for Grade 3

Standards	Form A					Form B				
	NRT	Custom		Total		NRT	Custom		Total	
	SR	SR	CR	Items	Points	SR	SR	CR	Items	Points
01	1	11	1	13	13	1	11	1	13	13
02/03	4	8	2	14	14	4	8	2	14	14
04/05	1	13	0	14	14	1	12	1	14	14
06	5	9	2	16	16	5	8	3	16	16
07	0	0	6	6	12	0	0	7	7	14
Sum	10	42	11	63	69	10	40	14	64	71

Standards	Form C					Form D				
	NRT	Custom		Total		NRT	Custom		Total	
	SR	SR	CR	Items	Points	SR	SR	CR	Items	Points
01	1	11	1	13	13	1	11	1	13	13
02/03	4	8	2	14	14	4	9	1	14	14
04/05	1	12	1	14	14	1	13	0	14	14
06	5	8	3	16	16	5	8	3	16	16
07	0	0	7	7	14	0	0	5	5	10
Sum	10	40	14	64	71	10	42	10	62	67

Table 18
The Number of Items and Score Points by Maryland Content Standard for Grade 5

Standards	Form A					Form B				
	NRT	Custom		Total		NRT	Custom		Total	
	SR	SR	CR	Items	Points	SR	SR	CR	Items	Points
01	2	11	2	15	15	2	11	2	15	15
02/03	4	8	2	14	14	4	9	1	14	14
04/05	2	9	2	13	13	2	11	0	13	13
06	5	8	2	15	15	5	9	1	15	15
07	0	0	8	8	17	0	0	4	4	9
Sum	10	39	16	65	74	10	43	8	61	66

Standards	Form C					Form D				
	NRT	Custom		Total		NRT	Custom		Total	
	SR	SR	CR	Items	Points	SR	SR	CR	Items	Points
01	2	11	2	15	15	2	12	1	15	15
02/03	4	9	1	14	14	4	7	2	13	13
04/05	2	9	2	13	13	2	10	1	13	13
06	5	8	2	15	15	5	9	1	15	15
07	0	0	7	7	15	0	0	5	5	11
Sum	10	40	14	64	72	10	41	10	61	67

Table 19
The Number of Items and Score Points by Maryland Content Standard for Grade 8

Standards	Form A						Form B					
	NRT	Custom			Total		NRT	Custom			Total	
	SR	SR	CR	GR	Items	Points	SR	SR	CR	GR	Items	Points
01	1	8	2	3	14	14	1	9	2	2	14	14
02/03	2	8	1	2	13	13	2	8	1	2	13	13
04/05	1	8	3	2	14	14	1	11	1	1	14	14
06	4	7	0	1	12	12	4	7	0	1	12	12
07	0	0	6	0	6	14	0	0	5	0	5	10
Sum	8	31	12	8	59	67	8	35	9	6	58	63

Standards	Form C						Form D					
	NRT	Custom			Total		NRT	Custom			Total	
	SR	SR	CR	GR	Items	Points	SR	SR	CR	GR	Items	Points
01	1	8	3	2	14	14	1	8	2	3	14	14
02/03	2	9	0	2	13	13	2	8	1	2	13	13
04/05	1	9	2	2	14	14	1	9	2	2	14	14
06	4	7	0	1	12	12	4	8	0	0	12	12
07	0	0	7	0	7	16	0	0	5	0	5	12
Sum	8	33	12	7	60	69	8	33	10	7	58	65

Table 20
The Number of Items and Score Points by Maryland Content Standard for Grade 10

Standards	Form A					Form B					Form C				
	NRT	Custom		Total		NRT	Custom		Total		NRT	Custom		Total	
	SR	SR	CR	Items	Points	SR	SR	CR	Items	Points	SR	SR	CR	Items	Points
G	13	4	0	17	17	13	4	0	17	17	13	4	0	17	17
I	10	6	2	18	22	10	9	1	20	22	10	6	2	18	22
L	11	5	2	18	22	11	5	2	18	22	11	5	2	18	22
Sum	34	15	4	53	61	34	18	3	55	61	34	15	4	53	61

Standards	Form D					Form E					Form F				
	NRT	Custom		Total		NRT	Custom		Total		NRT	Custom		Total	
	SR	SR	CR	Items	Points	SR	SR	CR	Items	Points	SR	SR	CR	Items	Points
G	13	4	0	17	17	13	4	0	17	17	13	4	0	17	17
I	10	6	2	18	22	10	6	2	18	22	10	6	2	18	22
L	11	5	2	18	22	11	5	2	18	22	11	5	2	18	22
Sum	34	15	4	53	61	34	15	4	53	61	34	15	4	53	61

Classical Item Analysis

Tables A 1- A 18 of Appendix A present item-level descriptive statistics for each of the operational test forms. These tables contain the following information: mean raw score, item p -value (P_VAL), item correlation with the total test score (R_ITT), and correlation between each item choice and the total test score (P_BIS1, etc.). The p -value for an SR item represents the proportion of students who answered the item correctly. For SR items, mean raw score and p -value are the same. The p -value for a CR item represents the proportion of the obtained mean raw score for the item to the number of points possible for the item. A point-biserial correlation between the item score and the total score on the test was also computed for the SR items. For the CR items, a Pearson correlation between the item score and the total score on the test was computed. For the item analysis, the studied item was excluded from the computation of the total score so as to not inflate the correlation artificially. This effect would be most noticeable for CR items worth several points. For the correct answer choice, the correlation between item choice and total score is the same as the point-biserial correlation of the item. A similar formula was applied to compute the correlation between each distracter and total score. In general, negative correlations are expected for all distracters when an item is good. Note that items were evaluated using the following three criteria: a p -value below 0.30 for SR items and 0.20 for CR items, and a point-biserial below 0.15. Bold face in the tables represents the value flagged using these criteria.

Rater Agreement

In order to monitor the reliability of the scoring of the constructed response (CR) items, all CR items were submitted to a second rater for scoring. Indices of rater agreement and consistency were obtained using two scores rated by two raters. Note that there were no CR items appeared in more than two forms. Tables 21-24 present the rater agreement statistics for the CR items across all grades. These tables provide the percentages of pairs of raters' scores that did not differ (i.e., perfect agreement) and the percentages of pairs of raters' scores that differed by one point (i.e., adjacent agreement) for all CR items over all test forms. For Mathematics, the maximum score point for part A of each CR item is 1, while that for part B of each CR item is more than one. Thus, percent of perfect agreement for part A was usually higher than that for part B. When rater agreement was defined as perfect plus adjacent agreement (i.e., percent agreement), there was relatively high rater agreement, which ranged from 86.2% to 99.1% for Grade 3, from 65.4% to 98.7% for Grade 5, from 63.3% to 94.7% for Grade 8, and from 76.8% to 91.1% for Grade 10. In addition to the percentage of agreement, the tables present the mean item score and item standard deviation of the item scores assigned by each rater group. The mean score points awarded by the two rater groups are very close. The product moment correlations between rater 1 and rater 2 were also produced to further study rater agreement.

Tables 25-29 show the distributions of CR items and GR items (or student produced response items). Only Mathematics Grade 8 contains GR items. Note that each CR item for Mathematics consists of two parts, A and B. Each A and B parts were considered independent items and separately scored. Reading CR items do not have an A or B question. In the tables, ITEMNO represents item number in test book. "Omit" denotes the number of student cases that did not respond to the item. Code B is an answer that cannot be scored. Each number, 0, 1, 2, 3, represents a score of 0, 1, 2, and 3, respectively. "%_omit" represents percent of omits.

Table 21
Rater Agreement for Mathematics Grade 3

Form	Item	N	Mean of G1	Mean of G2	SD of G1	SD of G2	Percent of Perfect Agreement	Percent of Adjacent Agreement	Percent of Agreement	Correlation
A	31A	16231	0.93	0.93	0.25	0.26	98.7	0.4	99.1	0.97
A	31B	15660	0.80	0.81	0.66	0.66	76.2	18.8	95.0	0.76
A	42A	16063	0.76	0.76	0.43	0.43	96.9	0.9	97.8	0.97
A	42B	15390	0.90	0.89	0.80	0.80	81.6	11.2	92.8	0.89
A	50A	16028	0.67	0.67	0.47	0.47	94.5	3.2	97.7	0.93
A	50B	15568	1.22	1.23	0.81	0.81	71.8	21.8	93.6	0.79
A	51A	15533	0.19	0.19	0.39	0.39	92.9	1.1	94.0	0.96
A	51B	14971	0.62	0.63	0.69	0.69	67.6	21.6	89.2	0.71
A	69A	16140	0.63	0.64	0.48	0.48	97.2	1.3	98.5	0.97
A	69B	15749	0.87	0.88	0.76	0.76	69.3	26.1	95.4	0.75
A	77A	15765	0.83	0.83	0.37	0.37	95.4	0.6	96.0	0.98
A	77B	15655	1.20	1.20	0.75	0.75	83.2	11.7	94.9	0.88
B	31A	15981	0.82	0.82	0.39	0.38	98.0	0.8	98.8	0.97
B	31B	15488	0.91	0.90	0.81	0.81	67.1	26.6	93.7	0.74
B	42A	15505	0.77	0.77	0.42	0.42	95.2	0.6	95.8	0.98
B	42B	15251	0.91	0.92	0.79	0.79	76.3	16.4	92.7	0.84
B	50A	15854	0.58	0.58	0.49	0.49	91.8	6.1	97.9	0.87
B	50B	15326	1.07	1.06	0.84	0.84	68.1	24.0	92.1	0.76
B	51A	15414	0.63	0.63	0.48	0.48	93.4	0.9	94.3	0.98
B	51B	14767	0.96	0.96	0.81	0.81	69.1	19.4	88.5	0.80
B	59A	15734	0.88	0.88	0.32	0.32	96.5	0.4	96.9	0.98
B	59B	15220	0.92	0.92	0.71	0.72	77.2	14.7	91.9	0.81
B	69A	15855	0.76	0.76	0.43	0.43	92.3	5.6	97.9	0.84
B	69B	15449	1.17	1.17	0.86	0.86	69.4	22.8	92.2	0.76

G1: Rater group 1 G2: Rater group 2

Table 21
Rater Agreement for Mathematics Grade 3 (cont.)

Form	Item	N	Mean of G1	Mean of G2	SD of G1	SD of G2	Percent of Perfect Agreement	Percent of Adjacent Agreement	Percent of Agreement	Correlation
B	77A	15798	0.71	0.71	0.45	0.45	95.8	1.8	97.6	0.96
B	77B	15450	1.25	1.24	0.70	0.70	74.6	19.6	94.2	0.76
C	31A	15750	0.74	0.74	0.44	0.44	97.1	1.1	98.2	0.97
C	31B	14633	0.79	0.79	0.63	0.63	72.7	16.4	89.1	0.76
C	42A	14839	0.26	0.26	0.44	0.44	89.2	2.0	91.2	0.94
C	42B	14405	0.69	0.68	0.74	0.73	61.6	24.6	86.2	0.66
C	50A	15720	0.59	0.59	0.49	0.49	93.5	4.5	98.0	0.90
C	50B	14692	1.07	1.07	0.87	0.87	68.3	20.0	88.3	0.80
C	51A	15755	0.91	0.91	0.28	0.28	97.8	0.4	98.2	0.97
C	51B	15205	0.95	0.96	0.76	0.75	68.7	24.1	92.8	0.74
C	59A	15714	0.88	0.88	0.32	0.32	97.2	0.5	97.7	0.97
C	59B	15153	0.95	0.95	0.70	0.70	75.7	16.9	92.6	0.79
C	69A	15750	0.62	0.62	0.48	0.48	96.2	2.0	98.2	0.96
C	69B	14994	0.87	0.87	0.78	0.78	66.7	24.6	91.3	0.76
C	77A	15796	0.87	0.87	0.34	0.34	97.2	1.3	98.5	0.94
C	77B	15306	0.63	0.63	0.58	0.58	81.8	12.8	94.6	0.79
D	31A	15246	0.43	0.43	0.49	0.50	91.4	4.7	96.1	0.90
D	31B	14790	0.99	0.99	0.87	0.88	69.2	20.5	89.7	0.78
D	50A	15186	0.56	0.56	0.50	0.50	93.7	1.8	95.5	0.96
D	50B	14461	1.12	1.12	0.90	0.89	77.4	11.1	88.5	0.89
D	51A	15146	0.40	0.40	0.49	0.49	93.9	1.4	95.3	0.97
D	51B	14805	0.80	0.78	0.69	0.70	72.2	20.2	92.4	0.76
D	69A	15591	0.91	0.91	0.29	0.29	95.7	2.8	98.5	0.82
D	69B	15084	0.66	0.66	0.68	0.68	72.4	21.3	93.7	0.72

G1: Rater group 1 G2: Rater group 2

Table 21
Rater Agreement for Mathematics Grade 3 (cont.)

Form	Item	N	Mean of G1	Mean of G2	SD of G1	SD of G2	Percent of Perfect Agreement	Percent of Adjacent Agreement	Percent of Agreement	Correlation
D	77A	15263	0.27	0.27	0.45	0.45	95.0	1.1	96.1	0.97
D	77B	14743	0.22	0.21	0.50	0.50	81.0	10.9	91.9	0.73

G1: Rater group 1 G2: Rater group 2

Table 22
Rater Agreement for Mathematics Grade 5

Form	Item	N	Mean of G1	Mean of G2	SD of G1	SD of G2	Percent of Perfect Agreement	Percent of Adjacent Agreement	Percent of Agreement	Correlation
A	33A	15987	0.49	0.49	0.50	0.50	77.5	14.3	91.8	0.69
A	33B	15763	1.33	1.32	1.17	1.17	60.7	25.0	85.7	0.81
A	44A	11818	0.73	0.73	0.44	0.44	63.6	1.8	65.4	0.92
A	44B	14083	0.83	0.83	0.80	0.80	63.6	15.6	79.2	0.79
A	52A	16282	0.22	0.22	0.42	0.41	92.8	1.6	94.4	0.95
A	52B	15759	0.46	0.47	0.72	0.72	73.8	16.3	90.1	0.79
A	53A	16409	0.25	0.25	0.43	0.43	92.8	2.0	94.8	0.95
A	53B	16096	0.43	0.43	0.74	0.74	75.6	15.4	91.0	0.79
A	54A	16131	0.30	0.30	0.46	0.46	90.2	2.6	92.8	0.93
A	54B	15833	0.58	0.60	0.78	0.80	65.9	22.7	88.6	0.73
A	55A	16460	0.38	0.38	0.48	0.48	91.4	3.9	95.3	0.91
A	55B	16289	0.58	0.59	0.70	0.70	74.2	18.7	92.9	0.75
A	59A	16282	0.57	0.57	0.50	0.50	85.7	8.5	94.2	0.82
A	59B	16113	0.92	0.91	0.83	0.83	73.4	18.3	91.7	0.81
A	68A	16940	0.90	0.90	0.29	0.29	96.4	2.0	98.4	0.88
A	68B	16637	0.44	0.45	0.64	0.64	68.4	26.0	94.4	0.57
B	33A	16145	0.49	0.49	0.50	0.50	94.0	0.8	94.8	0.98
B	33B	15673	1.15	1.15	1.20	1.19	74.4	15.8	90.2	0.91
B	55A	16395	0.35	0.35	0.48	0.48	95.5	0.8	96.3	0.98
B	55B	16278	0.82	0.83	0.82	0.82	80.7	14.5	95.2	0.88
B	59A	15934	0.48	0.49	0.50	0.50	84.0	9.0	93.0	0.81
B	59B	15761	0.56	0.59	0.71	0.71	66.5	23.5	90.0	0.64
B	68A	15360	0.59	0.59	0.49	0.49	89.3	0.9	90.2	0.98
B	68B	15057	0.53	0.53	0.56	0.56	79.7	8.4	88.1	0.85

G1: Rater group 1 G2: Rater group 2

Table 22
Rater Agreement for Mathematics Grade 5 (cont.)

Form	Item	N	Mean of G1	Mean of G2	SD of G1	SD of G2	Percent of Perfect Agreement	Percent of Adjacent Agreement	Percent of Agreement	Correlation
C	33A	16104	0.65	0.65	0.48	0.48	93.2	2.1	95.3	0.95
C	33B	15747	1.55	1.53	1.13	1.14	63.2	27.3	90.5	0.84
C	44A	15301	0.38	0.38	0.49	0.49	88.7	1.8	90.5	0.96
C	44B	14439	0.87	0.88	0.76	0.76	59.5	24.2	83.7	0.72
C	53A	16620	0.27	0.27	0.44	0.44	97.3	1.4	98.7	0.96
C	53B	16417	0.54	0.52	0.72	0.73	70.1	26.1	96.2	0.71
C	54A	16183	0.65	0.65	0.48	0.48	93.2	2.5	95.7	0.94
C	54B	16020	1.12	1.12	0.82	0.82	69.0	24.8	93.8	0.78
C	55A	16570	0.94	0.94	0.24	0.24	97.8	0.5	98.3	0.96
C	55B	16452	0.71	0.71	0.68	0.68	74.6	21.9	96.5	0.71
C	59A	14140	0.12	0.12	0.33	0.33	82.3	1.1	83.4	0.94
C	59B	13763	0.59	0.58	0.71	0.70	70.6	9.8	80.4	0.86
C	68A	16388	0.49	0.49	0.50	0.50	96.3	0.8	97.1	0.98
C	68B	16248	0.78	0.76	0.88	0.87	77.8	17.4	95.2	0.85
D	33A	15885	0.28	0.28	0.45	0.45	94.0	1.1	95.1	0.97
D	33B	15511	0.57	0.57	0.89	0.88	75.3	16.2	91.5	0.85
D	44A	15270	0.46	0.46	0.50	0.50	90.1	1.4	91.5	0.97
D	44B	14521	0.43	0.43	0.67	0.68	65.3	20.0	85.3	0.69
D	52A	15533	0.72	0.72	0.45	0.45	91.9	1.0	92.9	0.97
D	52B	15155	1.23	1.23	0.63	0.63	82.9	7.2	90.1	0.88
D	53A	16226	0.36	0.36	0.48	0.48	95.1	2.3	97.4	0.95
D	53B	16048	0.63	0.64	0.80	0.80	73.1	21.4	94.5	0.78
D	55A	15121	0.57	0.57	0.49	0.49	85.9	4.4	90.3	0.90
D	55B	14712	0.61	0.62	0.69	0.69	61.4	24.9	86.3	0.65

G1: Rater group 1 G2: Rater group 2

Table 23
Rater Agreement for Mathematics Grade 8

Form	Item	N	Mean of G1	Mean of G2	SD of G1	SD of G2	Percent of Perfect Agreement	Percent of Adjacent Agreement	Percent of Agreement	Correlation
A	32A	11363	0.27	0.27	0.45	0.44	67.2	2.3	69.5	0.92
A	32B	10557	1.01	1.01	1.07	1.07	45.6	17.7	63.3	0.84
A	46A	13735	0.24	0.24	0.43	0.43	84.1	1.2	85.3	0.96
A	46B	12615	0.37	0.38	0.69	0.69	66.9	10.2	77.1	0.83
A	52A	14441	0.17	0.17	0.38	0.38	89.2	0.6	89.8	0.98
A	52B	13916	0.51	0.51	0.74	0.75	71.3	14.8	86.1	0.83
A	57A	14283	0.64	0.64	0.48	0.48	86.3	2.7	89.0	0.94
A	57B	13741	1.30	1.30	0.76	0.76	64.6	19.9	84.5	0.76
A	58A	13622	0.54	0.54	0.50	0.50	83.4	1.4	84.8	0.97
A	58B	13488	1.24	1.24	0.85	0.84	70.3	12.6	82.9	0.87
A	64A	15007	0.38	0.38	0.48	0.48	77.2	16.2	93.4	0.63
A	64B	13566	0.72	0.73	0.74	0.74	59.5	23.7	83.2	0.72
B	46A	14975	0.47	0.47	0.50	0.50	78.7	15.4	94.1	0.67
B	46B	14167	0.78	0.78	0.69	0.68	67.4	20.9	88.3	0.73
B	51A	13901	0.37	0.37	0.48	0.48	84.9	2.3	87.2	0.94
B	51B	13305	0.57	0.57	0.69	0.69	66.8	16.1	82.9	0.78
B	52A	14033	0.21	0.21	0.41	0.41	87.5	0.8	88.3	0.97
B	52B	13285	0.60	0.60	0.64	0.64	68.3	14.6	82.9	0.76
B	58A	12132	0.16	0.16	0.37	0.37	74.4	1.1	75.5	0.95
B	58B	11255	0.48	0.48	0.67	0.67	57.0	12.0	69.0	0.78
B	76A	12663	0.46	0.46	0.50	0.50	78.8	0.7	79.5	0.98
B	76B	11872	0.59	0.60	0.70	0.70	61.5	12.1	73.6	0.82
C	32A	13753	0.53	0.53	0.50	0.50	85.4	1.1	86.5	0.97
C	32B	12971	1.32	1.32	1.16	1.16	66.1	13.3	79.4	0.90

G1: Rater group 1 G2: Rater group 2

Table 23
Rater Agreement for Mathematics Grade 8 (cont.)

Form	Item	N	Mean of G1	Mean of G2	SD of G1	SD of G2	Percent of Perfect Agreement	Percent of Adjacent Agreement	Percent of Agreement	Correlation
C	46A	14980	0.36	0.37	0.48	0.48	81.5	13.2	94.7	0.70
C	46B	14298	0.67	0.70	0.71	0.70	67.7	21.6	89.3	0.73
C	52A	14824	0.27	0.27	0.44	0.44	92.9	0.7	93.6	0.98
C	52B	14480	0.58	0.59	0.79	0.79	83.7	7.6	91.3	0.93
C	57A	13908	0.25	0.25	0.43	0.43	86.3	1.3	87.6	0.96
C	57B	13360	0.90	0.91	0.75	0.74	67.1	16.5	83.6	0.81
C	58A	13881	0.48	0.48	0.50	0.50	86.2	1.2	87.4	0.97
C	58B	13717	1.15	1.17	0.79	0.78	66.6	18.9	85.5	0.79
C	64A	13979	0.59	0.59	0.49	0.49	85.8	2.1	87.9	0.95
C	64B	13353	0.94	0.96	0.95	0.95	63.3	19.1	82.4	0.83
C	76A	11962	0.37	0.37	0.48	0.48	74.5	0.7	75.2	0.98
C	76B	11127	0.88	0.90	0.92	0.92	59.4	9.0	68.4	0.90
D	46A	14640	0.33	0.33	0.47	0.47	78.6	14.3	92.9	0.65
D	46B	13864	0.76	0.77	0.75	0.74	65.4	22.0	87.4	0.76
D	51A	13698	0.03	0.03	0.16	0.16	85.3	1.0	86.3	0.76
D	51B	13546	1.11	1.12	0.71	0.71	73.4	11.6	85.0	0.84
D	58A	13215	0.42	0.42	0.49	0.49	81.1	2.5	83.6	0.94
D	58B	12848	1.02	1.02	0.84	0.84	62.2	18.4	80.6	0.81
D	64A	12964	0.31	0.31	0.46	0.46	79.7	2.2	81.9	0.94
D	64B	12229	0.59	0.59	0.87	0.87	56.2	18.4	74.6	0.76
D	76A	12365	0.42	0.42	0.49	0.49	76.8	0.7	77.5	0.98
D	76B	11549	0.82	0.82	0.86	0.86	54.2	17.5	71.7	0.80

G1: Rater group 1 G2: Rater group 2

Table 24
Rater Agreement for Reading Grade 10

Form	Item	N	Mean of G1	Mean of G2	SD of G1	SD of G2	Percent of Perfect Agreement	Percent of Adjacent Agreement	Percent of Agreement	Correlation
A	67	9,366	1.88	1.88	0.80	0.80	57.6	33.5	91.1	0.68
A	71	8,862	1.81	1.80	0.81	0.80	53.9	31.9	85.8	0.67
A	75	9,040	1.96	1.96	0.80	0.80	55.6	31.8	87.4	0.67
A	79	9,156	1.71	1.70	0.59	0.61	67.4	22.3	89.7	0.63
A	83	9,019	1.68	1.69	0.91	0.92	55.9	31.8	87.7	0.76
A	86	8,194	1.44	1.45	0.85	0.85	45.4	32.2	77.6	0.63
B	63	8,571	1.51	1.47	0.80	0.80	50.2	32.0	82.2	0.63
B	68	9,111	1.65	1.65	0.79	0.81	61.9	27.0	88.9	0.73
B	71	8,059	1.47	1.46	0.86	0.87	48.7	29.0	77.7	0.71
B	80	9,018	1.91	1.92	0.65	0.66	58.5	29.7	88.2	0.56
B	84	8,632	1.60	1.60	0.74	0.74	53.4	30.0	83.4	0.62
B	95	8,132	1.57	1.57	0.80	0.80	49.1	29.3	78.4	0.65
C	64	9,107	1.77	1.78	0.73	0.73	60.9	29.0	89.9	0.65
C	70	8,720	1.65	1.67	0.78	0.77	52.9	32.6	85.5	0.63
C	73	8,376	1.72	1.73	0.75	0.74	56.0	26.1	82.1	0.66
C	84	8,621	1.45	1.45	0.82	0.82	54.8	30.1	84.9	0.70
C	89	8,417	1.55	1.55	0.74	0.74	51.0	31.5	82.5	0.60
C	93	7,917	1.67	1.67	0.80	0.80	48.4	28.7	77.1	0.66
D	63	9,049	1.64	1.66	0.68	0.69	58.2	31.2	89.4	0.58
D	66	8,536	1.56	1.57	0.76	0.77	53.1	31.0	84.1	0.64
D	74	8,576	1.79	1.79	0.75	0.75	56.0	29.3	85.3	0.68
D	80	8,498	1.49	1.49	0.76	0.75	52.0	31.3	83.3	0.61
D	88	8,529	1.58	1.58	0.74	0.74	51.9	31.8	83.7	0.59
D	95	8,318	1.54	1.55	0.76	0.76	50.7	30.9	81.5	0.60

G1: Rater group 1

G2: Rater group 2

Table 24
Rater Agreement for Reading Grade 10 (cont.)

Form	Item	N	Mean of G1	Mean of G2	SD of G1	SD of G2	Percent of Perfect Agreement	Percent of Adjacent Agreement	Percent of Agreement	Correlation
E	65	8,688	1.46	1.47	0.71	0.71	57.2	29.2	86.4	0.62
E	70	8,195	1.40	1.39	0.77	0.76	54.5	27.1	81.7	0.69
E	73	7,950	1.30	1.31	0.72	0.71	51.4	28.0	79.3	0.63
E	79	8,583	1.72	1.73	0.70	0.70	57.0	28.7	85.7	0.63
E	83	8,517	1.63	1.63	0.68	0.69	56.0	29.2	85.1	0.60
E	89	7,998	1.57	1.56	0.70	0.71	51.9	27.9	79.7	0.61
E	94	7,963	1.68	1.68	0.72	0.72	53.6	25.7	79.2	0.64
F	67	8,262	1.61	1.61	0.78	0.77	48.0	32.8	80.7	0.59
F	70	8,172	1.63	1.63	0.76	0.75	52.1	28.8	80.9	0.65
F	74	7,812	1.54	1.52	0.76	0.75	48.7	28.1	76.8	0.61
F	77	8,079	1.48	1.49	0.80	0.81	51.4	28.5	79.9	0.67
F	88	8,268	1.43	1.43	0.71	0.71	53.4	29.0	82.4	0.61
F	91	8,077	1.57	1.58	0.78	0.78	50.9	29.1	80.0	0.64

G1: Rater group 1

G2: Rater group 2

Table 25
The CR Item Distribution for Mathematics Grade 3

FORM	ITEMNO	N	OMIT	Code B	0	1	2	% OMIT
A	31 A	16379	131	15	1103	15130		0.8
	31 B	16379	516	229	4018	9067	2549	3.2
	42 A	16379	253	40	3751	12335		1.5
	42 B	16379	678	365	5106	5779	4451	4.1
	50 A	16379	286	72	5020	11001		1.7
	50 B	16379	553	281	2849	4491	8205	3.4
	51 A	16379	639	231	12468	3041		3.9
	51 B	16379	983	492	6179	6341	2384	6.0
	69 A	16379	213	21	5791	10354		1.3
	69 B	16379	438	206	4399	6757	4579	2.7
	77 A	16379	600	8	2582	13189		3.7
	77 B	16379	487	250	2523	6465	6654	3.0
B	31 A	16162	141	33	2827	13161		0.9
	31 B	16162	447	236	4562	5687	5230	2.8
	42 A	16162	641	17	3466	12038		4.0
	42 B	16162	546	430	4531	6048	4607	3.4
	50 A	16162	237	72	6154	9699		1.5
	50 B	16162	531	322	3776	4687	6846	3.3
	51 A	16162	366	501	5496	9799		2.3
	51 B	16162	595	963	4286	4883	5435	3.7
	59 A	16162	154	295	1793	13920		1.0
	59 B	16162	318	775	3785	7390	3894	2.0
	69 A	16162	239	66	3331	12526		1.5
	69 B	16162	438	249	3909	3225	8341	2.7
B	77 A	16162	270	45	4455	11392		1.7
	77 B	16162	463	236	1777	6461	7225	2.9
C	31 A	16017	192	71	4042	11712		1.2
	31 B	16017	578	883	3716	8805	2035	3.6
	42 A	16017	690	569	10756	4002		4.3
	42 B	16017	1011	679	5641	5521	3165	6.3
	50 A	16017	250	43	6110	9614		1.6
	50 B	16017	593	707	3959	4048	6710	3.7
	51 A	16017	198	52	1301	14466		1.2
	51 B	16017	392	500	3547	6708	4870	2.4
	59 A	16017	157	137	1820	13903		1.0
	59 B	16017	323	595	3431	7562	4106	2.0
	69 A	16017	217	47	5764	9989		1.4
	69 B	16017	424	631	4613	5653	4696	2.6
C	77 A	16017	180	39	2014	13784		1.1
	77 B	16017	355	358	5611	8710	983	2.2

Table 25
The CR Item Distribution for Mathematics Grade 3 (cont.)

FORM	ITEMNO	N	OMIT	Code B	0	1	2	%_OMIT
	31A	15811	532	35	8338	6906	.	3.4
	31B	15811	648	322	4652	4008	6181	4.1
	50A	15811	474	145	6587	8605	.	3.0
	50B	15811	707	635	4480	2940	7049	4.5
	51A	15811	534	127	9005	6145	.	3.4
	51B	15811	687	395	4181	7771	2777	4.3
	69A	15811	187	25	1188	14411	.	1.2
	69B	15811	448	261	5852	6850	2400	2.8
	77A	15811	454	67	11026	4264	.	2.9
D	77B	15811	756	353	11390	2555	757	4.8

Table 26
The CR Item Distribution for Mathematics Grade 5

FORM	ITEMNO	N	OMIT	Code B	0	1	2	3	%_OMIT
A	33A	17200	985	196	6960	9059	.	.	5.7
	33B	17200	1251	195	4990	2781	3797	4186	7.3
	44A	17200	5355	61	2958	8826	.	.	31.1
	44B	17200	2753	345	5235	4717	4150	.	16.0
	52A	17200	837	64	12560	3739	.	.	4.9
	52B	17200	1217	183	9395	4184	2221	.	7.1
	53A	17200	614	148	12116	4322	.	.	3.6
	53B	17200	823	270	10672	2618	2817	.	4.8
	54A	17200	841	186	11037	5136	.	.	4.9
	54B	17200	1047	322	8139	4058	3634	.	6.1
	55A	17200	627	90	9932	6551	.	.	3.6
	55B	17200	741	150	7851	5821	2637	.	4.3
	59A	17200	758	113	6325	10004	.	.	4.4
	59B	17200	866	186	5627	4745	5776	.	5.0
	68A	17200	237	17	1441	15505	.	.	1.4
68B	17200	467	86	8865	5998	1784	.	2.7	
B	33A	16966	781	16	8231	7938	.	.	4.6
	33B	16966	1100	162	6847	1735	3787	3335	6.5
	55A	16966	494	39	10636	5797	.	.	2.9
	55B	16966	563	100	6317	5285	4701	.	3.3
	59A	16966	925	10	7453	8578	.	.	5.5
	59B	16966	1015	163	7391	5796	2601	.	6.0
	68A	16966	1485	98	6178	9205	.	.	8.8
	68B	16966	1674	191	6978	7554	569	.	9.9
C	33A	16838	610	73	5552	10603	.	.	3.6
	33B	16838	949	117	3677	2252	5152	4691	5.6
	44A	16838	1439	59	9349	5991	.	.	8.5
	44B	16838	2046	294	4029	6183	4286	.	12.2
	53A	16838	182	26	12069	4561	.	.	1.1
	53B	16838	332	75	8489	5014	2928	.	2.0
	54A	16838	550	62	5479	10747	.	.	3.3
	54B	16838	629	148	3821	4416	7824	.	3.7
	55A	16838	256	6	971	15605	.	.	1.5
	55B	16838	290	67	5713	8055	2713	.	1.7
	59A	16838	2380	280	12370	1808	.	.	14.1
	59B	16838	2588	451	6729	5222	1848	.	15.4
	68A	16838	389	38	8271	8140	.	.	2.3
68B	16838	497	84	7925	2718	5614	.	3.0	

Table 26
The CR Item Distribution for Mathematics Grade 5 (cont.)

FORM	ITEMNO	N	OMIT	Code B	0	1	2	3	%_OMIT
	33A	16611	578	154	11399	4480.	.	.	3.5
	33B	16611	901	190	9616	2495	2584	825	5.4
	44A	16611	1204	129	8154	7124.	.	.	7.2
	44B	16611	1768	328	8552	3956	2007.	.	10.6
	52A	16611	958	83	4266	11304.	.	.	5.8
	52B	16611	1229	189	1430	8213	5550.	.	7.4
	53A	16611	271	92	10228	6020.	.	.	1.6
	53B	16611	376	188	8011	4042	3994.	.	2.3
	55A	16611	1214	232	6129	9036.	.	.	7.3
D	55B	16611	1500	314	5851	6774	2172.	.	9.0

Table 27
The CR Item Distribution for Mathematics Grade 8

FORM	ITEMNO	N	OMIT	IB	I0	I1	I2	I3	%_OMIT	
A	32A	15980	4330	139	8236	3275	.	.	27.1	
	32B	15980	4665	753	4009	2792	1997	1764	29.2	
	46A	15980	2048	149	10406	3377	.	.	12.8	
	46B	15980	2968	441	8952	1667	1952	.	18.6	
	52A	15980	1400	73	11934	2573	.	.	8.8	
	52B	15980	1814	208	8077	3435	2446	.	11.4	
	57A	15980	1565	98	4999	9318	.	.	9.8	
	57B	15979	2004	246	1747	4472	7510	.	12.5	
	58A	15980	2198	160	6092	7530	.	.	13.8	
	58B	15980	2223	258	3285	2648	7566	.	13.9	
	64A	15980	923	48	8066	6943	.	.	5.8	
	64B	15980	2131	285	4519	6671	2019	355	13.3	
	B	46A	15845	788	25	6722	8310	.	.	5.0
		46B	15845	1428	183	3967	7812	2455	.	9.0
51A		15845	1785	146	8580	5334	.	.	11.3	
51B		15845	2191	339	6611	4514	2190	.	13.8	
52A		15845	1692	107	10986	3060	.	.	10.7	
52B		15845	2287	284	5658	6101	1515	.	14.4	
58A		15845	3622	67	10118	2038	.	.	22.9	
58B		15845	3690	878	6308	3640	1329	.	23.3	
76A		15845	2993	170	6791	5891	.	.	18.9	
76B		15845	3466	519	5603	4437	1820	.	21.9	
C	32A	15777	1837	174	6375	7391	.	.	11.6	
	32B	15777	2485	304	4408	1579	4371	2630	15.8	
	46A	15777	762	22	8519	6474	.	.	4.8	
	46B	15777	1331	146	5144	6798	2358	.	8.4	
	52A	15777	876	42	10863	3996	.	.	5.6	
	52B	15777	1184	90	8373	3209	2921	.	7.5	
	57A	15777	1699	145	10390	3543	.	.	10.8	
	57B	15777	2128	281	3321	6682	3365	.	13.5	
	58A	15777	1665	219	7170	6723	.	.	10.6	
	58B	15777	1775	273	2309	5415	6005	.	11.3	
	64A	15777	1635	145	5585	8412	.	.	10.4	
	64B	15777	2148	264	4374	5464	1882	1645	13.6	
	76A	15776	3477	349	7435	4515	.	.	22.0	
	76B	15777	4002	640	4908	1800	4427	.	25.4	
76B	15658	3655	458	4731	2799	4015	.	23.3		

Table 27
The CR Item Distribution for Mathematics Grade 8 (cont.)

FORM	ITEMNO	N	OMIT	IB	I0	I1	I2	I3	%_OMIT
	46 A	15658	939	18	8739	5962	.	.	6.0
	46 B	15658	1596	191	4558	6287	3026	.	10.2
	51 A	15658	1980	33	13214	431	.	.	12.6
	51 B	15658	1831	264	2156	6992	4158	257	11.7
	58 A	15658	2112	333	7412	5801	.	.	13.5
	58 B	15658	2419	377	3979	3172	5711	.	15.4
	64 A	15658	2373	255	8777	4253	.	.	15.2
	64 B	15658	2911	496	6629	3280	1667	675	18.6
	76 A	15658	2846	423	7178	5211	.	.	18.2
D	76 B	15658	3655	458	4731	2799	4015	.	23.3

Table 28
The Gridded Response Item Distribution for Mathematics Grade 8

FORM	ITEMNO	N	OMIT	0	1	% OMIT
A	47	15980	1219	13087	1674	7.6
	48	15980	814	9657	5509	5.1
	49	15980	1674	8349	5957	10.5
	50	15980	1474	10150	4356	9.2
	53	15980	719	8328	6933	4.5
	54	15980	1021	10249	4710	6.4
	55	15980	1266	11842	2872	7.9
	56	15980	2224	11691	2065	13.9
	65	15980	1469	5537	8974	9.2
	66	15980	1324	10572	4084	8.3
	67	15980	1349	7119	7512	8.4
B	47	15845	550	5305	9990	3.5
	48	15845	660	4855	10330	4.2
	49	15845	1108	13172	1565	7.0
	50	15845	1662	7713	6470	10.5
	53	15845	718	8254	6873	4.5
	54	15845	645	6097	9103	4.1
	55	15845	901	10410	4534	5.7
	56	15845	2128	12290	1427	13.4
	65	15845	975	7731	7139	6.2
	66	15845	1059	11602	3184	6.7
	67	15845	1159	7547	7139	7.3
C	47	15777	1010	13769	998	6.4
	48	15777	742	2935	12100	4.7
	49	15777	894	9103	5780	5.7
	50	15777	1384	8804	5589	8.8
	53	15777	719	14365	693	4.6
	54	15777	1339	13435	1003	8.5
	55	15777	963	11810	3004	6.1
	56	15777	1740	10840	3197	11.0
	65	15777	1550	11204	3023	9.8
	66	15777	937	12324	2516	5.9
	67	15777	3124	11355	1298	19.8
C	68	15777	2178	9494	4105	13.8
	68	15658	1846	11962	1850	11.8

Table 28
The GR Item Distribution for Mathematics Grade 8 (Continued)

FORM	ITEMNO	N	OMIT	0	1	%_OMIT
	47	15658	1798	9556	4304	11.5
	48	15658	700	6437	8521	4.5
	49	15658	1252	5564	8842	8.0
	50	15658	1716	8121	5821	11.0
	53	15658	699	6321	8638	4.5
	54	15658	1179	13132	1347	7.5
	55	15658	1085	11498	3075	6.9
	56	15658	1806	9972	3880	11.5
	65	15658	1226	9579	4853	7.8
	66	15658	1008	6944	7706	6.4
	67	15658	1413	6937	7308	9.0
D	68	15658	1846	11962	1850	11.8

Table 29
The Constructed Response Item Distribution for Reading Grade 10

FORM	ITEMNO	N	OMIT	Code B	0	1	2	3	%_Omit
A	67	9658	659	97	201	1835	4236	2630	6.8
	71	9658	1110	150	223	1980	3978	2217	11.5
	75	9658	954	118	145	1593	3902	2946	9.9
	79	9658	870	90	113	1992	5934	659	9.0
	83	9658	989	113	568	2446	3275	2267	10.2
	86	9658	1694	206	562	2969	2998	1229	17.5
B	63	9595	1287	197	342	3237	3287	1245	13.4
	68	9595	856	101	349	2927	3596	1766	8.9
	71	9595	1729	240	369	3508	2340	1409	18.0
	80	9595	952	86	60	1254	5251	1992	9.9
	84	9595	1238	131	118	3182	3560	1366	12.9
	95	9595	1637	244	198	3125	2915	1476	17.1
C	64	9493	776	71	121	2253	4498	1774	8.2
	70	9493	1116	116	215	2534	3958	1554	11.8
	73	9493	1380	154	278	1866	4470	1345	14.5
	84	9493	1161	126	662	3002	3476	1066	12.2
	89	9493	1329	157	240	2768	4023	976	14.0
	93	9493	1758	208	336	1957	3884	1350	18.5
D	63	9445	754	101	53	2844	4400	1293	8.0
	66	9445	1175	184	247	2866	3825	1148	12.4
	74	9445	1164	158	140	2091	3992	1900	12.3
	80	9445	1269	121	256	3283	3480	1036	13.4
	88	9445	1261	98	137	3026	3657	1266	13.4
	95	9445	1420	146	176	3115	3372	1216	15.0
E	65	9870	1007	153	181	3869	3660	1000	10.2
	70	9870	1406	250	436	3572	3387	819	14.2
	73	9870	1644	255	349	4060	2959	603	16.7
	79	9870	1088	173	150	2143	4848	1468	11.0
	83	9870	1193	124	100	2696	4617	1140	12.1
	89	9870	1648	191	126	2939	3930	1036	16.7
	94	9870	1699	175	97	2492	4045	1362	17.2
F	67	9359	1202	252	189	2643	3727	1346	12.8
	70	9359	1307	226	176	2646	3691	1313	14.0
	74	9359	1660	243	125	3185	2998	1148	17.7
	77	9359	1462	221	287	3452	2699	1238	15.6
	88	9359	1333	170	155	3749	3126	826	14.2
	91	9359	1507	190	178	3010	3156	1318	16.1

Differential Item Functioning (DIF)

An item flagged for differential item functioning (DIF) is more difficult for a particular group of students than would be expected based on their total test scores, compared to the performance of the other group. The groups compared in the DIF analyses were female and male students, and African-American, Hispanic, and white students. Male and white were reference groups.

The statistical procedures used by CTB to identify items thought to exhibit substantial DIF are the same procedures used by the Educational Testing Service (ETS) and the National Assessment of Educational Progress (NAEP). For SR items, the Mantel-Haenszel (c_{MH}^2) statistic was used to evaluate potential DIF items. In this procedure, the “C” - level DIF items are flagged, where a “C” item indicates a large amount of DIF and has an absolute value of the Mantel-Haenszel (Δ_{MH}) that is significantly greater than zero (at the .05 level) and $|\Delta_{MH}|$ exceeds 1.5. Also, the “B” - level DIF items are flagged, where a “B” item indicates DIF and has an absolute value of the Mantel-Haenszel (Δ_{MH}) that is significantly greater than zero (at the .05 level) and $-1.5 \leq \Delta_{MH} \leq -1$ or $1 \leq \Delta_{MH} \leq 1.5$ (Zwick, Donoghue, & Grima, 1993).

For the CR items, an effect size (ES) statistic based on Mantel c^2 was used. ES is obtained by dividing the standardized mean difference (SMD) statistics by the standard deviation of the item. A detailed description of these procedures can be found in Zwick, et al., (1993).

Tentative flagging criteria followed the same rules as are used in NAEP:

BB: If the Mantel statistic is significant ($p < .05$) and the $|ES|$ is between 0.17 and 0.25

CC: If the Mantel statistic is significant ($p < .05$) and the $|ES| \geq 0.25$

Tables 30-33 show items flagged based on the above criteria. In the column “focal”, number 2 represents African American and number 4 represents Hispanic. Positive values in the column of “DIF” means that the item favors the focal group, while negative values imply that the item disadvantages the focal group.

Table 30
DIF for Mathematics Grade 3

ITEMTYPE	FORM	ITEMNO	DIF	BIATYPE	FOCAL	ES	DELTA	N_REF	N_FOC
CR	A	50A	-BB	Eth	2	-0.23		8052	6188
CR	B	77A	-BB	Eth	4	-0.21		7944	1031
CR	C	59B	-BB	Eth	4	-0.18		7844	984
CR	D	69B	+BB	Gen	2	0.19		8144	7568
SR	A	10	-B	Eth	2		-1.09	8052	6188
SR	A	46	-B	Eth	2		-1.05	8052	6188
SR	A	86	-B	Eth	4		-1.06	8052	1112
SR	A	94	-B	Eth	4		-1.05	8052	1112
SR	A	2	+B	Eth	2		1.04	8052	6188
SR	A	74	+B	Eth	4		1.13	8052	1112
SR	A	88	+B	Eth	2		1.41	8052	6188
SR	A	88	+B	Eth	4		1.24	8052	1112
SR	A	91	+B	Eth	2		1.04	8052	6188
SR	A	105	+B	Eth	4		1.03	8052	1112
SR	A	10	-B	Gen	2		-1.13	8449	7824
SR	A	68	+B	Gen	2		1.11	8449	7824
SR	A	87	+B	Gen	2		1.04	8449	7824
SR	B	10	-B	Eth	2		-1.16	7944	6117
SR	B	10	-B	Eth	4		-1.08	7944	1031
SR	B	46	-B	Eth	2		-1.06	7944	6117
SR	B	2	+B	Eth	2		1.22	7944	6117
SR	B	10	-B	Gen	2		-1.07	8239	7806
SR	B	84	-B	Gen	2		-1.04	8239	7806
SR	C	10	-B	Eth	2		-1.07	7844	6143
SR	C	92	-B	Eth	2		-1.34	7844	6143
SR	C	36	+B	Eth	4		1.38	7844	984
SR	C	103	+B	Eth	4		1.04	7844	984
SR	C	12	+C	Eth	4		1.77	7844	984
SR	C	73	-B	Gen	2		-1.02	8214	7708
SR	C	86	-B	Gen	2		-1.03	8214	7708
SR	C	47	+B	Gen	2		1.02	8214	7708
SR	C	83	+B	Gen	2		1.04	8214	7708
SR	C	89	+B	Gen	2		1.11	8214	7708
SR	D	20	-C	Eth	2		-1.79	7751	6065
SR	D	6	-B	Eth	2		-1.31	7751	6065
SR	D	46	-B	Eth	2		-1.12	7751	6065
SR	D	46	-B	Eth	4		-1.16	7751	976
SR	D	87	-B	Eth	2		-1.14	7751	6065
SR	D	14	+B	Eth	2		1.16	7751	6065
SR	D	23	+B	Eth	4		1.32	7751	976
SR	D	81	+B	Eth	2		1.11	7751	6065
SR	D	81	+B	Eth	4		1.14	7751	976
SR	D	73	-B	Gen	2		-1.00	8144	7568
SR	D	68	+B	Gen	2		1.02	8144	7568
SR	D	101	+B	Gen	2		1.07	8144	7568

Table 31
DIF for Mathematics Grade 5

ITEMTYPE	FORM	ITEMNO	DIF	BIATYPE	FOCAL	ES	DELTA	N_REF	N_FOC
CR	A	44A	-CC	Eth	4	-0.27		8663	1000
CR	A	44B	-BB	Eth	4	-0.23		8663	1000
CR	A	68A	-BB	Eth	4	-0.19		8663	1000
CR	A	68B	+BB	Gen	2	0.23		9028	8092
CR	B	59B	+BB	Gen	2	0.18		8657	8228
CR	C	54B	-BB	Eth	2	-0.19		8546	6356
CR	C	54B	-BB	Eth	4	-0.19		8546	952
CR	C	59B	+BB	Eth	2	0.19		8546	6356
CR	D	52B	-BB	Eth	2	-0.20		8347	6243
CR	D	52B	-BB	Eth	4	-0.23		8347	985
SR	A	26	-B	Eth	2		-1.39	8663	6541
SR	A	70	-B	Eth	4		-1.28	8663	1000
SR	A	80	-B	Eth	2		-1.10	8663	6541
SR	A	34	+B	Eth	4		1.42	8663	1000
SR	A	69	+B	Eth	4		1.13	8663	1000
SR	A	39	-B	Gen	2		-1.31	9028	8092
SR	B	26	-C	Eth	2		-1.51	8544	6452
SR	B	70	-B	Eth	4		-1.20	8544	974
SR	B	69	+B	Eth	2		1.08	8544	6452
SR	B	39	-B	Gen	2		-1.28	8657	8228
SR	B	91	-B	Gen	2		-1.48	8657	8228
SR	C	26	-C	Eth	2		-1.55	8546	6356
SR	C	95	-C	Eth	2		-1.59	8546	6356
SR	C	70	-B	Eth	4		-1.02	8546	952
SR	C	81	-B	Eth	2		-1.21	8546	6356
SR	C	95	-B	Eth	4		-1.09	8546	952
SR	C	69	+B	Eth	2		1.11	8546	6356
SR	C	79	+B	Eth	2		1.05	8546	6356
SR	C	104	+B	Eth	4		1.04	8546	952
SR	C	39	-B	Gen	2		-1.24	8506	8242
SR	C	88	-B	Gen	2		-1.06	8506	8242
SR	C	105	-B	Gen	2		-1.15	8506	8242
SR	D	14	-B	Eth	4		-1.12	8347	985
SR	D	70	-B	Eth	4		-1.31	8347	985
SR	D	102	-B	Eth	2		-1.38	8347	6243
SR	D	39	-B	Gen	2		-1.47	8408	8117

Table 32
DIF for Mathematics Grade 8

ITEMTYPE	FORM	ITEMNO	DIF	BIATYPE	FOCAL	ES	DELTA	N_REF	N_FOC
CR	A	57B	-CC	Eth	4	-0.25		8737	848
CR	C	64A	-CC	Eth	4	-0.26		8621	884
CR	A	57A	-BB	Eth	4	-0.23		8737	848
CR	C	57B	-BB	Eth	4	-0.24		8621	884
CR	A	57B	+BB	Gen	2	0.19		8137	7783
CR	B	46B	+BB	Gen	2	0.22		8182	7603
CR	B	58B	+BB	Gen	2	0.20		8182	7603
CR	B	48	-CC	Eth	4	-0.26		8708	877
CR	B	55	-CC	Eth	2	-0.32		8708	5311
CR	D	53	-CC	Eth	4	-0.29		8625	821
CR	B	54	-BB	Eth	4	-0.20		8708	877
CR	B	55	-BB	Eth	4	-0.20		8708	877
CR	B	55	-BB	Gen	2	-0.20		8182	7603
SR	A	16	-B	Eth	2		-1.02	8737	5346
SR	A	43	-B	Eth	2		-1.05	8737	5346
SR	A	95	-B	Eth	2		-1.02	8737	5346
SR	A	83	+B	Eth	4		1.04	8737	848
SR	A	87	+B	Eth	2		1.01	8737	5346
SR	A	26	-B	Gen	2		-1.10	8137	7783
SR	B	16	-B	Eth	2		-1.12	8708	5311
SR	B	77	+B	Eth	2		1.11	8708	5311
SR	B	26	-B	Gen	2		-1.23	8182	7603
SR	B	104	-B	Gen	2		-1.06	8182	7603
SR	B	13	+B	Gen	2		1.04	8182	7603
SR	C	16	-B	Eth	2		-1.21	8621	5310
SR	C	43	-B	Eth	2		-1.01	8621	5310
SR	C	83	-B	Eth	2		-1.06	8621	5310
SR	C	16	-B	Gen	2		-1.13	8018	7694
SR	C	26	-B	Gen	2		-1.19	8018	7694
SR	C	42	-B	Gen	2		-1.04	8018	7694
SR	C	90	-B	Gen	2		-1.24	8018	7694
SR	C	96	-B	Gen	2		-1.02	8018	7694
SR	D	3	+B	Eth	4		1.07	8625	821
SR	D	5	+B	Eth	4		1.12	8625	821
SR	D	15	-B	Gen	2		-1.04	7901	7690
SR	D	22	-B	Gen	2		-1.03	7901	7690
SR	D	102	-B	Gen	2		-1.09	7901	7690
SR	D	89	+B	Gen	2		1.29	7901	7690

Table 33
DIF for Reading Grade 10

ITEMTYPE	FORM	ITEMNO	DIF	BIATYPE	FOCAL	ES	DELTA	N_REF	N_FOC
CR	A	67	+BB	Gen	2	0.21		4769	4820
CR	A	71	+BB	Gen	2	0.24		4769	4820
CR	A	75	+BB	Gen	2	0.23		4769	4820
CR	A	79	+BB	Gen	2	0.23		4769	4820
CR	A	83	+BB	Gen	2	0.18		4769	4820
CR	B	80	+CC	Gen	2	0.25		4829	4705
CR	B	63	+BB	Gen	2	0.25		4829	4705
CR	B	68	+BB	Gen	2	0.22		4829	4705
CR	B	71	+BB	Gen	2	0.23		4829	4705
CR	B	95	+BB	Gen	2	0.18		4829	4705
CR	C	84	+CC	Gen	2	0.25		4803	4639
CR	C	64	+BB	Gen	2	0.23		4803	4639
CR	C	70	+BB	Gen	2	0.23		4803	4639
CR	C	89	+BB	Gen	2	0.23		4803	4639
CR	C	93	+BB	Gen	2	0.18		4803	4639
CR	D	63	+BB	Eth	2	0.17		5099	3308
CR	D	63	+CC	Gen	2	0.26		4659	4723
CR	D	74	+CC	Gen	2	0.26		4659	4723
CR	D	80	+CC	Gen	2	0.26		4659	4723
CR	D	66	+BB	Gen	2	0.22		4659	4723
CR	D	88	+BB	Gen	2	0.20		4659	4723
CR	D	95	+BB	Gen	2	0.20		4659	4723
CR	E	65	+BB	Gen	2	0.18		4846	4947
CR	E	70	+BB	Gen	2	0.17		4846	4947
CR	E	94	+BB	Gen	2	0.18		4846	4947
CR	F	77	+BB	Gen	2	0.21		4715	4580
CR	F	88	+BB	Gen	2	0.22		4715	4580
SR	A	69	-C	Eth	2		-1.58	5260	3331
SR	A	3	-B	Eth	2		-1.11	5260	3331
SR	A	3	-B	Eth	4		-1.09	5260	447
SR	A	18	-B	Eth	4		-1.12	5260	447
SR	A	90	-B	Eth	4		-1.05	5260	447
SR	A	91	-B	Eth	4		-1.05	5260	447
SR	A	3	-B	Gen	2		-1.23	4769	4820
SR	A	33	-B	Gen	2		-1.16	4769	4820
SR	A	35	-B	Gen	2		-1.21	4769	4820
SR	A	47	-B	Gen	2		-1.00	4769	4820
SR	A	93	-B	Gen	2		-1.34	4769	4820
SR	A	96	-B	Gen	2		-1.07	4769	4820
SR	B	3	-B	Eth	2		-1.19	5140	3381
SR	B	3	-B	Eth	4		-1.13	5140	470
SR	B	36	-B	Eth	4		-1.00	5140	470
SR	B	49	-B	Eth	4		-1.11	5140	470
SR	B	65	-B	Eth	4		-1.41	5140	470
SR	B	19	+B	Eth	4		1.17	5140	470

Table 33
DIF Reading Grade 10 (cont.)

ITEMTYPE	FORM	ITEMNO	DIF	BIATYPE	FOCAL	ES	DELTA	N_REF	N_FOC
SR	B	74	+B	Eth	4		1.01	5140	470
SR	B	93	+B	Eth	4		1.22	5140	470
SR	B	35	-C	Gen	2		-1.74	4829	4705
SR	B	1	-B	Gen	2		-1.33	4829	4705
SR	B	2	-B	Gen	2		-1.27	4829	4705
SR	B	3	-B	Gen	2		-1.36	4829	4705
SR	B	17	-B	Gen	2		-1.13	4829	4705
SR	B	33	-B	Gen	2		-1.33	4829	4705
SR	B	34	-B	Gen	2		-1.09	4829	4705
SR	B	52	-B	Gen	2		-1.05	4829	4705
SR	C	3	-B	Eth	2		-1.06	5066	3345
SR	C	23	-B	Eth	4		-1.04	5066	471
SR	C	31	-B	Eth	2		-1.06	5066	3345
SR	C	49	-B	Eth	4		-1.11	5066	471
SR	C	65	-B	Eth	4		-1.38	5066	471
SR	C	68	-B	Eth	4		-1.07	5066	471
SR	C	74	-B	Eth	4		-1.09	5066	471
SR	C	13	+B	Eth	4		1.02	5066	471
SR	C	17	+B	Eth	4		1.01	5066	471
SR	C	50	+B	Eth	4		1.21	5066	471
SR	C	63	+B	Eth	4		1.15	5066	471
SR	C	35	-C	Gen	2		-1.65	4803	4639
SR	C	1	-B	Gen	2		-1.36	4803	4639
SR	C	2	-B	Gen	2		-1.20	4803	4639
SR	C	33	-B	Gen	2		-1.28	4803	4639
SR	C	61	-B	Gen	2		-1.07	4803	4639
SR	C	79	+B	Gen	2		1.03	4803	4639
SR	D	65	-C	Eth	4		-2.93	5099	448
SR	D	18	-B	Eth	4		-1.09	5099	448
SR	D	25	-B	Eth	2		-1.06	5099	3308
SR	D	31	-B	Eth	2		-1.29	5099	3308
SR	D	31	-B	Eth	4		-1.09	5099	448
SR	D	67	-B	Eth	4		-1.11	5099	448
SR	D	69	-B	Eth	4		-1.20	5099	448
SR	D	76	-B	Eth	2		-1.02	5099	3308
SR	D	7	+B	Eth	4		1.06	5099	448
SR	D	44	+B	Eth	4		1.27	5099	448
SR	D	64	+B	Eth	4		1.13	5099	448
SR	D	91	+B	Eth	4		1.02	5099	448
SR	D	2	-C	Gen	2		-1.53	4659	4723
SR	D	1	-B	Gen	2		-1.27	4659	4723
SR	D	33	-B	Gen	2		-1.17	4659	4723
SR	D	34	-B	Gen	2		-1.12	4659	4723
SR	D	35	-B	Gen	2		-1.49	4659	4723
SR	D	47	-B	Gen	2		-1.04	4659	4723

Table 33
DIF Reading Grade 10 (cont.)

ITEMTYPE	FORM	ITEMNO	DIF	BIATYPE	FOCAL	ES	DELTA	N_REF	N_FOC
SR	D	89	-B	Gen	2		-1.16	4659	4723
SR	E	18	-B	Eth	4		-1.12	5329	502
SR	E	31	-B	Eth	2		-1.02	5329	3285
SR	E	31	-B	Eth	4		-1.08	5329	502
SR	E	67	-B	Eth	2		-1.21	5329	3285
SR	E	37	+B	Eth	4		1.05	5329	502
SR	E	57	+B	Eth	2		1.02	5329	3285
SR	E	81	+B	Eth	2		1.06	5329	3285
SR	E	85	+B	Eth	4		1.23	5329	502
SR	E	91	+B	Eth	4		1.43	5329	502
SR	E	77	+C	Eth	4		1.66	5329	502
SR	E	35	-C	Gen	2		-1.62	4846	4947
SR	E	86	-C	Gen	2		-1.81	4846	4947
SR	E	1	-B	Gen	2		-1.02	4846	4947
SR	E	2	-B	Gen	2		-1.34	4846	4947
SR	E	3	-B	Gen	2		-1.13	4846	4947
SR	E	33	-B	Gen	2		-1.29	4846	4947
SR	E	88	-B	Gen	2		-1.32	4846	4947
SR	F	31	-C	Eth	4		-1.58	5017	453
SR	F	22	-B	Eth	4		-1.03	5017	453
SR	F	23	-B	Eth	4		-1.16	5017	453
SR	F	25	-B	Eth	4		-1.04	5017	453
SR	F	8	+B	Eth	2		1.03	5017	3267
SR	F	44	+B	Eth	4		1.14	5017	453
SR	F	58	+B	Eth	4		1.02	5017	453
SR	F	75	+B	Eth	4		1.06	5017	453
SR	F	80	+B	Eth	4		1.19	5017	453
SR	F	82	+B	Eth	4		1.13	5017	453
SR	F	1	-B	Gen	2		-1.06	4715	4580
SR	F	2	-B	Gen	2		-1.44	4715	4580
SR	F	3	-B	Gen	2		-1.15	4715	4580
SR	F	33	-B	Gen	2		-1.12	4715	4580
SR	F	34	-B	Gen	2		-1.01	4715	4580
SR	F	35	-B	Gen	2		-1.15	4715	4580
SR	F	64	-B	Gen	2		-1.02	4715	4580
SR	F	65	-B	Gen	2		-1.01	4715	4580

Item Fit Assessment

A statistical procedure was used to identify items that did not fit the IRT model. Item model fit information was obtained for each item using a Z-statistic. The Z-statistic is a transformation of the chi-square (Q_I) statistic that takes into account differing numbers of score levels as well as sample size:

$$Z_j = \frac{(Q_{1j} - DF_j)}{\sqrt{2DF_j}}$$

where Q_{1j} is the item chi-square statistic,

j is an item, and

DF is the degrees of freedom for a given item j .

The Z-statistic is an index of the degree to which obtained proportions of students with each item score are close to the proportions that would be predicted by the estimated student ability and item parameters. These values, along with the associated chi-squares (Q_I) are computed for ten intervals corresponding to deciles of the ability distribution (Yen, 1984). Because the value of Z increases as the sample size increases, with other things being equal, the critical values for Z were established using the following equation (Yen, 1991a):

$$Z_{crit,j} = \frac{4N_j}{1500}$$

where $Z_{crit,j}$ is critical value of Z for item j and

N_j is the number of students who responded to item j .

Based on Yen's Q1 and item characteristic curves (ICC) in Figures 1-3, three items, Mathematics Grade 5 Form B item 89 and item 105, and Reading Grade 10 Form D item 85, demonstrate poor fit and were excluded from the score form. Actually, Mathematics Grade 5 Form B items 89 and 105 were non-converged items.

Figure 1
Mathematics Grade 5 Form B Item 89 (non-converged item)

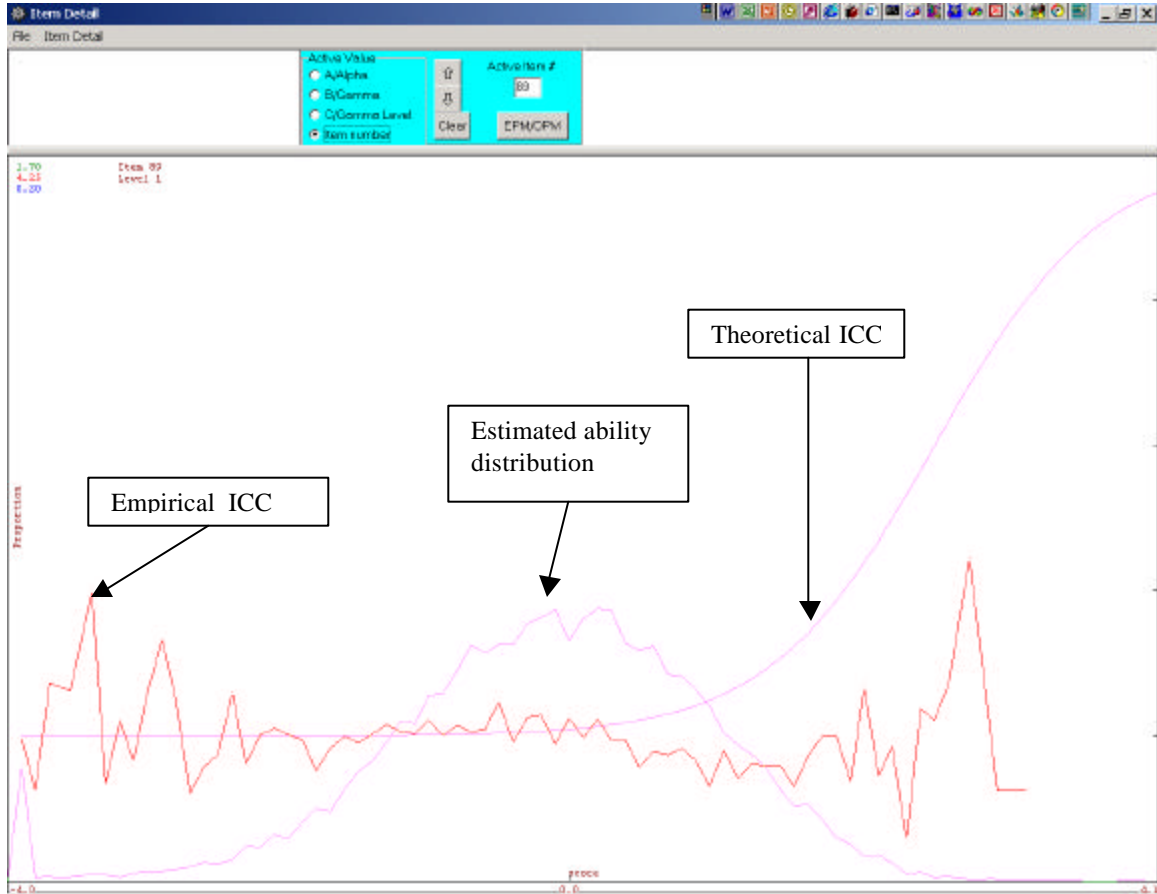


Figure 2
Mathematics Grade 5 Form B Item 105 (non-converged item)

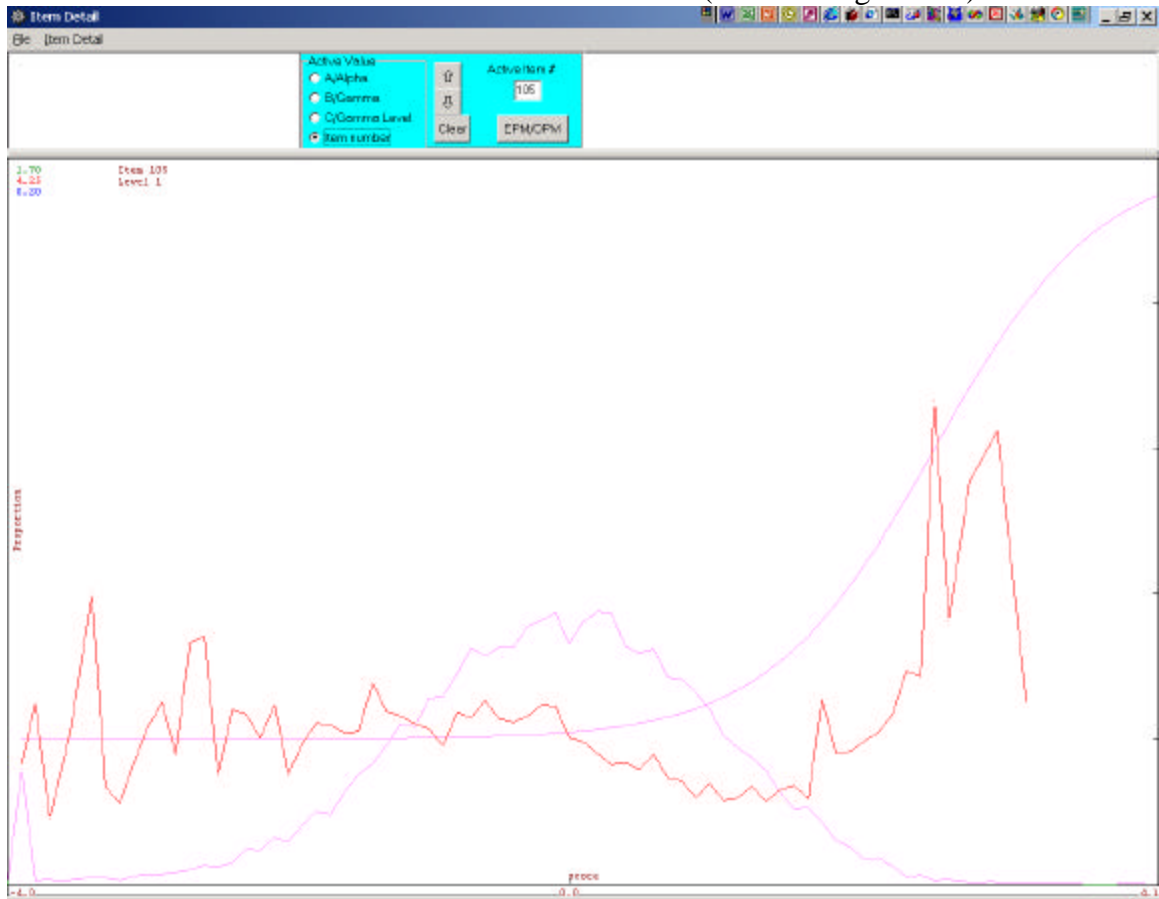


Figure 3
Reading Grade 10 Form D Item 85 ($Z=45.99$, $Z_c \approx 24.64$)



Calibration and Equating

IRT Model

Student item responses were calibrated using the combination of two IRT models. The three-parameter logistic model (3PL) was used to scale the SR items, and the two-parameter partial credit (2PPC) model was employed to scale the CR items. A brief explanation of the models is provided below.

Two types of IRT models have most commonly been used to scale large-scale education assessments containing mixed item types or formats. For SR items, the 3PL model has been employed. The 3PL model (Lord & Novick, 1968; Lord, 1980) defines a SR item in terms of three item parameters: item difficulty or location, item discrimination, and probability of a student with very low ability answering the item correctly (guessing parameter). In this model, the probability that a student with scale score \mathbf{q} responds correctly to item j is

$$p_j(\mathbf{q}) = c_j + \frac{(1 - c_j)}{1 + \exp[-1.7a_j(\mathbf{q} - b_j)]},$$

where a_j is the item discrimination, b_j is the item difficulty, and c_j is the probability of a correct response by a very low-scoring student.

The 2PPC model defines a CR item in terms of item discrimination as well as location parameter for each score point. The 2PPC model is a special case of Bock's (1972) nominal model. Bock's model states that the probability of an examinee with ability \mathbf{q} having a score at the k -th level of the j -th item is

$$P_{jk}(\mathbf{q}) = P(x_j = k - 1 | \mathbf{q}) = \frac{\exp Z_{jk}}{\sum_{i=1}^{m_j} \exp Z_{ji}}, \quad k = 1, \dots, m_j,$$

where m_j is the number of score levels, and

$$Z_{jk} = A_{jk} \theta + C_{jk},$$

$$A_{jk} = \mathbf{a}_j (k - 1), \quad k = 1, 2, \dots, m_j, \text{ and}$$

$$C_{jk} = - \sum_{i=0}^{k-1} \gamma_{ji}, \quad \text{where } \mathbf{g}_{j0} = 0,$$

where A_{jk} is the discrimination parameter of the k -th category of item j , C_{jk} is the intercept parameter of the nonlinear response function associated with the k -th category of item j , α_j and γ_{ji} are the parameters to be estimated from the data.

For each item there are $m_j - 1$ independent γ_{ji} parameters and one α_j parameter; a total of m_j independent item parameters are estimated.

Calibration and Equating Procedure

The following procedures were applied to calibrate 2003 MSA CRT items and link several alternate forms:

Step 1: Stability of linking items was checked following the procedure suggested by Kolen and Brennan (1995).

- (1) Each scoring form was separately calibrated.
- (2) The a parameters (using log of a) and the b parameters of each non-target form against those of the target form were plotted. Note that a target form was selected based on content coverage.

The content coverage of each form was decided after items were analyzed based on item analyses and DIF.

Step 2: A set of common items that are reasonably stable across forms was selected based on Step 1.

- (1) All alternate forms were simultaneously calibrated using these selected common items (refer to henceforth as the “big concurrent” calibration).
- (2) For a non-stable common item, multiple estimates were obtained. The mean of all estimates were used as an operational item parameter unless there were compelling reason to use one set of estimates.

Step 3: Based on the scale obtained from the “big” concurrent calibration in Step 2, all students’ responses were scored. The mean and SD of students’ theta (or scale score) were computed. The mean and SD across forms should be very similar if the groups are really equivalent and calibration is done appropriately.

Calibration and Equating Results

The following is the general description and summary for calibration and equating for 2003 MSA Mathematics Grades 3, 5, 8 and Reading Grade 10.

Two calibrations, a separate calibration using each form and a big concurrent calibration using all forms, were done for 2003 MSA. Separate calibrations were used for selecting stable anchor items that were then used for the big concurrent calibration. Final operational item parameters for 2003 MSA were obtained using the big concurrent calibration.

Stability of anchor items was checked by Step 1 above. Only one item was found to be unstable and was in Grade 5 Mathematics. Figure 4 shows the locations of anchor items for Grade 5. It was clear that Grade 5 item 17, which was isolated from the other anchor items, was an unstable anchor item. Note that Form A was selected as a best form for Mathematics Grade 5. This item was treated as unique item for each form during the

big concurrent calibration. Note that only items on the score form were used for the figure.

Table 34 shows items, including Grade 5 item 17, that appeared in more than two forms. The item parameters for these items were averaged, and these averages were used for all forms. *For standard setting, items parameters in Forms A, B, and C were averaged. Form D item parameters were not used for standard setting.*

Table 35 represents the summary statistics for scale scores (theta) using item parameters from the big concurrent calibration. Figures 5-8 show the test characteristic curves (TCC) and standard error of measurement (SEM) curves after the big concurrent calibration. TCC and SEM curves were similar across forms. Mathematics Grade 3 shows the largest difference between TCCs.

Figure 4
Stability of Anchor Items for Mathematics Grade 5

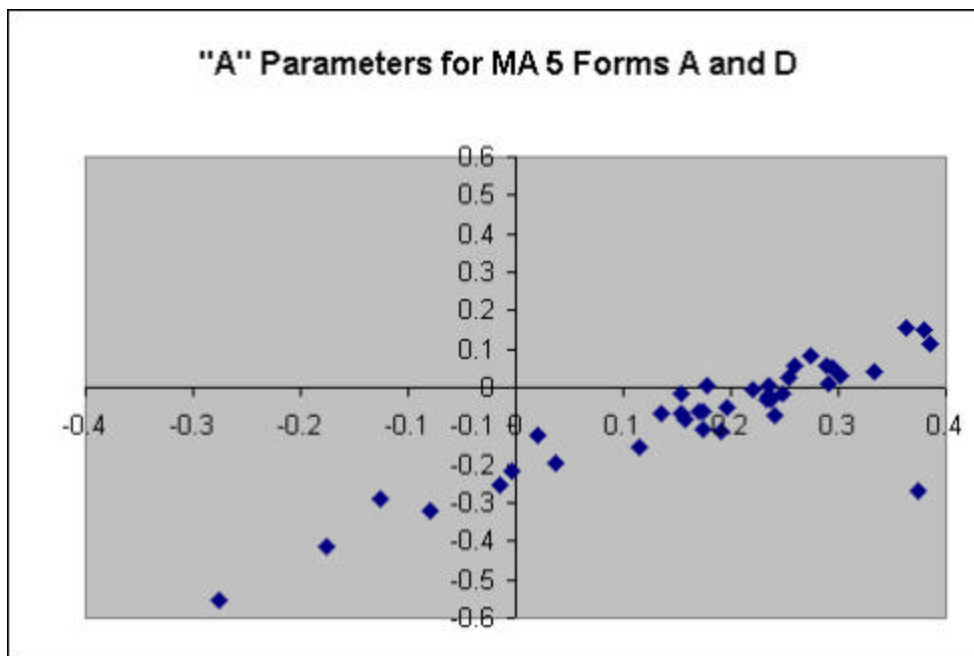


Table 34
Item Parameters Averaged for the Score Form

Grade	Item	Parameter	Form A	Form B	Form C	Form D	Mean	Standard Setting Mean
3	47	a	0.8539	0.7624		0.7494	0.7886	0.8082
		b	-2.4288	-2.6569		-2.7342	-2.6066	-2.5429
		c	0.2000	0.2000		0.2000	0.2000	0.2000
	68	a	0.8236	0.7666	0.7644		0.7848	0.7848
		b	-2.0028	-2.0832	-2.0987		-2.0616	-2.0616
		c	0.2000	0.2000	0.2000		0.2000	0.2000
	67	a	0.3143	0.2918		0.4634	0.3565	0.3031
		b	0.5932	0.6624		0.9130	0.7229	0.6278
		c	0.2000	0.2000		0.2493	0.2164	0.2000
5	17	a	0.4133	0.4267	0.4635	0.5321	0.4589	0.4345
		b	1.2272	1.1617	1.1020	1.1657	1.1642	1.1636
		c	0.4995	0.4995	0.4994	0.4990	0.4994	0.4995
	C84&D25	a			0.9445	0.9423	0.9434	0.9445
		b			0.3317	0.3691	0.3505	0.3317
		c			0.2444	0.2936	0.2690	0.2444

Table 35
Summary Statistics of Scale Scores after the Big Concurrent Calibration

Grade	Form	Sample N	Mean	SD	Skewness	Kurtosis
3	A	16325	-0.10	1.14	0.01	3.41
	B	16117	-0.03	1.12	-0.04	3.54
	C	15972	-0.05	1.11	0.00	3.37
	D	15754	-0.07	1.15	-0.07	3.37
5	A	17155	-0.11	1.23	-0.63	4.14
	B	16933	-0.09	1.20	-0.62	4.14
	C	16800	-0.05	1.15	-0.38	3.82
	D	16569	-0.10	1.20	-0.57	4.01
8	A	15842	-0.07	1.17	-0.72	4.14
	B	15731	-0.08	1.19	-0.75	4.27
	C	15684	-0.06	1.12	-0.56	4.00
	D	15527	-0.12	1.27	-0.68	4.09
10	A	9447	-0.18	1.19	-0.47	3.86
	B	9394	-0.19	1.18	-0.48	3.81
	C	9290	-0.19	1.16	-0.45	3.72
	D	9243	-0.17	1.15	-0.41	3.76
	E	9677	-0.16	1.17	-0.49	3.86
	F	9143	-0.17	1.18	-0.42	3.92

Figure 5
TCC and SEM for Mathematics Grade 3 after the Big Concurrent Calibration

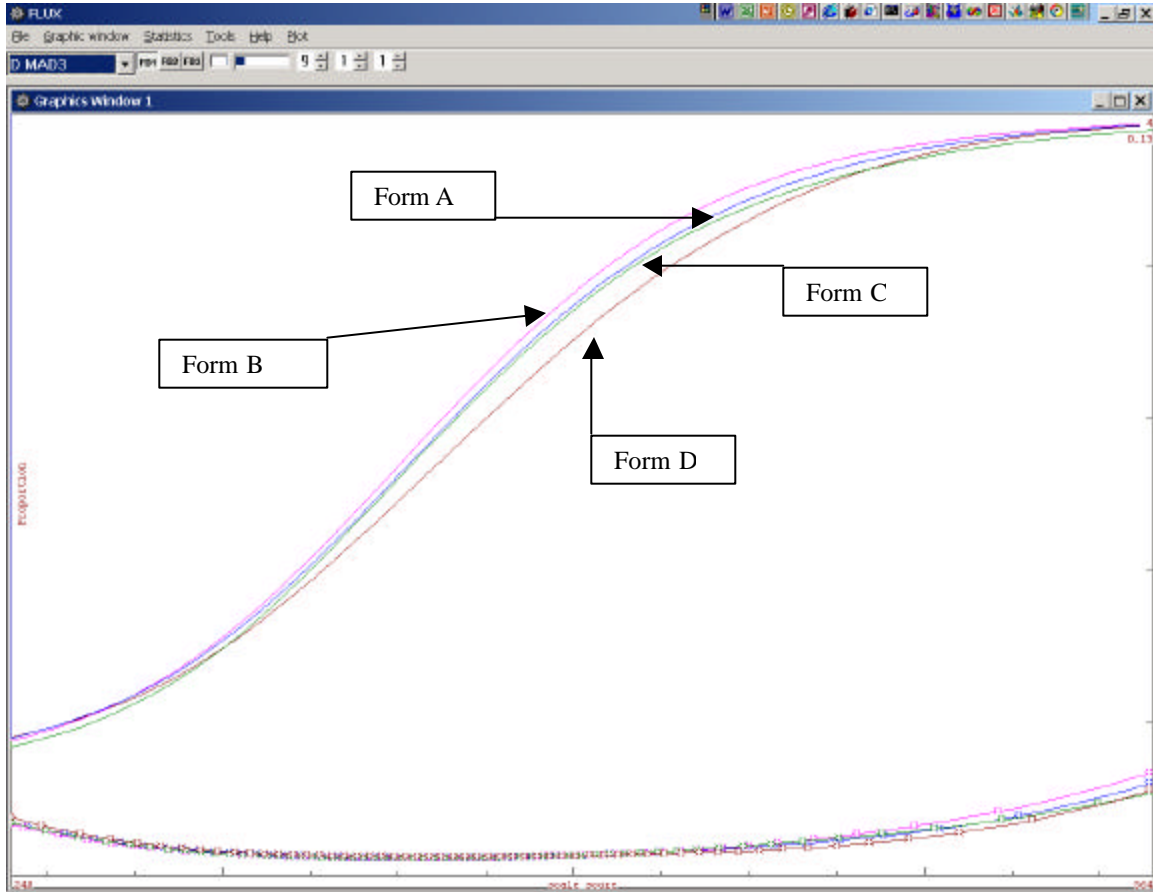


Figure 6
TCC and SEM for Mathematics Grade 5 after the Big Concurrent Calibration

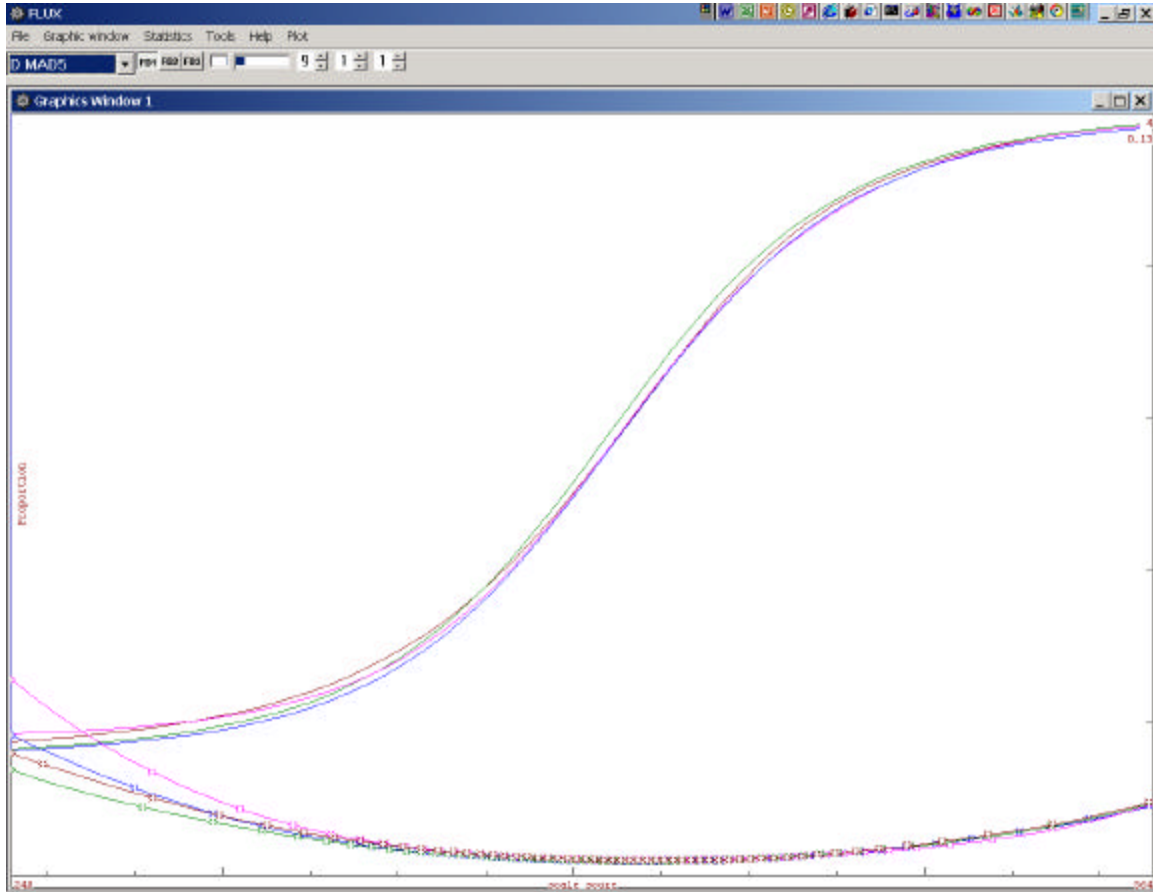


Figure 7
TCC and SEM for Mathematics Grade 8 after the Big Concurrent Calibration

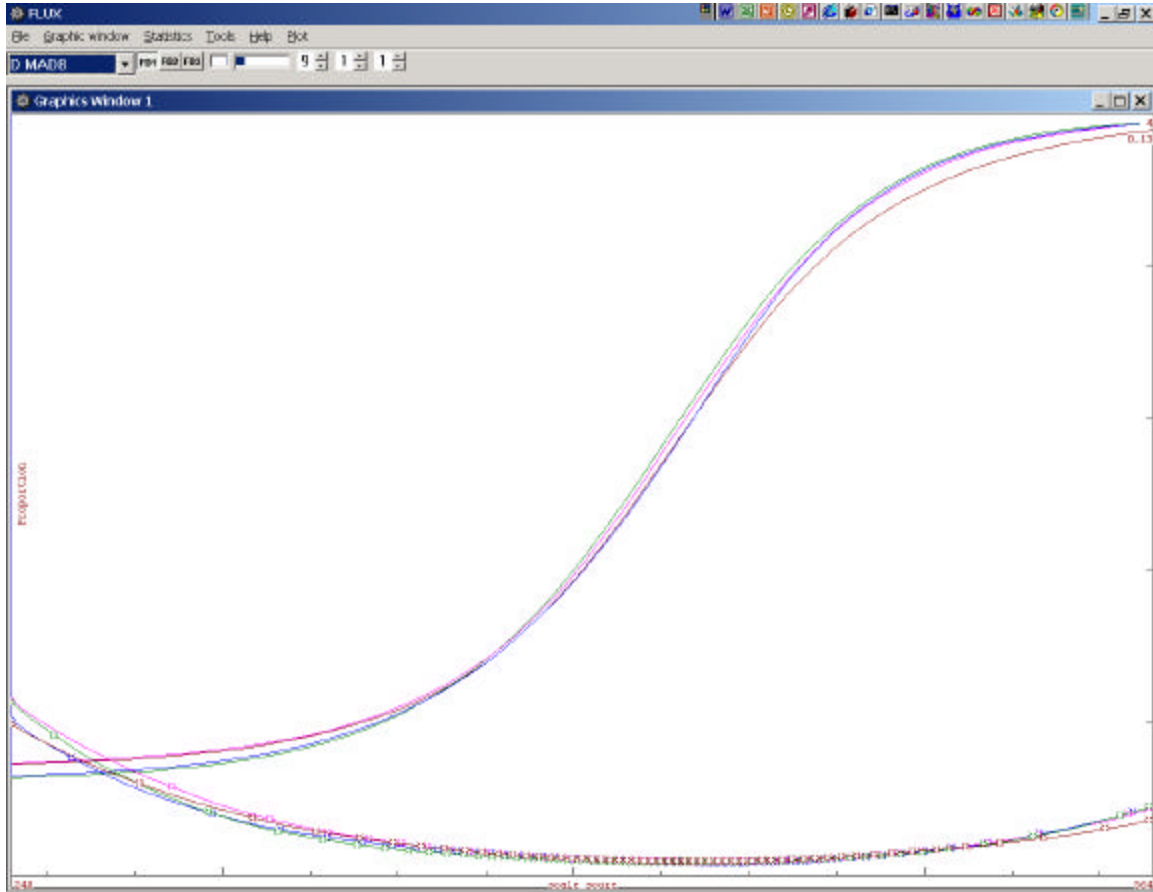
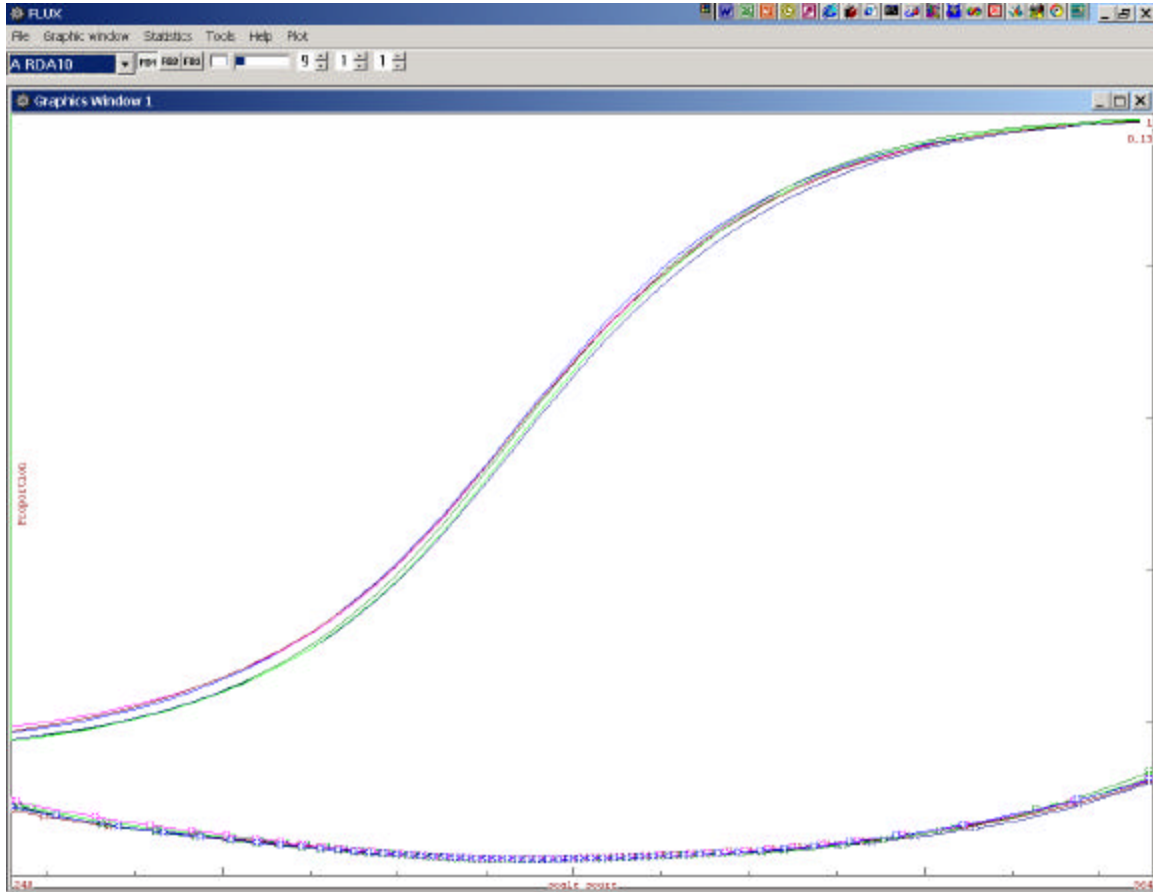


Figure 8
TCC and SEM for Reading Grade 10 after the Big Concurrent Calibration



Establishment of the Maryland Score Scale

Table 36 presents the lowest obtainable scale scores (LOSS) and the highest obtainable scale scores (HOSS). These LOSS and HOSS were determined based on Yen's (1991b) general rules for setting LOSS and HOSS. Table 37 shows the means and SDs before the LOSS and HOSS were applied and those after the LOSS and HOSS were applied. Note that MSDE decided to use mean and SD around 400 and 40, respectively.

The 2003 Maryland score scale was established using data from the 2003 operational test forms. By using statistical adjustments, the following scale properties were obtained: 1) similar mean (400) and SD (40) across all test forms for Reading and Mathematics, and 2) LOSS of 200 for grades and contents and the HOSS from 600 to 620 across grades.

As can be seen in Tables 38 and 39, distributions of raw scores and scale scores were similar across forms. Due to relatively long test lengths for every grade, reliability (Cronbach's alpha) appeared to be high for all grades. Reliability ranged from 0.90 to 0.94 across grades. Tables 40 and 41 show the mean scale score statistics, along with the appropriate SD of the ethnic and gender subgroups for each form. The results show how each subgroup performed compared to other students by test form. Across grades, white students generally performed better than African American and Hispanic students. The scale score differences ranged from about 30 to about 40 scale scores. As grade increases, the SD tends to increase. This pattern is the same for all three ethnicities. For Reading Grade 10, female students performed slightly better than male students. For the other grades, there was no difference between male and female students.

Table 36
LOSS and HOSS

	LOSS	HOSS
MA3	200	630
MA5	200	620
MA8	200	620
RD10	200	600

Table 37
Mean and SD before and after Setting LOSS and HOSS

Grade	Form	Sample N	Mean	SD	*Mean	*SD
3	A	16325	396.1	45.5	396.2	46.1
	B	16117	398.9	44.8	398.9	45.4
	C	15972	397.9	44.5	398.0	45.0
	D	15754	397.4	45.8	397.4	46.5
5	A	17155	395.4	49.1	394.7	51.9
	B	16933	396.5	48.1	395.8	50.7
	C	16800	397.8	45.9	397.5	47.4
	D	16569	395.9	48.2	395.2	50.6
8	A	15842	397.2	46.8	396.6	49.2
	B	15731	397.0	47.8	396.1	50.7
	C	15684	397.5	44.9	397.1	46.6
	D	15527	395.2	50.8	394.2	54.2
10	A	9447	392.6	47.5	392.1	49.4
	B	9394	392.6	47.3	392.2	48.9
	C	9290	392.4	46.3	392.0	47.9
	D	9243	393.2	46.0	392.9	47.4
	E	9677	393.4	46.8	393.0	48.7
	F	9143	393.1	47.3	392.6	49.2

- *Mean and *SD calculated after LOSS and HOSS were applied.

Table 38
Raw Score Descriptive Statistics for CRT

Grade	Form	N Count	Mean	Mean P-Value	SD	Min	Max	Alpha	SEM
3	A	16381	48.28	0.70	11.85	0	69	0.93	3.21
	B	16163	51.54	0.73	12.13	0	71	0.93	3.31
	C	16017	49.72	0.70	11.79	0	71	0.92	3.25
	D	15812	44.84	0.67	11.50	0	67	0.92	3.19
5	A	17199	36.45	0.49	15.21	0	74	0.94	3.87
	B	16967	33.13	0.50	13.29	0	66	0.92	3.64
	C	16838	37.19	0.52	14.82	0	72	0.93	3.81
	D	16611	33.75	0.50	13.51	0	67	0.93	3.58
8	A	17000	27.09	0.40	13.58	0	67	0.93	3.54
	B	16878	26.22	0.42	12.86	0	62	0.93	3.37
	C	16778	28.59	0.41	14.24	0	69	0.93	3.69
	D	16645	26.13	0.40	13.27	0	65	0.93	3.51
10	A	10409	36.93	0.61	13.69	0	61	0.94	3.30
	B	10372	36.79	0.60	13.56	0	61	0.94	3.31
	C	10252	36.26	0.59	13.86	0	61	0.94	3.30
	D	10198	36.69	0.61	13.46	0	60	0.94	3.30
	E	10138	35.39	0.58	13.67	0	61	0.94	3.32
	F	10087	35.68	0.58	13.96	0	61	0.94	3.33

Table 39
Scale Score Descriptive Statistics for CRT

Grade	Form	N Count	Mean	SD	MIN	MAX
3	A	16381	393.14	47.13	200	630
	B	16163	396.27	46.66	200	630
	C	16017	395.30	46.01	200	630
	D	15812	394.79	48.06	200	630
5	A	17199	391.10	54.65	200	620
	B	16967	393.04	52.68	200	620
	C	16838	394.79	49.24	200	620
	D	16611	392.13	53.36	200	620
8	A	17000	389.56	55.24	200	620
	B	16878	390.20	55.55	200	550
	C	16778	390.67	51.11	200	620
	D	16645	387.38	59.21	200	620
10	A	10409	383.55	61.89	200	600
	B	10372	383.81	62.12	200	600
	C	10252	382.76	61.41	200	600
	D	10198	383.06	62.10	200	565
	E	10138	381.42	63.00	200	600
	F	10087	381.88	63.29	200	600

Table 40
CRT Scale Score Descriptive Statistics by Ethnicity

Grade	Test Form	White				African American				Hispanic			
		Mean	SD	MIN	MAX	Mean	SD	MIN	MAX	Mean	SD	MIN	MAX
3	A	408.68	44.09	200	630	373.20	41.04	200	564	375.53	45.45	200	519
	B	411.40	43.33	200	630	376.01	41.91	200	551	380.50	44.83	200	630
	C	410.24	43.29	200	630	375.52	40.78	200	536	380.39	42.84	200	506
	D	410.78	44.69	200	630	373.04	42.26	200	630	382.57	46.42	200	548
5	A	407.32	48.83	200	620	369.38	52.33	200	527	369.99	58.10	200	503
	B	409.20	46.40	200	620	369.96	51.44	200	508	379.80	51.61	200	513
	C	410.16	43.35	200	620	372.74	46.47	200	518	378.79	52.13	200	511
	D	408.54	46.32	200	568	368.00	52.69	200	502	380.14	52.22	200	515
8	A	404.72	49.00	200	620	364.56	53.82	200	497	374.98	56.25	200	495
	B	406.89	47.98	200	550	364.03	54.77	200	522	374.52	58.60	200	502
	C	406.06	45.28	200	534	366.77	48.50	200	517	374.57	52.87	200	500
	D	404.63	52.17	200	577	359.50	57.77	200	539	371.47	58.41	200	482
10	A	400.61	54.59	200	600	356.21	61.89	200	504	358.16	61.91	200	493
	B	400.76	54.94	200	600	358.75	62.16	200	600	358.10	65.52	200	486
	C	398.85	54.92	200	600	357.73	60.95	200	511	357.00	65.97	200	512
	D	399.22	55.53	200	565	357.97	61.57	200	532	355.98	68.30	200	506
	E	398.38	56.18	200	600	355.17	61.75	200	566	353.14	69.45	200	477
	F	398.80	57.35	200	600	355.55	61.78	200	507	357.47	68.86	200	535

Table 41
 CRT Scale Score Descriptive Statistics by Gender

Grade	Test Form	Male				Female			
		Mean	SD	MIN	MAX	Mean	SD	MIN	MAX
3	A	392.01	48.08	200	630	394.45	45.86	200	630
	B	395.36	47.86	200	630	397.29	45.23	200	630
	C	393.53	46.62	200	630	397.24	45.17	200	630
	D	394.47	49.66	200	630	395.29	45.96	200	630
5	A	389.76	57.32	200	620	392.63	51.44	200	620
	B	393.12	55.88	200	620	392.94	49.09	200	573
	C	394.97	51.57	200	620	394.60	46.72	200	552
	D	391.75	56.69	200	620	392.53	49.69	200	552
8	A	386.10	59.18	200	620	393.22	50.47	200	620
	B	387.45	59.32	200	540	393.24	50.91	200	550
	C	387.39	54.92	200	620	394.16	46.44	200	544
	D	383.58	64.33	200	577	391.28	53.16	200	620
10	A	375.58	66.22	200	600	391.92	55.36	200	600
	B	375.07	64.95	200	544	393.24	57.01	200	600
	C	373.40	64.26	200	545	392.63	56.39	200	600
	D	373.63	65.80	200	534	392.61	56.32	200	565
	E	372.13	66.05	200	600	390.89	57.93	200	600
	F	372.55	66.13	200	550	391.83	58.18	200	600

The Relationship between NRT and CRT

In 2003 testing, Maryland students took two tests, NRT and CRT, for the same content. Even though content standards of the two tests are different, it can be expected that these two tests measure a similar performance to some degree. To examine how much these two tests measure the same performance, the correlation between scale scores of the NRT and scale scores of the CRT were produced and are presented in Table 42. The correlation was relatively high and similar across alternate forms within grade. The correlation based on total samples was 0.83 for all grades in Mathematics, and 0.86 in Reading. Note that for Reading, all NRT items were used for the CRT score, while for Mathematics, only some of NRT items were included to CRT score. That is, more items were overlapping in Reading than in Mathematics.

Table 42
Correlation between NRT and CRT

CRT Form	Content/Grade			
	MA3	MA5	MA8	RD10
Total	0.83	0.83	0.83	0.86
A	0.83	0.83	0.83	0.86
B	0.83	0.82	0.82	0.87
C	0.82	0.83	0.83	0.87
D	0.84	0.84	0.83	0.85
E				0.86
F				0.87

The Score Distributions and Correlations of Content Standards

In 2003 testing, scores based on the total test items were reported to students, schools, and LEAs. The scale scores based on content standards were reported to MDSE. These scale scores were estimated using the maximum likelihood procedure with item parameters estimated from the total test form. Tables 43 and 44 present raw score distributions for each standard. Table 45 shows the Pearson product moment correlations between standards within each grade. Grade 10 Reading shows relatively high correlations, compared to the other grades. Note that Grade 10 Reading consists of three standards while the other mathematics tests each consist of 5 content standards.

Table 43
Distribution of Standard Scores

Grade	Form	Standard	N	Maximum Possible Point	Mean	SD	Min	Max
3	A	1	16381	13	10.37	2.39	0	13
	A	2	16381	14	9.38	2.54	0	14
	A	3	16381	14	9.94	2.86	0	14
	A	4	16381	16	12.69	2.90	0	16
	A	5	16381	12	5.89	3.03	0	12
	B	1	16163	13	10.57	2.31	0	13
	B	2	16163	14	10.37	2.64	0	14
	B	3	16163	14	10.18	2.54	0	14
	B	4	16163	16	12.91	3.01	0	16
	B	5	16163	14	7.52	3.60	0	14
	C	1	16017	13	10.79	2.25	0	13
	C	2	16017	14	10.38	2.37	0	14
	C	3	16017	14	9.65	2.82	0	14
	C	4	16017	16	12.66	2.97	0	16
	C	5	16017	14	6.25	3.34	0	14
	D	1	15812	13	9.52	2.37	0	13
	D	2	15812	14	9.36	2.42	0	14
	D	3	15812	14	9.56	2.93	0	14
	D	4	15812	16	12.46	3.06	0	16
	D	5	15812	10	3.95	2.56	0	10
5	A	1	17199	15	8.84	3.71	0	15
	A	2	17199	14	5.99	2.64	0	14
	A	3	17199	13	7.34	3.12	0	13
	A	4	17199	15	8.40	3.50	0	15
	A	5	17199	17	5.88	4.26	0	17
	B	1	16967	15	8.39	3.59	0	15
	B	2	16967	14	6.07	2.62	0	14
	B	3	16967	13	7.40	2.86	0	13
	B	4	16967	15	8.11	3.65	0	15
	B	5	16967	9	3.16	2.54	0	9
	C	1	16838	15	8.20	3.46	0	15
	C	2	16838	14	7.15	2.60	0	14
	C	3	16838	13	7.57	3.07	0	13
	C	4	16838	15	7.82	3.75	0	15
	C	5	16838	15	6.45	3.91	0	15
	D	1	16611	15	8.62	3.54	0	15
	D	2	16611	13	6.39	2.59	0	13
	D	3	16611	13	7.96	2.97	0	13
	D	4	16611	15	7.14	3.82	0	15
	D	5	16611	11	3.65	2.57	0	11

Table 44
Distribution of Standard Scores

Grade	Form	Standard	N	Maximum Possible Point	Mean	SD	Min	Max
8	A	1	17000	14	6.12	3.63	0	14
	A	2	17000	13	5.25	2.79	0	13
	A	3	17000	14	5.34	2.81	0	14
	A	4	17000	12	5.78	2.70	0	12
	A	5	17000	14	4.61	3.53	0	14
	B	1	16878	14	6.10	3.51	0	14
	B	2	16878	13	5.81	3.20	0	13
	B	3	16878	14	5.57	2.87	0	14
	B	4	16878	12	5.96	2.79	0	12
	B	5	16878	10	2.79	2.42	0	10
	C	1	16778	14	6.36	3.35	0	14
	C	2	16778	13	5.61	2.98	0	13
	C	3	16778	14	5.71	2.92	0	14
	C	4	16778	12	5.02	2.40	0	12
	C	5	16778	16	5.89	4.55	0	16
	D	1	16645	14	6.20	3.79	0	14
	D	2	16645	13	5.49	2.65	0	13
	D	3	16645	14	5.22	3.08	0	14
	D	4	16645	12	5.31	2.72	0	12
	D	5	16645	12	3.91	2.99	0	12
10	A	1	10409	17	11.29	4.35	0	17
	A	2	10409	22	11.66	5.03	0	22
	A	3	10409	22	13.97	5.14	0	22
	B	1	10372	17	11.36	4.28	0	17
	B	2	10372	22	12.57	5.22	0	22
	B	3	10372	22	12.87	4.90	0	22
	C	1	10252	17	11.01	4.33	0	17
	C	2	10252	22	11.79	5.26	0	22
	C	3	10252	22	13.46	5.09	0	22
	D	1	10198	17	11.35	4.22	0	17
	D	2	10198	22	12.29	5.26	0	22
	D	3	10198	22	13.04	4.85	0	22
	E	1	10138	17	10.71	4.16	0	17
	E	2	10138	22	12.35	5.32	0	22
	E	3	10138	22	12.33	5.06	0	22
	F	1	10087	17	10.82	4.30	0	17
	F	2	10087	22	12.02	5.38	0	22
F	3	10087	22	12.84	5.11	0	22	

Table 45
Correlations between Standards

Grade	Standard	1	2	3	4	5
3	1	1.00	0.65	0.70	0.73	0.63
	2		1.00	0.64	0.65	0.62
	3			1.00	0.74	0.64
	4				1.00	0.64
	5					1.00
5	1	1.00	0.63	0.73	0.77	0.68
	2		1.00	0.62	0.63	0.61
	3			1.00	0.70	0.65
	4				1.00	0.68
	5					1.00
8	1	1.00	0.68	0.71	0.68	0.75
	2		1.00	0.67	0.64	0.64
	3			1.00	0.64	0.70
	4				1.00	0.57
	5					1.00
10	1	1.00	0.82	0.83		
	2		1.00	0.82		
	3			1.00		

Percent At or Above a Cut (PAC)

As a baseline year for MSA, there was a standard setting conducted for all grades. The Bookmark method was applied for this purpose. Item parameters based on the item response theory model were used for the standard setting. The performance levels obtained from the standard setting were applied to produce the percent of students performing at or above the “proficient” level which will be reported to the federal government according to the “No Child Left Behind (NCLB)” act. This proficiency is often called “percent at or above cut” (PAC). A complete description of the standard setting can be found in a separate technical report, entitled “Maryland Standard Setting Technical Report,” submitted to the Maryland Department of Education, August, 2003.

Table 46 shows the scale score ranges for each performance level based on 2003 standard setting. MSA performance consists of three levels, “Basic”, “Proficient”, and “Advanced.” Table 47 presents impact data based on all tested students by form. The last column “Proficient + Advanced” represents PAC that will be reported for the NCLB act. The PAC ranged from 38.92 to 67.10 across grades and forms. That is, it seemed that the PAC is relatively low for every grade, especially for grade 8. Tables 48 and 49 show the PAC classified by ethnicity and gender group. Tables 50-53 present the PAC by local education agencies (LEA) for each grade.

Table 46
Scale Score Ranges for Each Performance Level
Based on 2003 Standard Setting

Grade	Basic	Proficient	Advanced
3	200-378	379-440	441-630
5	200-391	392-452	453-620
8	200-406	407-443	444-620
10	200-373	374-414	415-600

Table 47
 Percents at Each Performance Level

Grade	Form	Basic	Proficient	Advanced	Proficient +Advanced
3	Total	34.45	50.59	14.95	65.55
	A	36.04	49.70	14.26	63.96
	B	32.90	51.96	15.15	67.10
	C	34.24	50.93	14.83	65.76
	D	34.63	49.78	15.60	65.37
5	Total	44.58	45.86	9.56	55.42
	A	44.60	46.27	9.13	55.40
	B	44.59	45.62	9.79	55.41
	C	44.20	46.23	9.57	55.80
	D	44.94	45.32	9.74	55.06
8	Total	59.58	26.90	13.52	40.42
	A	58.85	27.94	13.22	41.15
	B	58.80	27.47	13.73	41.20
	C	61.08	25.72	13.20	38.92
	D	59.62	26.45	13.94	40.38
10	Total	34.96	33.38	31.67	65.04
	A	34.36	33.64	31.99	65.64
	B	34.01	33.91	32.08	65.99
	C	35.49	33.23	31.28	64.51
	D	35.06	33.36	31.58	64.94
	E	35.28	32.80	31.92	64.72
	F	35.56	33.29	31.15	64.44

Table 48
 Percents at Each Performance Level by Ethnicity

Grade	Ethnicity	Basic	Proficient	Advanced	Proficient +Advanced
3	White	20.7	56.7	22.6	79.3
	African American	52.5	43.3	4.3	47.5
	Hispanic	46.6	46.4	7.0	53.4
	Others	16.3	51.8	31.9	83.7
5	White	30.4	55.1	14.5	69.6
	African American	64.6	33.6	1.7	35.4
	Hispanic	56.1	40.0	3.9	43.9
	Others	21.1	52.6	26.3	78.9
8	White	45.6	34.6	19.8	54.4
	African American	81.8	15.6	2.6	18.2
	Hispanic	72.6	21.5	5.9	27.4
	Others	30.6	34.3	35.1	69.4
10	White	22.8	34.0	43.2	77.2
	African American	53.5	33.5	13.0	46.5
	Hispanic	52.3	30.8	16.9	47.7
	Others	24.1	30.2	45.6	75.9

Table 49
 Percents at Each Performance Level by Gender

Grade	Gender	Basic	Proficient	Advanced	Proficient +Advanced
3	Male	35.1	50.2	14.7	64.9
	Female	33.7	51.1	15.2	66.3
5	Male	44.8	44.4	10.8	55.2
	Female	44.4	47.4	8.2	55.6
8	Male	60.6	25.2	14.2	39.4
	Female	58.5	28.7	12.9	41.5
10	Male	40.7	31.6	27.6	59.3
	Female	29.0	35.2	35.8	71.0

Table 50
 Percents at Grade 3 Performance Level by LEA

LEA #	Basic	Proficient	Advanced	Proficient +Advanced
1	38.6	51.6	9.8	61.4
2	26.5	57.0	16.5	73.5
3	33.4	51.8	14.8	66.6
4	21.0	59.8	19.2	79.0
5	29.3	56.3	14.4	70.7
6	20.3	60.1	19.6	79.7
7	30.4	55.5	14.2	69.6
8	34.7	52.9	12.3	65.3
9	45.3	47.8	6.8	54.7
10	27.3	54.7	18.0	72.7
11	34.6	56.9	8.5	65.4
12	24.5	59.5	16.0	75.5
13	16.9	52.6	30.4	83.1
14	37.1	45.2	17.7	62.9
15	24.1	49.7	26.3	75.9
16	50.1	44.6	5.3	49.9
17	27.1	53.7	19.2	72.9
18	30.6	53.9	15.4	69.4
19	39.0	49.4	11.6	61.0
20	34.3	58.4	7.3	65.7
21	28.5	57.6	13.9	71.5
22	38.1	49.5	12.4	61.9
23	18.1	54.6	27.3	81.9
30	57.5	40.0	2.5	42.5
31	64.6	32.0	3.4	35.4

Table 51
 Percents at Grade 5 Performance Level by LEA

LEA #	Basic	Proficient	Advanced	Proficient +Advanced
1	48.7	46.7	4.7	51.3
2	35.3	55.2	9.5	64.7
3	47.4	44.0	8.6	52.6
4	30.8	56.3	13.0	69.2
5	41.1	52.5	6.4	58.9
6	32.5	56.5	11.0	67.5
7	38.9	54.0	7.1	61.1
8	43.0	47.8	9.2	57.0
9	55.9	40.7	3.4	44.1
10	30.8	54.0	15.2	69.2
11	49.6	46.3	4.1	50.4
12	36.1	56.7	7.2	63.9
13	20.9	55.0	24.1	79.1
14	42.9	49.7	7.3	57.1
15	31.8	48.8	19.4	68.2
16	62.9	34.5	2.5	37.1
17	36.7	54.6	8.7	63.3
18	42.8	49.2	7.9	57.2
19	56.2	42.1	1.7	43.8
20	46.6	49.1	4.3	53.4
21	40.8	52.1	7.1	59.2
22	50.5	43.5	6.0	49.5
23	37.1	55.5	7.4	62.9
30	68.1	30.9	1.0	31.9
31	67.6	30.9	1.5	32.4

Table 52
 Percents at Grade 8 Performance Level by LEA

LEA #	Basic	Proficient	Advanced	Proficient +Advanced
1	65.5	24.7	9.7	34.5
2	60.2	30.4	9.4	39.8
3	59.7	27.7	12.6	40.3
4	61.0	27.4	11.6	39.0
5	75.3	20.9	3.8	24.7
6	47.4	37.0	15.6	52.6
7	51.8	32.3	15.8	48.2
8	63.1	27.0	10.0	36.9
9	78.1	20.3	1.6	21.9
10	48.1	29.9	22.1	51.9
11	58.6	29.0	12.4	41.4
12	50.8	35.9	13.3	49.2
13	36.1	37.6	26.3	63.9
14	63.7	29.6	6.6	36.3
15	41.8	31.1	27.0	58.2
16	77.6	17.8	4.6	22.4
17	57.5	31.7	10.9	42.5
18	60.0	31.5	8.5	40.0
19	66.2	28.0	5.8	33.8
20	71.7	21.4	6.9	28.3
21	48.5	30.9	20.6	51.5
22	65.4	28.1	6.5	34.6
23	42.6	35.9	21.5	57.4
30	87.5	10.6	1.9	12.5

Table 53
 Percents at Grade 10 Performance Level by LEA

LEA #	Basic	Proficient	Advanced	Proficient +Advanced
1	28.4	41.3	30.4	71.6
2	36.2	34.0	29.8	63.8
3	34.1	34.5	31.4	65.9
4	21.2	37.2	41.6	78.8
5	38.6	33.6	27.8	61.4
6	20.5	38.6	40.8	79.5
7	32.3	39.1	28.5	67.7
8	32.7	37.1	30.2	67.3
9	46.8	31.6	21.6	53.2
10	27.3	35.8	36.9	72.7
11	27.8	42.5	29.7	72.2
12	26.2	37.7	36.1	73.8
13	17.1	30.8	52.1	82.9
14	34.8	35.7	29.5	65.2
15	27.0	28.0	45.0	73.0
16	50.8	33.6	15.6	49.2
17	30.4	35.5	34.1	69.6
18	33.2	34.8	32.0	66.8
19	37.0	49.2	13.8	63.0
20	22.7	42.2	35.1	77.3
21	27.0	39.8	33.2	73.0
22	31.1	37.1	31.8	68.9
23	32.1	34.5	33.4	67.9
30	61.5	27.3	11.2	38.5

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Appendix A. Summary Item Statistics

Table A 1
Summary Item Statistics - Mathematics, Grade 3, Form A

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	16379	0.84	0.84	0.31	0.31	-0.22	-0.14	-0.11	-0.14
2	16379	0.90	0.90	0.29	-0.14	0.29	-0.14	-0.14	-0.13
4	16379	0.87	0.87	0.34	-0.15	-0.25	0.34	-0.17	-0.09
10	16379	0.86	0.86	0.43	-0.17	-0.26	0.43	-0.27	.
12	16379	0.87	0.87	0.39	0.39	-0.23	-0.18	-0.25	.
13	16379	0.84	0.84	0.45	-0.24	-0.29	-0.23	0.45	.
14	16379	0.84	0.84	0.33	-0.16	-0.16	0.33	-0.24	.
16	16379	0.89	0.89	0.31	0.31	-0.20	-0.17	-0.13	.
17	16379	0.86	0.86	0.30	-0.09	-0.09	-0.27	0.30	.
18	16379	0.96	0.96	0.23	-0.12	-0.10	-0.11	0.23	.
24	16379	0.96	0.96	0.34	-0.21	-0.15	0.34	-0.15	.
31A	16379	0.92	0.92	0.34	.	.	.	.	.
31B	16379	0.86	0.43	0.50	.	.	.	.	.
32	16379	0.90	0.90	0.45	-0.24	-0.26	0.45	-0.26	.
34	16379	0.94	0.94	0.40	-0.24	-0.20	0.40	-0.20	.
35	16379	0.48	0.48	0.26	-0.24	-0.22	0.26	-0.02	.
36	16379	0.95	0.95	0.31	-0.19	-0.15	0.31	-0.14	.
37	16379	0.66	0.66	0.44	-0.26	-0.28	0.44	-0.19	.
38	16379	0.90	0.90	0.42	-0.23	0.42	-0.23	-0.20	.
39	16379	0.83	0.83	0.18	-0.06	-0.09	-0.17	0.18	.
40	16379	0.86	0.86	0.51	-0.28	-0.27	0.51	-0.26	.
41	16379	0.55	0.55	0.41	0.41	-0.22	-0.22	-0.20	.
42A	16379	0.75	0.75	0.45	.	.	.	.	.
42B	16379	0.90	0.45	0.49	.	.	.	.	.
43	16379	0.70	0.70	0.55	-0.19	-0.43	0.55	-0.24	.
44	16379	0.85	0.85	0.37	0.37	-0.18	-0.16	-0.26	.
45	16379	0.20	0.20	0.22	0.11	-0.28	-0.05	0.22	.
46	16379	0.81	0.81	0.40	-0.16	-0.35	-0.13	0.40	.
47	16379	0.93	0.93	0.36	-0.22	0.36	-0.16	-0.17	.
48	16379	0.81	0.81	0.43	-0.24	-0.32	-0.13	0.43	.
49	16379	0.78	0.78	0.43	-0.26	0.43	-0.26	-0.21	.
50A	16379	0.67	0.67	0.52	.	.	.	.	.
50B	16379	1.28	0.64	0.57	.	.	.	.	.
51A	16379	0.19	0.19	0.37	.	.	.	.	.

Table A 1
Summary Item Statistics - Mathematics, Grade 3, Form A (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
51B	16379	0.68	0.34	0.46	.	.	.	.	.
52	16379	0.87	0.87	0.50	-0.32	-0.25	-0.22	0.50	.
53	16379	0.32	0.32	0.22	0.03	0.22	-0.10	-0.33	.
54	16379	0.45	0.45	0.21	-0.02	-0.21	-0.10	0.21	.
55	16379	0.70	0.70	0.50	-0.23	-0.33	0.50	-0.22	.
57	16379	0.21	0.21	0.19	0.01	0.19	-0.18	-0.12	.
58	16379	0.70	0.70	0.42	-0.26	-0.18	0.42	-0.24	.
60	16379	0.81	0.81	0.45	0.45	-0.26	-0.27	-0.25	.
61	16379	0.62	0.62	0.46	-0.27	0.46	-0.26	-0.19	.
62	16379	0.90	0.90	0.39	-0.24	-0.22	-0.15	0.39	.
63	16379	0.71	0.71	0.42	-0.12	-0.31	0.42	-0.21	.
64	16379	0.65	0.65	0.30	0.30	-0.13	-0.10	-0.23	.
66	16379	0.66	0.66	0.42	-0.27	0.42	-0.25	-0.21	.
67	16379	0.30	0.30	0.13	0.13	-0.08	-0.06	-0.10	.
68	16379	0.89	0.89	0.39	0.39	-0.19	-0.18	-0.26	.
69A	16379	0.63	0.63	0.43	.	.	.	.	.
69B	16379	0.97	0.49	0.61	.	.	.	.	.
71	16379	0.84	0.84	0.40	-0.27	-0.19	-0.19	0.40	.
72	16379	0.54	0.54	0.46	-0.29	0.46	-0.18	-0.24	.
73	16379	0.77	0.77	0.47	-0.29	-0.26	-0.23	0.47	.
74	16379	0.88	0.88	0.39	-0.15	0.39	-0.22	-0.27	.
75	16379	0.87	0.87	0.36	-0.16	-0.24	0.36	-0.19	.
76	16379	0.32	0.32	0.27	-0.26	-0.14	-0.02	0.27	.
77A	16379	0.81	0.81	0.38	.	.	.	.	.
77B	16379	1.21	0.60	0.54	.	.	.	.	.
78	16379	0.95	0.95	0.41	-0.22	-0.19	0.41	-0.22	.
79	16379	0.62	0.62	0.51	-0.31	-0.29	-0.22	0.51	.
80	16379	0.34	0.34	0.28	-0.18	-0.16	0.28	-0.05	.
81	16379	0.86	0.86	0.39	-0.27	-0.21	0.39	-0.23	.
82	16379	0.77	0.77	0.46	-0.27	-0.28	-0.23	0.46	.
83	16379	0.85	0.85	0.52	-0.34	0.52	-0.26	-0.22	.
84	16379	0.91	0.91	0.40	0.40	-0.22	-0.22	-0.19	.
85	16379	0.48	0.48	0.32	-0.29	-0.04	-0.17	0.32	.
86	16379	0.53	0.53	0.37	-0.29	0.37	-0.14	-0.16	.
87	16379	0.83	0.83	0.40	-0.26	-0.22	0.40	-0.17	.
88	16379	0.79	0.79	0.41	-0.21	0.41	-0.21	-0.26	.
89	16379	0.77	0.77	0.56	-0.41	-0.30	-0.18	0.56	.

Table A 1
Summary Item Statistics - Mathematics, Grade 3, Form A (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
90	16379	0.40	0.40	0.32	0.32	-0.08	-0.19	-0.20	.
91	16379	0.78	0.78	0.50	-0.27	-0.26	0.50	-0.30	.
92	16379	0.60	0.60	0.39	-0.25	-0.23	0.39	-0.16	.
93	16379	0.64	0.64	0.45	-0.15	0.45	-0.27	-0.28	.
94	16379	0.78	0.78	0.45	0.45	-0.26	-0.20	-0.27	.
95	16379	0.27	0.27	0.41	-0.03	0.41	-0.15	-0.29	.
96	16379	0.47	0.47	0.37	-0.25	0.37	-0.09	-0.27	.
97	16379	0.56	0.56	0.42	-0.15	-0.29	-0.24	0.42	.
98	16379	0.54	0.54	0.40	0.40	-0.11	-0.21	-0.26	.
99	16379	0.60	0.60	0.47	-0.24	0.47	-0.27	-0.27	.
100	16379	0.29	0.29	0.26	-0.06	-0.18	0.26	-0.12	.
101	16379	0.33	0.33	0.33	-0.29	-0.10	0.00	0.33	.
102	16379	0.68	0.68	0.44	-0.17	-0.27	-0.26	0.44	.
103	16379	0.77	0.77	0.46	-0.22	0.46	-0.26	-0.26	.
104	16379	0.53	0.53	0.44	-0.27	-0.18	0.44	-0.23	.
105	16379	0.56	0.56	0.34	-0.10	0.34	-0.20	-0.26	.
106	16379	0.58	0.58	0.47	-0.23	-0.27	0.47	-0.22	.
107	16379	0.57	0.57	0.27	-0.10	-0.18	-0.18	0.27	.

Table A 2
Summary Item Statistics - Mathematics, Grade 3, Form B

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	16162	0.84	0.84	0.31	0.31	-0.22	-0.14	-0.11	-0.13
2	16162	0.90	0.90	0.29	-0.14	0.29	-0.13	-0.13	-0.13
4	16162	0.87	0.87	0.34	-0.15	-0.24	0.34	-0.18	-0.11
10	16162	0.87	0.87	0.42	-0.15	-0.27	0.42	-0.27	.
12	16162	0.89	0.89	0.38	0.38	-0.22	-0.18	-0.23	.
13	16162	0.85	0.85	0.45	-0.24	-0.30	-0.22	0.45	.
14	16162	0.84	0.84	0.33	-0.15	-0.16	0.33	-0.24	.
16	16162	0.89	0.89	0.28	0.28	-0.17	-0.15	-0.12	.
17	16162	0.86	0.86	0.31	-0.11	-0.08	-0.27	0.31	.
18	16162	0.96	0.96	0.23	-0.13	-0.11	-0.10	0.23	.
24	16162	0.96	0.96	0.35	-0.23	-0.15	0.35	-0.12	.
31A	16162	0.81	0.81	0.47	.	.	.	.	.
31B	16162	1.00	0.50	0.52	.	.	.	.	.
32	16162	0.91	0.91	0.46	-0.23	-0.25	0.46	-0.28	.
34	16162	0.95	0.95	0.39	-0.24	-0.19	0.39	-0.17	.
35	16162	0.49	0.49	0.27	-0.25	-0.22	0.27	-0.03	.
36	16162	0.95	0.95	0.31	-0.17	-0.15	0.31	-0.13	.
37	16162	0.70	0.70	0.43	-0.27	-0.27	0.43	-0.19	.
38	16162	0.91	0.91	0.41	-0.24	0.41	-0.22	-0.18	.
39	16162	0.82	0.82	0.15	-0.04	-0.07	-0.16	0.15	.
40	16162	0.87	0.87	0.50	-0.25	-0.26	0.50	-0.27	.
41	16162	0.56	0.56	0.41	0.41	-0.23	-0.21	-0.20	.
42A	16162	0.74	0.74	0.33	.	.	.	.	.
42B	16162	0.94	0.47	0.46	.	.	.	.	.
43	16162	0.72	0.72	0.57	-0.19	-0.46	0.57	-0.25	.
44	16162	0.86	0.86	0.34	0.34	-0.17	-0.14	-0.22	.
45	16162	0.20	0.20	0.22	0.11	-0.29	-0.05	0.22	.
46	16162	0.80	0.80	0.40	-0.16	-0.36	-0.12	0.40	.
47	16162	0.94	0.94	0.33	-0.21	0.33	-0.14	-0.15	.
48	16162	0.82	0.82	0.41	-0.22	-0.30	-0.13	0.41	.
49	16162	0.79	0.79	0.42	-0.25	0.42	-0.25	-0.20	.
50A	16162	0.60	0.60	0.47	.	.	.	.	.
50B	16162	1.14	0.57	0.57	.	.	.	.	.
51A	16162	0.61	0.61	0.38	.	.	.	.	.
51B	16162	0.97	0.49	0.45	.	.	.	.	.
52	16162	0.89	0.89	0.48	-0.30	-0.25	-0.22	0.48	.

Table A 2
Summary Item Statistics - Mathematics, Grade 3, Form B (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
53	16162	0.34	0.34	0.22	0.01	0.22	-0.10	-0.32	.
54	16162	0.46	0.46	0.22	-0.03	-0.21	-0.11	0.22	.
55	16162	0.72	0.72	0.50	-0.23	-0.34	0.50	-0.20	.
57	16162	0.22	0.22	0.18	0.03	0.18	-0.18	-0.13	.
58	16162	0.72	0.72	0.41	-0.27	-0.17	0.41	-0.24	.
59A	16162	0.86	0.86	0.43	.	.	.	.	.
59B	16162	0.94	0.47	0.53	.	.	.	.	.
60	16162	0.82	0.82	0.45	0.45	-0.25	-0.29	-0.23	.
61	16162	0.63	0.63	0.46	-0.28	0.46	-0.27	-0.18	.
62	16162	0.90	0.90	0.38	-0.23	-0.22	-0.15	0.38	.
63	16162	0.72	0.72	0.41	-0.09	-0.32	0.41	-0.21	.
64	16162	0.67	0.67	0.29	0.29	-0.11	-0.11	-0.23	.
66	16162	0.67	0.67	0.43	-0.29	0.43	-0.25	-0.20	.
67	16162	0.32	0.32	0.13	0.13	-0.10	-0.05	-0.08	.
68	16162	0.90	0.90	0.37	0.37	-0.18	-0.17	-0.24	.
69A	16162	0.78	0.78	0.45	.	.	.	.	.
69B	16162	1.23	0.62	0.52	.	.	.	.	.
71	16162	0.84	0.84	0.41	-0.29	-0.19	-0.20	0.41	.
72	16162	0.56	0.56	0.46	-0.29	0.46	-0.19	-0.23	.
73	16162	0.79	0.79	0.48	-0.30	-0.28	-0.22	0.48	.
74	16162	0.90	0.90	0.42	-0.18	0.42	-0.23	-0.27	.
75	16162	0.87	0.87	0.34	-0.18	-0.21	0.34	-0.16	.
76	16162	0.33	0.33	0.27	-0.27	-0.13	-0.02	0.27	.
77A	16162	0.70	0.70	0.45	.	.	.	.	.
77B	16162	1.29	0.65	0.47	.	.	.	.	.
78	16162	0.94	0.94	0.41	-0.25	0.41	-0.21	-0.17	.
79	16162	0.69	0.69	0.37	0.37	-0.27	-0.19	-0.17	.
80	16162	0.85	0.85	0.41	-0.19	0.41	-0.16	-0.32	.
81	16162	0.94	0.94	0.31	-0.17	0.31	-0.17	-0.13	.
82	16162	0.79	0.79	0.41	-0.24	-0.17	0.41	-0.25	.
83	16162	0.68	0.68	0.42	-0.20	0.42	-0.25	-0.21	.
84	16162	0.56	0.56	0.43	0.43	-0.22	-0.20	-0.25	.
85	16162	0.80	0.80	0.43	-0.22	0.43	-0.25	-0.26	.
86	16162	0.80	0.80	0.46	-0.32	0.46	-0.20	-0.22	.
87	16162	0.96	0.96	0.32	-0.15	-0.16	0.32	-0.14	.
88	16162	0.82	0.82	0.34	-0.17	0.34	-0.22	-0.19	.
89	16162	0.66	0.66	0.47	-0.30	-0.28	-0.18	0.47	.

Table A 2
Summary Item Statistics - Mathematics, Grade 3, Form B (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
90	16162	0.96	0.96	0.19	0.19	-0.09	-0.07	-0.05	.
91	16162	0.74	0.74	0.46	-0.25	0.46	-0.32	-0.15	.
92	16162	0.55	0.55	0.51	-0.23	-0.32	-0.21	0.51	.
94	16162	0.36	0.36	0.18	-0.06	-0.15	0.18	-0.10	.
95	16162	0.51	0.51	0.50	-0.14	-0.12	0.50	-0.43	.
97	16162	0.72	0.72	0.45	-0.20	0.45	-0.25	-0.26	.
98	16162	0.78	0.78	0.37	-0.20	0.37	-0.25	-0.15	.
99	16162	0.58	0.58	0.44	-0.16	-0.25	0.44	-0.24	.
100	16162	0.57	0.57	0.46	0.46	-0.21	-0.13	-0.32	.
101	16162	0.70	0.70	0.38	-0.14	0.38	-0.28	-0.20	.
102	16162	0.86	0.86	0.49	0.49	-0.23	-0.31	-0.22	.
103	16162	0.46	0.46	0.34	-0.19	-0.18	-0.14	0.34	.
104	16162	0.62	0.62	0.50	-0.21	0.50	-0.30	-0.26	.
105	16162	0.69	0.69	0.48	-0.28	-0.26	0.48	-0.24	.
106	16162	0.49	0.49	0.47	-0.19	0.47	-0.19	-0.29	.
107	16162	0.40	0.40	0.40	-0.34	-0.08	-0.11	0.40	.

Table A 3
Summary Item Statistics - Mathematics, Grade 3, Form C

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	16017	0.83	0.83	0.30	0.30	-0.22	-0.13	-0.09	-0.12
2	16017	0.90	0.90	0.28	-0.13	0.28	-0.14	-0.12	-0.13
4	16017	0.87	0.87	0.34	-0.14	-0.25	0.34	-0.15	-0.12
10	16017	0.86	0.86	0.41	-0.16	-0.26	0.41	-0.26	.
12	16017	0.89	0.89	0.39	0.39	-0.21	-0.18	-0.24	.
13	16017	0.85	0.85	0.45	-0.23	-0.29	-0.24	0.45	.
14	16017	0.84	0.84	0.32	-0.17	-0.16	0.32	-0.21	.
16	16017	0.85	0.85	0.24	0.24	-0.15	-0.16	-0.12	.
17	16017	0.87	0.87	0.29	-0.12	-0.08	-0.26	0.29	.
18	16017	0.97	0.97	0.24	-0.14	-0.08	-0.11	0.24	.
24	16017	0.96	0.96	0.36	-0.22	-0.16	0.36	-0.15	.
31A	16017	0.73	0.73	0.50	.	.	.	.	.
31B	16017	0.80	0.40	0.51	.	.	.	.	.
32	16017	0.90	0.90	0.46	-0.24	-0.26	0.46	-0.26	.
34	16017	0.95	0.95	0.38	-0.23	-0.20	0.38	-0.16	.
35	16017	0.49	0.49	0.26	-0.24	-0.24	0.26	-0.02	.
36	16017	0.95	0.95	0.31	-0.16	-0.14	0.31	-0.14	.
37	16017	0.68	0.68	0.43	-0.26	-0.27	0.43	-0.19	.
38	16017	0.91	0.91	0.42	-0.24	0.42	-0.22	-0.20	.
39	16017	0.82	0.82	0.14	-0.04	-0.08	-0.15	0.14	.
40	16017	0.87	0.87	0.50	-0.27	-0.27	0.50	-0.25	.
41	16017	0.57	0.57	0.41	0.41	-0.24	-0.21	-0.20	.
42A	16017	0.25	0.25	0.26	.	.	.	.	.
42B	16017	0.74	0.37	0.45	.	.	.	.	.
43	16017	0.70	0.70	0.56	-0.18	-0.46	0.56	-0.24	.
44	16017	0.85	0.85	0.35	0.35	-0.17	-0.15	-0.24	.
45	16017	0.19	0.19	0.23	0.10	-0.29	-0.05	0.23	.
46	16017	0.81	0.81	0.39	-0.16	-0.35	-0.13	0.39	.
47	16017	0.94	0.94	0.34	-0.20	0.34	-0.15	-0.17	.
48	16017	0.82	0.82	0.43	-0.23	-0.32	-0.14	0.43	.
49	16017	0.79	0.79	0.41	-0.25	0.41	-0.25	-0.18	.
50A	16017	0.60	0.60	0.32	.	.	.	.	.
50B	16017	1.09	0.55	0.56	.	.	.	.	.
51A	16017	0.90	0.90	0.36	.	.	.	.	.
51B	16017	1.03	0.51	0.49	.	.	.	.	.
52	16017	0.88	0.88	0.49	-0.32	-0.25	-0.21	0.49	.

Table A 3
Summary Item Statistics - Mathematics, Grade 3, Form C (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
53	16017	0.35	0.35	0.22	0.00	0.22	-0.11	-0.31	.
54	16017	0.46	0.46	0.21	-0.04	-0.22	-0.10	0.21	.
55	16017	0.72	0.72	0.51	-0.25	-0.35	0.51	-0.19	.
57	16017	0.22	0.22	0.19	0.01	0.19	-0.17	-0.13	.
58	16017	0.72	0.72	0.42	-0.27	-0.18	0.42	-0.24	.
59A	16017	0.87	0.87	0.45	.	.	.	.	.
59B	16017	0.98	0.49	0.53	.	.	.	.	.
60	16017	0.82	0.82	0.43	0.43	-0.27	-0.25	-0.24	.
61	16017	0.64	0.64	0.46	-0.28	0.46	-0.26	-0.19	.
62	16017	0.91	0.91	0.36	-0.23	-0.21	-0.13	0.36	.
63	16017	0.73	0.73	0.39	-0.09	-0.31	0.39	-0.20	.
64	16017	0.66	0.66	0.27	0.27	-0.12	-0.09	-0.23	.
66	16017	0.68	0.68	0.41	-0.29	0.41	-0.23	-0.20	.
67	16017	0.30	0.30	0.11	0.11	-0.09	-0.05	-0.08	.
68	16017	0.90	0.90	0.37	0.37	-0.17	-0.17	-0.25	.
69A	16017	0.62	0.62	0.42	.	.	.	.	.
69B	16017	0.94	0.47	0.60	.	.	.	.	.
71	16017	0.85	0.85	0.40	-0.28	-0.19	-0.20	0.40	.
72	16017	0.55	0.55	0.47	-0.30	0.47	-0.20	-0.24	.
73	16017	0.79	0.79	0.45	-0.28	-0.26	-0.21	0.45	.
74	16017	0.89	0.89	0.40	-0.15	0.40	-0.23	-0.26	.
75	16017	0.88	0.88	0.34	-0.17	-0.23	0.34	-0.18	.
76	16017	0.33	0.33	0.26	-0.26	-0.14	-0.03	0.26	.
77A	16017	0.86	0.86	0.40	.	.	.	.	.
77B	16017	0.67	0.33	0.39	.	.	.	.	.
78	16017	0.75	0.75	0.51	-0.45	0.51	-0.19	-0.12	.
79	16017	0.21	0.21	0.10	-0.11	0.10	-0.05	0.04	.
80	16017	0.51	0.51	0.21	0.21	-0.24	-0.02	-0.25	.
81	16017	0.74	0.74	0.55	-0.27	0.55	-0.30	-0.32	.
82	16017	0.48	0.48	0.43	-0.15	0.43	-0.29	-0.17	.
83	16017	0.92	0.92	0.36	-0.20	-0.21	0.36	-0.17	.
84	16017	0.80	0.80	0.43	-0.30	0.43	-0.29	-0.14	.
85	16017	0.80	0.80	0.49	-0.26	0.49	-0.26	-0.29	.
86	16017	0.75	0.75	0.46	-0.29	0.46	-0.24	-0.24	.
87	16017	0.49	0.49	0.47	-0.29	-0.21	-0.14	0.47	.
88	16017	0.86	0.86	0.43	-0.24	0.43	-0.25	-0.23	.
89	16017	0.91	0.91	0.43	-0.27	-0.21	-0.21	0.43	.

Table A 3
Summary Item Statistics - Mathematics, Grade 3, Form C (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
90	16017	0.34	0.34	0.11	-0.12	-0.10	0.11	0.03	.
91	16017	0.82	0.82	0.40	-0.32	-0.15	0.40	-0.19	.
92	16017	0.58	0.58	0.40	-0.19	0.40	-0.28	-0.16	.
93	16017	0.67	0.67	0.33	-0.27	0.33	-0.18	-0.10	.
94	16017	0.79	0.79	0.44	-0.37	0.44	-0.16	-0.17	.
96	16017	0.86	0.86	0.45	0.45	-0.22	-0.23	-0.29	.
97	16017	0.47	0.47	0.41	-0.21	0.41	-0.22	-0.17	.
99	16017	0.87	0.87	0.47	-0.24	-0.25	-0.28	0.47	.
100	16017	0.93	0.93	0.19	-0.09	0.19	-0.12	-0.06	.
101	16017	0.30	0.30	0.31	-0.28	-0.29	0.31	-0.01	.
102	16017	0.58	0.58	0.50	0.50	-0.29	-0.37	-0.12	.
103	16017	0.82	0.82	0.42	0.42	-0.28	-0.20	-0.22	.
104	16017	0.83	0.83	0.45	-0.23	-0.25	0.45	-0.24	.
105	16017	0.63	0.63	0.36	-0.12	-0.29	0.36	-0.21	.
107	16017	0.91	0.91	0.39	-0.26	-0.18	-0.18	0.39	.

Table A 4
Summary Item Statistics - Mathematics, Grade 3, Form D

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	15811	0.69	0.69	0.50	-0.33	-0.21	0.50	-0.19	.
2	15811	0.84	0.84	0.40	-0.29	-0.24	-0.16	0.40	.
3	15811	0.94	0.94	0.29	-0.19	-0.10	0.29	-0.13	.
4	15811	0.69	0.69	0.33	-0.24	0.33	-0.14	-0.21	.
5	15811	0.79	0.79	0.33	-0.18	0.33	-0.19	-0.17	.
6	15811	0.70	0.70	0.45	-0.20	0.45	-0.19	-0.30	.
7	15811	0.55	0.55	0.46	-0.15	-0.18	-0.17	0.46	.
8	15811	0.79	0.79	0.42	-0.25	0.42	-0.17	-0.20	.
10	15811	0.47	0.47	0.30	-0.11	-0.05	0.30	-0.21	.
11	15811	0.88	0.88	0.35	0.35	-0.16	-0.15	-0.25	.
12	15811	0.76	0.76	0.27	-0.14	-0.19	-0.18	0.27	.
13	15811	0.71	0.71	0.18	-0.12	0.18	-0.12	-0.14	.
14	15811	0.74	0.74	0.44	-0.33	-0.17	-0.20	0.44	.
15	15811	0.58	0.58	0.50	0.50	-0.31	-0.11	-0.32	.
16	15811	0.79	0.79	0.54	-0.19	-0.33	0.54	-0.34	.
17	15811	0.73	0.73	0.40	0.40	-0.20	-0.20	-0.26	.
18	15811	0.82	0.82	0.49	-0.25	0.49	-0.28	-0.29	.
19	15811	0.60	0.60	0.57	-0.11	-0.15	0.57	-0.50	.
20	15811	0.26	0.26	0.35	-0.30	-0.12	0.02	0.35	.
21	15811	0.36	0.36	0.30	0.30	-0.24	-0.06	-0.12	.
22	15811	0.95	0.95	0.32	-0.15	0.32	-0.16	-0.15	.
23	15811	0.85	0.85	0.47	-0.32	0.47	-0.23	-0.20	.
24	15811	0.79	0.79	0.33	-0.13	-0.18	0.33	-0.25	.
25	15811	0.88	0.88	0.47	-0.27	0.47	-0.29	-0.18	.
27	15811	0.26	0.26	0.25	-0.15	-0.14	0.25	-0.09	.
28	15811	0.40	0.40	0.44	-0.29	0.44	-0.10	-0.18	.
29	15811	0.59	0.59	0.33	-0.18	-0.26	0.33	-0.15	.
31A	15811	0.44	0.44	0.43	.	.	.	.	.
31B	15811	1.04	0.52	0.53	.	.	.	.	.
32	15811	0.92	0.92	0.45	-0.24	-0.25	0.45	-0.25	.
34	15811	0.92	0.92	0.43	-0.25	-0.22	0.43	-0.21	.
35	15811	0.54	0.54	0.27	-0.25	-0.24	0.27	-0.03	.
36	15811	0.95	0.95	0.33	-0.19	-0.15	0.33	-0.14	.
37	15811	0.68	0.68	0.45	-0.27	-0.29	0.45	-0.19	.
38	15811	0.87	0.87	0.44	-0.26	0.44	-0.25	-0.19	.
39	15811	0.81	0.81	0.15	-0.04	-0.09	-0.16	0.15	.

Table A 4
Summary Item Statistics - Mathematics, Grade 3, Form D (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
40	15811	0.85	0.85	0.53	-0.27	-0.26	0.53	-0.26	.
41	15811	0.56	0.56	0.42	0.42	-0.23	-0.21	-0.22	.
43	15811	0.72	0.72	0.58	-0.18	-0.47	0.58	-0.24	.
44	15811	0.84	0.84	0.37	0.37	-0.16	-0.14	-0.27	.
45	15811	0.19	0.19	0.23	0.09	-0.27	-0.07	0.23	.
46	15811	0.81	0.81	0.40	-0.15	-0.36	-0.13	0.40	.
47	15811	0.94	0.94	0.33	-0.21	0.33	-0.14	-0.14	.
48	15811	0.81	0.81	0.46	-0.24	-0.35	-0.12	0.46	.
49	15811	0.82	0.82	0.44	-0.30	0.44	-0.24	-0.19	.
50A	15811	0.54	0.54	0.58	.	.	.	.	.
50B	15811	1.08	0.54	0.60	.	.	.	.	.
51A	15811	0.39	0.39	0.38	.	.	.	.	.
51B	15811	0.84	0.42	0.53	.	.	.	.	.
52	15811	0.91	0.91	0.48	-0.31	-0.23	-0.21	0.48	.
53	15811	0.35	0.35	0.22	0.01	0.22	-0.10	-0.32	.
54	15811	0.47	0.47	0.20	-0.02	-0.20	-0.11	0.20	.
55	15811	0.71	0.71	0.52	-0.23	-0.37	0.52	-0.20	.
57	15811	0.24	0.24	0.20	0.03	0.20	-0.18	-0.14	.
58	15811	0.74	0.74	0.41	-0.26	-0.19	0.41	-0.23	.
60	15811	0.82	0.82	0.43	0.43	-0.25	-0.27	-0.23	.
61	15811	0.64	0.64	0.47	-0.29	0.47	-0.26	-0.20	.
62	15811	0.89	0.89	0.39	-0.24	-0.22	-0.14	0.39	.
63	15811	0.69	0.69	0.38	-0.10	-0.30	0.38	-0.19	.
64	15811	0.65	0.65	0.28	0.28	-0.12	-0.09	-0.24	.
66	15811	0.70	0.70	0.42	-0.30	0.42	-0.22	-0.19	.
67	15811	0.30	0.30	0.12	0.12	-0.08	-0.06	-0.09	.
68	15811	0.90	0.90	0.36	0.36	-0.19	-0.17	-0.22	.
69A	15811	0.91	0.91	0.42	.	.	.	.	.
69B	15811	0.74	0.37	0.51	.	.	.	.	.
71	15811	0.85	0.85	0.38	-0.26	-0.17	-0.19	0.38	.
72	15811	0.55	0.55	0.46	-0.30	0.46	-0.20	-0.20	.
73	15811	0.79	0.79	0.46	-0.28	-0.26	-0.23	0.46	.
74	15811	0.89	0.89	0.40	-0.16	0.40	-0.22	-0.25	.
75	15811	0.90	0.90	0.35	-0.17	-0.21	0.35	-0.19	.
76	15811	0.33	0.33	0.28	-0.25	-0.15	-0.05	0.28	.
77A	15811	0.27	0.27	0.30	.	.	.	.	.
77B	15811	0.26	0.13	0.44	.	.	.	.	.

Table A 4
Summary Item Statistics - Mathematics, Grade 3, Form D (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
78	15811	0.83	0.83	0.33	0.33	-0.21	-0.15	-0.11	-0.15
79	15811	0.87	0.87	0.32	-0.18	0.32	-0.15	-0.15	-0.12
81	15811	0.84	0.84	0.37	-0.18	-0.24	0.37	-0.20	-0.12
87	15811	0.87	0.87	0.45	-0.17	-0.27	0.45	-0.29	.
89	15811	0.90	0.90	0.41	0.41	-0.23	-0.20	-0.24	.
90	15811	0.82	0.82	0.48	-0.24	-0.31	-0.25	0.48	.
91	15811	0.80	0.80	0.33	-0.18	-0.15	0.33	-0.22	.
93	15811	0.87	0.87	0.22	0.22	-0.15	-0.14	-0.10	.
94	15811	0.83	0.83	0.30	-0.13	-0.08	-0.26	0.30	.
95	15811	0.95	0.95	0.29	-0.18	-0.14	-0.11	0.29	.
101	15811	0.95	0.95	0.36	-0.23	-0.17	0.36	-0.12	.

Table A 5
Summary Item Statistics - Mathematics, Grade 5, Form A

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
2	17200	0.63	0.63	0.47	0.47	-0.23	-0.19	-0.24	-0.20
4	17200	0.61	0.61	0.46	-0.16	0.46	-0.21	-0.23	-0.22
6	17200	0.76	0.76	0.38	-0.28	-0.10	-0.14	0.38	-0.16
8	17200	0.57	0.57	0.44	-0.20	0.44	-0.25	-0.17	.
12	17200	0.68	0.68	0.46	-0.19	0.46	-0.34	-0.22	.
13	17200	0.75	0.75	0.25	-0.11	-0.19	-0.13	0.25	.
17	17200	0.66	0.66	0.13	-0.05	-0.06	-0.13	0.13	.
23	17200	0.63	0.63	0.50	-0.26	0.50	-0.33	-0.21	.
26	17200	0.47	0.47	0.48	-0.25	0.48	-0.13	-0.33	.
27	17200	0.53	0.53	0.54	-0.23	-0.20	-0.33	0.54	.
28	17200	0.61	0.61	0.39	-0.24	0.39	-0.23	-0.13	.
31	17200	0.57	0.57	0.49	-0.31	0.49	-0.21	-0.20	.
32	17200	0.70	0.70	0.46	-0.27	-0.25	0.46	-0.20	.
33A	17200	0.53	0.53	0.62	.	.	.	.	.
33B	17200	1.33	0.44	0.69	.	.	.	.	.
34	17200	0.85	0.85	0.38	-0.20	0.38	-0.25	-0.19	.
35	17200	0.54	0.54	0.45	-0.21	-0.24	0.45	-0.23	.
37	17200	0.58	0.58	0.23	0.23	-0.21	-0.03	-0.16	.
38	17200	0.41	0.41	0.29	-0.09	-0.21	-0.13	0.29	.
39	17200	0.45	0.45	0.49	-0.33	-0.25	0.49	-0.09	.
40	17200	0.42	0.42	0.43	-0.11	0.43	-0.25	-0.27	.
41	17200	0.38	0.38	0.27	0.27	-0.06	-0.22	-0.18	.
42	17200	0.49	0.49	0.34	-0.23	0.34	-0.13	-0.13	.
43	17200	0.60	0.60	0.50	-0.20	-0.22	0.50	-0.32	.
44A	17200	0.51	0.51	0.50	.	.	.	.	.
44B	17200	0.76	0.38	0.50	.	.	.	.	.
45	17200	0.81	0.81	0.33	-0.20	0.33	-0.19	-0.19	.
46	17200	0.61	0.61	0.49	-0.22	0.49	-0.22	-0.32	.
47	17200	0.23	0.23	0.23	0.23	-0.13	-0.27	0.10	.
48	17200	0.31	0.31	0.29	-0.09	0.29	-0.14	-0.16	.
49	17200	0.37	0.37	0.25	-0.06	-0.20	-0.09	0.25	.
50	17200	0.68	0.68	0.53	0.53	-0.32	-0.26	-0.24	.
51	17200	0.21	0.21	0.23	-0.25	0.09	-0.12	0.23	.
52A	17200	0.22	0.22	0.40	.	.	.	.	.
52B	17200	0.50	0.25	0.46	.	.	.	.	.
53A	17200	0.25	0.25	0.51	.	.	.	.	.
53B	17200	0.48	0.24	0.55	.	.	.	.	.

Table A 5
Summary Item Statistics - Mathematics, Grade 5, Form A (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
54A	17200	0.30	0.30	0.59	.	.	.	.	.
54B	17200	0.66	0.33	0.63	.	.	.	.	.
55A	17200	0.38	0.38	0.29	.	.	.	.	.
55B	17200	0.65	0.32	0.53	.	.	.	.	.
57	17200	0.54	0.54	0.33	0.33	-0.19	-0.17	-0.17	.
58	17200	0.24	0.24	0.40	0.01	0.00	0.40	-0.38	.
59A	17200	0.58	0.58	0.62	.	.	.	.	.
59B	17200	0.95	0.47	0.60	.	.	.	.	.
60	17200	0.50	0.50	0.49	-0.37	-0.20	-0.18	0.49	.
61	17200	0.44	0.44	0.37	-0.23	-0.02	0.37	-0.30	.
62	17200	0.46	0.46	0.45	-0.24	0.45	-0.13	-0.26	.
63	17200	0.68	0.68	0.43	-0.19	-0.33	-0.14	0.43	.
64	17200	0.65	0.65	0.54	0.54	-0.24	-0.29	-0.29	.
65	17200	0.27	0.27	0.33	-0.23	-0.18	-0.01	0.33	.
66	17200	0.61	0.61	0.43	-0.22	-0.20	0.43	-0.26	.
67	17200	0.51	0.51	0.22	-0.20	-0.05	-0.18	0.22	.
68A	17200	0.90	0.90	0.15	.	.	.	.	.
68B	17200	0.56	0.28	0.39	.	.	.	.	.
69	17200	0.46	0.46	0.42	-0.25	0.42	-0.10	-0.27	.
70	17200	0.60	0.60	0.46	-0.20	-0.29	-0.22	0.46	.
71	17200	0.33	0.33	0.39	-0.27	0.39	-0.09	-0.14	.
72	17200	0.24	0.24	0.13	-0.02	0.13	-0.08	-0.11	.
73	17200	0.51	0.51	0.34	-0.16	-0.12	0.34	-0.24	.
74	17200	0.35	0.35	0.35	-0.29	-0.12	0.35	-0.06	.
75	17200	0.61	0.61	0.16	-0.04	-0.14	0.16	-0.14	.
76	17200	0.60	0.60	0.44	-0.28	-0.25	-0.22	0.44	.
77	17200	0.78	0.78	0.40	-0.25	-0.19	-0.25	0.40	.
78	17200	0.70	0.70	0.40	-0.32	-0.16	0.40	-0.15	.
79	17200	0.51	0.51	0.27	-0.08	-0.21	-0.21	0.27	.
80	17200	0.13	0.13	0.29	-0.27	0.01	0.05	0.29	.
82	17200	0.85	0.85	0.39	0.39	-0.24	-0.21	-0.20	.
83	17200	0.49	0.49	0.47	-0.18	0.47	-0.25	-0.25	.
84	17200	0.64	0.64	0.36	-0.18	-0.19	0.36	-0.21	.
85	17200	0.24	0.24	0.34	-0.27	0.34	-0.09	-0.03	.
86	17200	0.58	0.58	0.52	0.52	-0.33	-0.29	-0.17	.
87	17200	0.50	0.50	0.45	-0.32	-0.20	0.45	-0.11	.
88	17200	0.32	0.32	0.11	-0.14	0.11	-0.21	0.11	.

Table A 5
Summary Item Statistics - Mathematics, Grade 5, Form A (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
89	17200	0.50	0.50	0.51	-0.20	-0.26	0.51	-0.28	.
90	17200	0.47	0.47	0.44	-0.16	0.44	-0.23	-0.25	.
91	17200	0.75	0.75	0.45	-0.24	-0.22	0.45	-0.28	.
92	17200	0.52	0.52	0.38	-0.19	-0.20	-0.19	0.38	.
93	17200	0.16	0.16	0.37	-0.21	-0.02	-0.17	0.37	.
94	17200	0.41	0.41	0.43	-0.18	-0.20	0.43	-0.22	.
95	17200	0.87	0.87	0.27	0.27	-0.13	-0.19	-0.14	.
97	17200	0.44	0.44	0.39	-0.10	-0.22	-0.22	0.39	.
100	17200	0.59	0.59	0.39	-0.25	0.39	-0.20	-0.18	.
101	17200	0.51	0.51	0.46	-0.23	-0.21	-0.26	0.46	.
102	17200	0.39	0.39	0.31	-0.19	-0.15	0.31	-0.11	.
103	17200	0.40	0.40	0.39	-0.22	-0.12	0.39	-0.19	.
104	17200	0.66	0.66	0.45	-0.38	-0.15	-0.15	0.45	.
106	17200	0.60	0.60	0.38	-0.21	0.38	-0.21	-0.21	.

Table A 6
Summary Item Statistics - Mathematics, Grade 5, Form B

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
2	16966	0.65	0.65	0.46	0.46	-0.23	-0.20	-0.24	-0.21
4	16966	0.62	0.62	0.45	-0.17	0.45	-0.22	-0.23	-0.23
6	16966	0.78	0.78	0.36	-0.28	-0.10	-0.14	0.36	-0.16
8	16966	0.58	0.58	0.45	-0.21	0.45	-0.25	-0.19	.
12	16966	0.70	0.70	0.46	-0.20	0.46	-0.35	-0.21	.
13	16966	0.75	0.75	0.23	-0.11	-0.20	-0.11	0.23	.
17	16966	0.66	0.66	0.13	-0.07	-0.08	-0.13	0.13	.
23	16966	0.64	0.64	0.52	-0.29	0.52	-0.34	-0.20	.
26	16966	0.48	0.48	0.48	-0.25	0.48	-0.15	-0.33	.
27	16966	0.54	0.54	0.53	-0.24	-0.20	-0.35	0.53	.
28	16966	0.62	0.62	0.38	-0.26	0.38	-0.23	-0.13	.
31	16966	0.58	0.58	0.49	-0.33	0.49	-0.22	-0.21	.
32	16966	0.72	0.72	0.43	-0.27	-0.25	0.43	-0.19	.
33A	16966	0.47	0.47	0.59	.	.	.	.	.
33B	16966	1.14	0.38	0.68	.	.	.	.	.
34	16966	0.86	0.86	0.36	-0.20	0.36	-0.24	-0.17	.
35	16966	0.54	0.54	0.45	-0.23	-0.27	0.45	-0.22	.
37	16966	0.58	0.58	0.22	0.22	-0.20	-0.06	-0.16	.
38	16966	0.42	0.42	0.27	-0.10	-0.21	-0.12	0.27	.
39	16966	0.47	0.47	0.49	-0.34	-0.25	0.49	-0.09	.
40	16966	0.41	0.41	0.43	-0.12	0.43	-0.29	-0.23	.
41	16966	0.38	0.38	0.27	0.27	-0.09	-0.21	-0.17	.
42	16966	0.49	0.49	0.34	-0.25	0.34	-0.13	-0.13	.
43	16966	0.58	0.58	0.46	-0.20	-0.22	0.46	-0.29	.
45	16966	0.82	0.82	0.31	-0.20	0.31	-0.18	-0.17	.
46	16966	0.63	0.63	0.49	-0.23	0.49	-0.23	-0.33	.
47	16966	0.23	0.23	0.22	0.22	-0.14	-0.29	0.10	.
48	16966	0.31	0.31	0.29	-0.10	0.29	-0.16	-0.15	.
49	16966	0.38	0.38	0.22	-0.05	-0.21	-0.09	0.22	.
50	16966	0.65	0.65	0.52	0.52	-0.32	-0.27	-0.22	.
51	16966	0.21	0.21	0.22	-0.23	0.05	-0.12	0.22	.
55A	16966	0.34	0.34	0.60	.	.	.	.	.
55B	16966	0.87	0.43	0.66	.	.	.	.	.
57	16966	0.55	0.55	0.32	0.32	-0.20	-0.19	-0.15	.
58	16966	0.24	0.24	0.41	0.00	0.02	0.41	-0.41	.
59A	16966	0.51	0.51	0.39	.	.	.	.	.

Table A 6
Summary Item Statistics - Mathematics, Grade 5, Form B (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
59B	16966	0.65	0.32	0.50	.	.	.	.	.
60	16966	0.49	0.49	0.50	-0.41	-0.18	-0.16	0.50	.
61	16966	0.46	0.46	0.37	-0.24	-0.05	0.37	-0.29	.
62	16966	0.47	0.47	0.45	-0.25	0.45	-0.15	-0.26	.
63	16966	0.65	0.65	0.46	-0.20	-0.35	-0.17	0.46	.
64	16966	0.66	0.66	0.52	0.52	-0.23	-0.29	-0.29	.
65	16966	0.26	0.26	0.34	-0.24	-0.16	-0.02	0.34	.
66	16966	0.60	0.60	0.41	-0.22	-0.21	0.41	-0.23	.
67	16966	0.50	0.50	0.20	-0.18	-0.05	-0.16	0.20	.
68A	16966	0.54	0.54	0.49	.	.	.	.	.
68B	16966	0.51	0.26	0.60	.	.	.	.	.
69	16966	0.48	0.48	0.41	-0.26	0.41	-0.14	-0.24	.
70	16966	0.60	0.60	0.42	-0.18	-0.30	-0.21	0.42	.
71	16966	0.34	0.34	0.37	-0.29	0.37	-0.08	-0.12	.
72	16966	0.24	0.24	0.14	-0.03	0.14	-0.09	-0.11	.
73	16966	0.48	0.48	0.32	-0.16	-0.12	0.32	-0.24	.
74	16966	0.34	0.34	0.33	-0.30	-0.11	0.33	-0.07	.
75	16966	0.58	0.58	0.14	-0.04	-0.14	0.14	-0.14	.
76	16966	0.54	0.54	0.41	-0.27	-0.24	-0.22	0.41	.
78	16966	0.64	0.64	0.27	-0.19	-0.21	0.27	-0.10	.
79	16966	0.61	0.61	0.33	-0.29	0.33	-0.10	-0.16	.
80	16966	0.15	0.15	0.41	-0.16	-0.14	-0.14	0.41	.
82	16966	0.65	0.65	0.53	-0.40	-0.25	0.53	-0.15	.
83	16966	0.52	0.52	0.51	-0.29	0.51	-0.17	-0.30	.
84	16966	0.19	0.19	0.11	-0.25	0.11	0.21	-0.28	.
85	16966	0.22	0.22	0.26	-0.13	-0.10	0.26	-0.13	.
86	16966	0.62	0.62	0.37	0.37	-0.26	-0.18	-0.18	.
87	16966	0.30	0.30	0.07	0.07	-0.05	-0.08	-0.04	.
88	16966	0.35	0.35	0.39	-0.25	0.39	-0.11	-0.18	.
89	16966	0.19	0.19	-0.03	-0.03	-0.09	-0.03	0.08	.
90	16966	0.45	0.45	0.19	-0.21	-0.19	-0.01	0.19	.
91	16966	0.33	0.33	0.53	-0.27	-0.26	-0.13	0.53	.
93	16966	0.24	0.24	0.23	0.02	0.01	0.23	-0.31	.
94	16966	0.45	0.45	0.43	-0.16	-0.25	-0.24	0.43	.
95	16966	0.51	0.51	0.41	-0.21	-0.24	-0.20	0.41	.
96	16966	0.52	0.52	0.38	-0.27	-0.21	0.38	-0.12	.
97	16966	0.48	0.48	0.42	0.42	-0.12	-0.28	-0.23	.

Table A 6
Summary Item Statistics - Mathematics, Grade 5, Form B (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
99	16966	0.12	0.12	0.19	-0.20	-0.14	0.06	0.19	.
101	16966	0.49	0.49	0.37	-0.18	-0.20	-0.18	0.37	.
104	16966	0.42	0.42	0.37	-0.12	0.37	-0.14	-0.29	.
105	16966	0.20	0.20	-0.06	0.00	0.04	-0.06	-0.06	.
106	16966	0.40	0.40	0.16	-0.18	0.16	-0.22	0.00	.

Table A 7
Summary Item Statistics - Mathematics, Grade 5, Form C

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
2	16838	0.65	0.65	0.48	0.48	-0.23	-0.20	-0.25	-0.20
4	16838	0.62	0.62	0.47	-0.18	0.47	-0.22	-0.23	-0.24
6	16838	0.78	0.78	0.38	-0.28	-0.11	-0.14	0.38	-0.16
8	16838	0.58	0.58	0.46	-0.21	0.46	-0.25	-0.17	.
12	16838	0.69	0.69	0.46	-0.18	0.46	-0.34	-0.22	.
13	16838	0.76	0.76	0.25	-0.11	-0.20	-0.11	0.25	.
17	16838	0.66	0.66	0.14	-0.07	-0.07	-0.13	0.14	.
23	16838	0.64	0.64	0.51	-0.28	0.51	-0.32	-0.20	.
26	16838	0.49	0.49	0.49	-0.25	0.49	-0.14	-0.34	.
27	16838	0.54	0.54	0.53	-0.23	-0.19	-0.35	0.53	.
28	16838	0.63	0.63	0.38	-0.25	0.38	-0.22	-0.13	.
31	16838	0.59	0.59	0.49	-0.33	0.49	-0.20	-0.19	.
32	16838	0.72	0.72	0.45	-0.27	-0.25	0.45	-0.19	.
33A	16838	0.63	0.63	0.55	.	.	.	.	.
33B	16838	1.58	0.53	0.65	.	.	.	.	.
34	16838	0.86	0.86	0.37	-0.18	0.37	-0.25	-0.18	.
35	16838	0.55	0.55	0.45	-0.22	-0.26	0.45	-0.23	.
37	16838	0.59	0.59	0.21	0.21	-0.21	-0.03	-0.16	.
38	16838	0.40	0.40	0.25	-0.08	-0.20	-0.11	0.25	.
39	16838	0.46	0.46	0.49	-0.33	-0.25	0.49	-0.08	.
40	16838	0.40	0.40	0.41	-0.11	0.41	-0.24	-0.25	.
41	16838	0.39	0.39	0.25	0.25	-0.06	-0.20	-0.17	.
42	16838	0.50	0.50	0.32	-0.24	0.32	-0.12	-0.10	.
43	16838	0.53	0.53	0.45	-0.18	-0.19	0.45	-0.28	.
44A	16838	0.36	0.36	0.47	.	.	.	.	.
44B	16838	0.88	0.44	0.52	.	.	.	.	.
45	16838	0.83	0.83	0.32	-0.20	0.32	-0.18	-0.18	.
46	16838	0.62	0.62	0.50	-0.22	0.50	-0.22	-0.33	.
47	16838	0.22	0.22	0.22	0.22	-0.11	-0.27	0.10	.
48	16838	0.31	0.31	0.28	-0.09	0.28	-0.14	-0.15	.
49	16838	0.40	0.40	0.22	-0.05	-0.21	-0.08	0.22	.
50	16838	0.64	0.64	0.50	0.50	-0.31	-0.24	-0.21	.
51	16838	0.22	0.22	0.21	-0.27	0.10	-0.10	0.21	.
53A	16838	0.27	0.27	0.54	.	.	.	.	.
53B	16838	0.65	0.32	0.67	.	.	.	.	.
54A	16838	0.64	0.64	0.53	.	.	.	.	.

Table A 7
Summary Item Statistics - Mathematics, Grade 5, Form C (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
54B	16838	1.19	0.60	0.60	.	.	.	.	.
55A	16838	0.93	0.93	0.28	.	.	.	.	.
55B	16838	0.80	0.40	0.40	.	.	.	.	.
57	16838	0.56	0.56	0.34	0.34	-0.22	-0.17	-0.15	.
58	16838	0.24	0.24	0.41	0.02	0.04	0.41	-0.42	.
59A	16838	0.11	0.11	0.37	.	.	.	.	.
59B	16838	0.53	0.26	0.48	.	.	.	.	.
60	16838	0.50	0.50	0.52	-0.43	-0.19	-0.17	0.52	.
61	16838	0.46	0.46	0.35	-0.24	-0.01	0.35	-0.30	.
62	16838	0.47	0.47	0.45	-0.27	0.45	-0.13	-0.24	.
63	16838	0.69	0.69	0.44	-0.19	-0.34	-0.16	0.44	.
64	16838	0.69	0.69	0.52	0.52	-0.23	-0.29	-0.29	.
65	16838	0.29	0.29	0.35	-0.26	-0.18	-0.02	0.35	.
66	16838	0.61	0.61	0.42	-0.22	-0.22	0.42	-0.23	.
67	16838	0.49	0.49	0.21	-0.19	-0.04	-0.18	0.21	.
68A	16838	0.48	0.48	0.53	.	.	.	.	.
68B	16838	0.83	0.41	0.62	.	.	.	.	.
69	16838	0.48	0.48	0.41	-0.26	0.41	-0.12	-0.25	.
70	16838	0.60	0.60	0.44	-0.18	-0.31	-0.20	0.44	.
71	16838	0.34	0.34	0.38	-0.28	0.38	-0.09	-0.13	.
72	16838	0.23	0.23	0.13	-0.03	0.13	-0.07	-0.10	.
73	16838	0.50	0.50	0.35	-0.18	-0.12	0.35	-0.26	.
74	16838	0.35	0.35	0.34	-0.29	-0.11	0.34	-0.08	.
75	16838	0.58	0.58	0.12	-0.03	-0.13	0.12	-0.13	.
76	16838	0.53	0.53	0.40	-0.28	-0.22	-0.22	0.40	.
77	16838	0.51	0.51	0.29	-0.19	-0.20	-0.12	0.29	.
78	16838	0.53	0.53	0.39	-0.26	-0.16	0.39	-0.21	.
79	16838	0.54	0.54	0.47	-0.21	0.47	-0.33	-0.15	.
81	16838	0.52	0.52	0.48	-0.29	-0.23	-0.21	0.48	.
83	16838	0.80	0.80	0.39	-0.18	-0.21	0.39	-0.26	.
84	16838	0.54	0.54	0.42	0.42	-0.23	-0.23	-0.19	.
86	16838	0.47	0.47	0.29	-0.04	-0.22	-0.23	0.29	.
87	16838	0.49	0.49	0.42	-0.22	0.42	-0.28	-0.15	.
88	16838	0.45	0.45	0.43	-0.15	0.43	-0.19	-0.27	.
89	16838	0.38	0.38	0.36	-0.30	-0.20	-0.04	0.36	.
90	16838	0.54	0.54	0.46	-0.24	-0.24	-0.21	0.46	.
91	16838	0.47	0.47	0.40	0.40	-0.30	-0.20	-0.08	.

Table A 7
Summary Item Statistics - Mathematics, Grade 5, Form C (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
92	16838	0.33	0.33	0.46	0.46	-0.35	-0.14	-0.10	.
93	16838	0.68	0.68	0.36	-0.24	-0.13	-0.22	0.36	.
94	16838	0.51	0.51	0.26	0.26	-0.07	-0.20	-0.16	.
95	16838	0.47	0.47	0.57	-0.08	0.57	-0.50	-0.17	.
96	16838	0.39	0.39	0.44	-0.17	-0.11	0.44	-0.29	.
97	16838	0.39	0.39	0.12	-0.09	-0.02	0.12	-0.13	.
98	16838	0.41	0.41	0.58	-0.26	0.58	-0.20	-0.34	.
99	16838	0.38	0.38	0.28	-0.10	-0.16	0.28	-0.15	.
100	16838	0.40	0.40	0.42	-0.20	0.42	-0.24	-0.20	.
101	16838	0.30	0.30	0.28	0.28	-0.15	-0.11	-0.11	.
102	16838	0.30	0.30	0.22	-0.21	-0.04	0.22	-0.04	.
104	16838	0.47	0.47	0.37	-0.27	-0.17	0.37	-0.08	.
105	16838	0.38	0.38	0.46	-0.17	0.46	-0.12	-0.30	.
106	16838	0.54	0.54	0.48	-0.21	-0.27	-0.24	0.48	.

Table A 8
Summary Item Statistics - Mathematics, Grade 5, Form D

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
2	16611	0.75	0.75	0.46	0.46	-0.32	-0.23	-0.21	.
3	16611	0.56	0.56	0.42	-0.09	-0.25	0.42	-0.30	.
4	16611	0.88	0.88	0.24	0.24	-0.12	-0.14	-0.14	.
5	16611	0.23	0.23	0.43	-0.36	-0.02	-0.03	0.43	.
7	16611	0.33	0.33	0.11	0.02	-0.08	-0.07	0.11	.
9	16611	0.87	0.87	0.31	0.31	-0.22	-0.13	-0.18	.
12	16611	0.28	0.28	0.36	-0.19	-0.15	-0.14	0.36	.
13	16611	0.37	0.37	0.18	-0.20	-0.13	0.18	0.00	.
14	16611	0.59	0.59	0.45	-0.25	-0.21	0.45	-0.26	.
15	16611	0.73	0.73	0.43	-0.24	0.43	-0.21	-0.28	.
16	16611	0.67	0.67	0.23	-0.18	-0.20	0.23	-0.09	.
18	16611	0.36	0.36	0.09	0.09	-0.12	-0.01	-0.07	.
19	16611	0.30	0.30	0.20	0.03	-0.19	-0.14	0.20	.
20	16611	0.07	0.07	-0.04	-0.18	0.24	-0.15	-0.04	.
21	16611	0.61	0.61	0.39	-0.20	-0.24	-0.20	0.39	.
22	16611	0.58	0.58	0.37	-0.15	0.37	-0.25	-0.19	.
23	16611	0.24	0.24	0.07	0.07	-0.22	0.04	-0.01	.
24	16611	0.23	0.23	0.45	-0.27	0.00	-0.20	0.45	.
25	16611	0.56	0.56	0.40	0.40	-0.23	-0.22	-0.18	.
27	16611	0.51	0.51	0.55	-0.27	-0.29	-0.22	0.55	.
28	16611	0.38	0.38	0.53	-0.37	-0.20	-0.08	0.53	.
29	16611	0.57	0.57	0.51	-0.21	-0.28	-0.28	0.51	.
30	16611	0.47	0.47	0.45	-0.17	0.45	-0.19	-0.27	.
32	16611	0.59	0.59	0.35	0.35	-0.16	-0.17	-0.23	.
33A	16611	0.27	0.27	0.53	.	.	.	.	.
33B	16611	0.61	0.20	0.59	.	.	.	.	.
34	16611	0.84	0.84	0.37	-0.19	0.37	-0.26	-0.18	.
35	16611	0.48	0.48	0.41	-0.21	-0.22	0.41	-0.20	.
37	16611	0.56	0.56	0.26	0.26	-0.22	-0.06	-0.17	.
38	16611	0.44	0.44	0.29	-0.09	-0.21	-0.15	0.29	.
39	16611	0.45	0.45	0.49	-0.33	-0.26	0.49	-0.08	.
40	16611	0.48	0.48	0.41	-0.13	0.41	-0.24	-0.27	.
41	16611	0.38	0.38	0.28	0.28	-0.08	-0.22	-0.16	.
42	16611	0.47	0.47	0.31	-0.23	0.31	-0.10	-0.11	.
43	16611	0.64	0.64	0.48	-0.21	-0.21	0.48	-0.31	.
44A	16611	0.43	0.43	0.43	.	.	.	.	.

Table A 8
Summary Item Statistics - Mathematics, Grade 5, Form D (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
44B	16611	0.48	0.24	0.55	.	.	.	.	.
45	16611	0.83	0.83	0.31	-0.20	0.31	-0.18	-0.17	.
46	16611	0.64	0.64	0.47	-0.20	0.47	-0.23	-0.31	.
47	16611	0.26	0.26	0.25	0.25	-0.16	-0.28	0.09	.
48	16611	0.29	0.29	0.26	-0.06	0.26	-0.15	-0.15	.
49	16611	0.43	0.43	0.28	-0.12	-0.20	-0.11	0.28	.
50	16611	0.67	0.67	0.52	0.52	-0.31	-0.27	-0.23	.
51	16611	0.27	0.27	0.28	-0.28	0.02	-0.11	0.28	.
52A	16611	0.68	0.68	0.34	.	.	.	.	.
52B	16611	1.16	0.58	0.38	.	.	.	.	.
53A	16611	0.36	0.36	0.57	.	.	.	.	.
53B	16611	0.72	0.36	0.65	.	.	.	.	.
55A	16611	0.54	0.54	0.40	.	.	.	.	.
55B	16611	0.67	0.33	0.47	.	.	.	.	.
57	16611	0.55	0.55	0.34	0.34	-0.23	-0.18	-0.14	.
58	16611	0.25	0.25	0.44	-0.01	0.00	0.44	-0.42	.
60	16611	0.50	0.50	0.51	-0.40	-0.20	-0.19	0.51	.
61	16611	0.51	0.51	0.41	-0.25	-0.10	0.41	-0.29	.
62	16611	0.47	0.47	0.44	-0.24	0.44	-0.15	-0.25	.
63	16611	0.74	0.74	0.42	-0.19	-0.32	-0.16	0.42	.
64	16611	0.65	0.65	0.52	0.52	-0.24	-0.29	-0.27	.
65	16611	0.27	0.27	0.33	-0.22	-0.18	-0.02	0.33	.
66	16611	0.59	0.59	0.43	-0.24	-0.21	0.43	-0.23	.
67	16611	0.48	0.48	0.26	-0.19	-0.10	-0.17	0.26	.
69	16611	0.47	0.47	0.39	-0.23	0.39	-0.12	-0.25	.
70	16611	0.61	0.61	0.48	-0.20	-0.31	-0.23	0.48	.
71	16611	0.33	0.33	0.39	-0.27	0.39	-0.10	-0.14	.
72	16611	0.24	0.24	0.13	-0.03	0.13	-0.08	-0.09	.
73	16611	0.47	0.47	0.33	-0.17	-0.10	0.33	-0.23	.
74	16611	0.34	0.34	0.32	-0.28	-0.10	0.32	-0.08	.
75	16611	0.57	0.57	0.16	-0.06	-0.15	0.16	-0.13	.
76	16611	0.55	0.55	0.42	-0.27	-0.24	-0.22	0.42	.
78	16611	0.61	0.61	0.49	0.49	-0.25	-0.20	-0.22	-0.22
80	16611	0.57	0.57	0.46	-0.19	0.46	-0.22	-0.24	-0.18
82	16611	0.70	0.70	0.42	-0.30	-0.12	-0.17	0.42	-0.17
84	16611	0.55	0.55	0.42	-0.20	0.42	-0.25	-0.18	.
88	16611	0.71	0.71	0.44	-0.18	0.44	-0.31	-0.23	.

Table A 8
Summary Item Statistics - Mathematics, Grade 5, Form D (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
89	16611	0.72	0.72	0.25	-0.13	-0.18	-0.12	0.25	.
93	16611	0.64	0.64	0.17	-0.09	-0.09	-0.13	0.17	.
99	16611	0.60	0.60	0.49	-0.25	0.49	-0.32	-0.20	.
102	16611	0.49	0.49	0.46	-0.22	0.46	-0.16	-0.32	.
103	16611	0.52	0.52	0.54	-0.24	-0.24	-0.32	0.54	.
104	16611	0.58	0.58	0.37	-0.23	0.37	-0.23	-0.13	.
107	16611	0.55	0.55	0.48	-0.29	0.48	-0.22	-0.21	.
108	16611	0.75	0.75	0.45	-0.28	-0.24	0.45	-0.22	.

Table A 9
Summary Item Statistics - Mathematics, Grade 8, Form A

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
6	15980	0.58	0.58	0.41	-0.10	-0.23	0.41	-0.25	.
7	15980	0.65	0.65	0.40	-0.22	-0.15	0.40	-0.25	.
13	15980	0.89	0.89	0.27	-0.13	-0.17	-0.13	0.27	.
16	15980	0.87	0.87	0.38	-0.24	-0.21	0.38	-0.14	.
20	15980	0.30	0.30	0.29	-0.19	0.00	0.29	-0.20	.
26	15980	0.43	0.43	0.31	-0.10	0.31	-0.20	-0.09	.
27	15980	0.42	0.42	0.40	-0.09	-0.28	0.40	-0.17	.
29	15980	0.54	0.54	0.35	0.35	-0.14	-0.18	-0.16	.
32A	15980	0.20	0.20	0.55	.	.	.	.	.
32B	15980	0.76	0.25	0.67	.	.	.	.	.
33	15980	0.51	0.51	0.40	-0.15	-0.25	0.40	-0.18	.
34	15980	0.65	0.65	0.41	-0.21	0.41	-0.23	-0.20	.
36	15980	0.23	0.23	0.37	-0.16	-0.23	0.00	0.37	.
37	15980	0.31	0.31	0.35	-0.21	-0.19	0.35	-0.07	.
38	15980	0.36	0.36	0.32	0.32	-0.08	-0.19	-0.12	.
40	15980	0.50	0.50	0.38	-0.25	-0.18	0.38	-0.07	.
42	15980	0.24	0.24	0.38	-0.33	0.38	0.03	-0.03	.
43	15980	0.50	0.50	0.38	0.38	-0.15	-0.10	-0.26	.
44	15980	0.49	0.49	0.42	-0.14	-0.22	-0.22	0.42	.
45	15980	0.19	0.19	0.16	-0.01	0.16	-0.08	-0.10	.
46A	15980	0.21	0.21	0.52	.	.	.	.	.
46B	15980	0.35	0.17	0.56	.	.	.	.	.
47	15980	0.10	0.10	0.48	0.48	.	.	.	.
48	15980	0.34	0.34	0.48	0.48	.	.	.	.
49	15980	0.37	0.37	0.49	0.49	.	.	.	.
50	15980	0.27	0.27	0.62	0.62	.	.	.	.
52A	15980	0.16	0.16	0.61	.	.	.	.	.
52B	15980	0.52	0.26	0.70	.	.	.	.	.
53	15980	0.43	0.43	0.51	0.51	.	.	.	.
54	15980	0.29	0.29	0.54	0.54	.	.	.	.
56	15980	0.13	0.13	0.53	0.53	.	.	.	.
57A	15980	0.58	0.58	0.51	.	.	.	.	.
57B	15980	1.22	0.61	0.55	.	.	.	.	.
58A	15980	0.47	0.47	0.50	.	.	.	.	.
58B	15980	1.11	0.56	0.58	.	.	.	.	.
61	15980	0.41	0.41	0.35	-0.20	-0.11	0.35	-0.18	.

Table A 9
Summary Item Statistics - Mathematics, Grade 8, Form A (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
62	15980	0.30	0.30	0.36	-0.26	-0.21	-0.03	0.36	.
63	15980	0.43	0.43	0.34	-0.24	0.34	-0.10	-0.13	.
64A	15980	0.43	0.43	0.36	.	.	.	.	.
64B	15980	0.74	0.25	0.63	.	.	.	.	.
65	15980	0.56	0.56	0.60	0.60	.	.	.	.
69	15980	0.23	0.23	0.43	0.02	-0.33	-0.13	0.43	.
71	15980	0.35	0.35	0.35	-0.21	0.35	-0.14	-0.14	.
72	15980	0.42	0.42	0.44	0.44	-0.20	-0.26	-0.11	.
74	15980	0.53	0.53	0.40	-0.14	0.40	-0.25	-0.15	.
75	15980	0.40	0.40	0.40	-0.05	-0.18	0.40	-0.26	.
77	15980	0.25	0.25	0.13	-0.13	0.13	-0.13	0.09	.
79	15980	0.13	0.13	0.28	-0.17	-0.10	0.28	0.07	.
80	15980	0.39	0.39	0.35	0.35	-0.14	-0.24	-0.08	.
81	15980	0.56	0.56	0.41	0.41	-0.19	-0.13	-0.28	.
82	15980	0.26	0.26	0.50	-0.10	-0.36	-0.08	0.50	.
83	15980	0.32	0.32	0.45	0.45	-0.13	-0.25	-0.16	.
84	15980	0.37	0.37	0.51	-0.21	-0.21	-0.21	0.51	.
87	15980	0.86	0.86	0.33	-0.12	-0.24	0.33	-0.13	.
89	15980	0.27	0.27	0.25	0.02	-0.25	0.25	-0.06	.
90	15980	0.35	0.35	0.34	-0.18	-0.32	-0.01	0.34	.
91	15980	0.66	0.66	0.53	-0.24	-0.31	-0.24	0.53	.
92	15980	0.53	0.53	0.35	0.35	-0.14	-0.20	-0.20	.
93	15980	0.32	0.32	0.19	-0.12	0.19	-0.15	-0.01	.
95	15980	0.28	0.28	0.48	0.48	-0.30	-0.14	-0.08	.
96	15980	0.38	0.38	0.25	-0.06	-0.12	-0.19	0.25	.
97	15980	0.69	0.69	0.44	-0.28	-0.26	0.44	-0.12	.
98	15980	0.40	0.40	0.25	-0.10	-0.13	0.25	-0.11	.
99	15980	0.43	0.43	0.32	-0.23	-0.09	0.32	-0.13	.
101	15980	0.55	0.55	0.45	-0.16	-0.26	0.45	-0.22	.
102	15980	0.45	0.45	0.34	-0.24	0.34	-0.15	-0.09	.
104	15980	0.24	0.24	0.31	-0.01	-0.19	-0.18	0.31	.
105	15980	0.25	0.25	0.06	-0.08	0.00	0.06	-0.02	.
106	15980	0.49	0.49	0.24	-0.21	0.24	0.02	-0.20	.

Table A 10
Summary Item Statistics - Mathematics, Grade 8, Form B

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
6	15845	0.57	0.57	0.41	-0.12	-0.23	0.41	-0.25	.
7	15845	0.65	0.65	0.41	-0.23	-0.15	0.41	-0.27	.
13	15845	0.89	0.89	0.26	-0.13	-0.17	-0.12	0.26	.
16	15845	0.87	0.87	0.38	-0.25	-0.22	0.38	-0.14	.
20	15845	0.30	0.30	0.29	-0.22	0.02	0.29	-0.21	.
26	15845	0.43	0.43	0.32	-0.10	0.32	-0.21	-0.10	.
27	15845	0.42	0.42	0.45	-0.12	-0.30	0.45	-0.18	.
29	15845	0.54	0.54	0.35	0.35	-0.14	-0.19	-0.16	.
33	15845	0.51	0.51	0.40	-0.15	-0.25	0.40	-0.17	.
34	15845	0.65	0.65	0.41	-0.21	0.41	-0.22	-0.21	.
36	15845	0.24	0.24	0.40	-0.15	-0.23	-0.06	0.40	.
37	15845	0.32	0.32	0.36	-0.23	-0.19	0.36	-0.09	.
38	15845	0.36	0.36	0.32	0.32	-0.08	-0.20	-0.13	.
40	15845	0.50	0.50	0.38	-0.24	-0.20	0.38	-0.07	.
42	15845	0.24	0.24	0.38	-0.34	0.38	0.03	-0.03	.
43	15845	0.50	0.50	0.39	0.39	-0.17	-0.10	-0.26	.
44	15845	0.51	0.51	0.44	-0.14	-0.22	-0.24	0.44	.
45	15845	0.19	0.19	0.16	0.01	0.16	-0.09	-0.10	.
46A	15845	0.52	0.52	0.34	.	.	.	.	.
46B	15845	0.80	0.40	0.54	.	.	.	.	.
48	15845	0.65	0.65	0.46	0.46	.	.	.	.
49	15845	0.10	0.10	0.45	0.45	.	.	.	.
50	15845	0.41	0.41	0.57	0.57	.	.	.	.
51A	15845	0.34	0.34	0.60	.	.	.	.	.
51B	15845	0.56	0.28	0.62	.	.	.	.	.
52A	15845	0.19	0.19	0.46	.	.	.	.	.
52B	15845	0.58	0.29	0.55	.	.	.	.	.
53	15845	0.43	0.43	0.58	0.58	.	.	.	.
54	15845	0.57	0.57	0.49	0.49	.	.	.	.
55	15845	0.29	0.29	0.47	0.47	.	.	.	.
56	15845	0.09	0.09	0.50	0.50	.	.	.	.
58A	15845	0.13	0.13	0.49	.	.	.	.	.
58B	15845	0.40	0.20	0.60	.	.	.	.	.
61	15845	0.41	0.41	0.34	-0.18	-0.13	0.34	-0.18	.
62	15845	0.30	0.30	0.35	-0.25	-0.23	-0.02	0.35	.
63	15845	0.42	0.42	0.34	-0.23	0.34	-0.10	-0.13	.

Table A 10
Summary Item Statistics - Mathematics, Grade 8, Form B (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
65	15845	0.45	0.45	0.60	0.60	.	.	.	.
67	15845	0.45	0.45	0.49	0.49	.	.	.	.
69	15845	0.24	0.24	0.44	0.02	-0.34	-0.15	0.44	.
71	15845	0.36	0.36	0.37	-0.22	0.37	-0.14	-0.16	.
72	15845	0.42	0.42	0.44	0.44	-0.20	-0.27	-0.11	.
74	15845	0.53	0.53	0.38	-0.12	0.38	-0.25	-0.16	.
75	15845	0.38	0.38	0.38	-0.04	-0.18	0.38	-0.25	.
76A	15845	0.37	0.37	0.68	.	.	.	.	.
76B	15845	0.51	0.25	0.66	.	.	.	.	.
77	15845	0.65	0.65	0.54	-0.24	-0.39	-0.18	0.54	.
79	15845	0.64	0.64	0.32	-0.16	-0.16	0.32	-0.21	.
80	15845	0.46	0.46	0.50	-0.23	-0.31	0.50	-0.17	.
82	15845	0.46	0.46	0.30	-0.07	0.30	-0.25	-0.11	.
83	15845	0.60	0.60	0.46	0.46	-0.29	-0.24	-0.15	.
84	15845	0.16	0.16	0.19	-0.21	0.19	-0.06	0.14	.
85	15845	0.39	0.39	0.38	0.38	-0.23	-0.10	-0.17	.
86	15845	0.65	0.65	0.24	-0.12	-0.10	0.24	-0.15	.
87	15845	0.28	0.28	0.35	-0.10	-0.22	-0.12	0.35	.
88	15845	0.17	0.17	0.18	0.18	0.12	-0.19	-0.22	.
89	15845	0.47	0.47	0.45	-0.24	0.45	-0.22	-0.17	.
90	15845	0.34	0.34	0.46	-0.27	-0.19	0.46	-0.11	.
91	15845	0.55	0.55	0.20	-0.18	0.03	-0.24	0.20	.
93	15845	0.57	0.57	0.39	0.39	-0.18	-0.16	-0.25	.
94	15845	0.42	0.42	0.25	-0.16	-0.10	0.25	-0.12	.
95	15845	0.51	0.51	0.46	-0.25	0.46	-0.27	-0.14	.
96	15845	0.51	0.51	0.56	-0.46	0.56	-0.14	-0.14	.
98	15845	0.37	0.37	0.35	-0.17	-0.21	0.35	-0.05	.
99	15845	0.14	0.14	0.15	0.12	-0.19	-0.17	0.15	.
102	15845	0.46	0.46	0.44	-0.16	-0.23	-0.21	0.44	.
104	15845	0.44	0.44	0.57	-0.23	-0.41	-0.11	0.57	.
105	15845	0.56	0.56	0.48	-0.27	-0.26	0.48	-0.16	.
106	15845	0.20	0.20	0.39	-0.13	-0.06	-0.22	0.39	.

Table A 11
Summary Item Statistics - Mathematics, Grade 8, Form C

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
6	15777	0.57	0.57	0.41	-0.10	-0.22	0.41	-0.26	.
7	15777	0.66	0.66	0.41	-0.22	-0.17	0.41	-0.25	.
13	15777	0.90	0.90	0.25	-0.12	-0.15	-0.12	0.25	.
16	15777	0.87	0.87	0.37	-0.24	-0.20	0.37	-0.14	.
20	15777	0.30	0.30	0.29	-0.21	0.01	0.29	-0.19	.
26	15777	0.43	0.43	0.31	-0.10	0.31	-0.19	-0.10	.
27	15777	0.42	0.42	0.42	-0.11	-0.28	0.42	-0.16	.
29	15777	0.55	0.55	0.34	0.34	-0.13	-0.19	-0.16	.
32A	15777	0.47	0.47	0.66	.	.	.	.	.
32B	15777	1.15	0.38	0.70	.	.	.	.	.
33	15777	0.51	0.51	0.38	-0.16	-0.24	0.38	-0.16	.
34	15777	0.65	0.65	0.42	-0.20	0.42	-0.23	-0.22	.
36	15777	0.24	0.24	0.39	-0.16	-0.22	-0.03	0.39	.
37	15777	0.31	0.31	0.34	-0.22	-0.17	0.34	-0.08	.
38	15777	0.36	0.36	0.32	0.32	-0.08	-0.19	-0.12	.
40	15777	0.50	0.50	0.38	-0.24	-0.19	0.38	-0.07	.
42	15777	0.25	0.25	0.38	-0.33	0.38	0.02	-0.01	.
43	15777	0.50	0.50	0.39	0.39	-0.16	-0.10	-0.26	.
44	15777	0.49	0.49	0.42	-0.14	-0.20	-0.22	0.42	.
45	15777	0.19	0.19	0.15	0.00	0.15	-0.07	-0.09	.
46A	15777	0.41	0.41	0.38	.	.	.	.	.
46B	15777	0.73	0.36	0.54	.	.	.	.	.
47	15777	0.06	0.06	0.38	0.38	.	.	.	.
48	15777	0.77	0.77	0.46	0.46	.	.	.	.
49	15777	0.37	0.37	0.45	0.45	.	.	.	.
50	15777	0.35	0.35	0.37	0.37	.	.	.	.
52A	15777	0.25	0.25	0.66	.	.	.	.	.
52B	15777	0.57	0.29	0.70	.	.	.	.	.
54	15777	0.06	0.06	0.34	0.34	.	.	.	.
56	15777	0.20	0.20	0.57	0.57	.	.	.	.
57A	15777	0.22	0.22	0.58	.	.	.	.	.
57B	15777	0.85	0.43	0.66	.	.	.	.	.
58A	15777	0.43	0.43	0.67	.	.	.	.	.
58B	15777	1.10	0.55	0.67	.	.	.	.	.
61	15777	0.42	0.42	0.34	-0.19	-0.12	0.34	-0.17	.
62	15777	0.31	0.31	0.36	-0.25	-0.21	-0.04	0.36	.

Table A 11
Summary Item Statistics - Mathematics, Grade 8, Form C (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
63	15777	0.43	0.43	0.34	-0.24	0.34	-0.09	-0.13	.
64A	15777	0.53	0.53	0.59	.	.	.	.	.
64B	15777	0.90	0.30	0.72	.	.	.	.	.
65	15777	0.19	0.19	0.43	0.43	.	.	.	.
66	15777	0.16	0.16	0.38	0.38	.	.	.	.
67	15777	0.08	0.08	0.34	0.34	.	.	.	.
69	15777	0.23	0.23	0.42	0.03	-0.33	-0.14	0.42	.
71	15777	0.35	0.35	0.36	-0.21	0.36	-0.15	-0.14	.
72	15777	0.43	0.43	0.41	0.41	-0.21	-0.26	-0.08	.
74	15777	0.51	0.51	0.39	-0.12	0.39	-0.24	-0.18	.
75	15777	0.38	0.38	0.34	-0.04	-0.15	0.34	-0.22	.
76A	15777	0.29	0.29	0.66	.	.	.	.	.
76B	15777	0.68	0.34	0.68	.	.	.	.	.
77	15777	0.41	0.41	0.51	-0.16	-0.25	-0.26	0.51	.
78	15777	0.52	0.52	0.31	-0.11	0.31	-0.22	-0.12	.
79	15777	0.68	0.68	0.44	0.44	-0.24	-0.30	-0.14	.
81	15777	0.43	0.43	0.52	0.52	-0.25	-0.25	-0.19	.
82	15777	0.44	0.44	0.34	0.34	-0.02	-0.25	-0.18	.
83	15777	0.67	0.67	0.44	-0.20	-0.16	-0.30	0.44	.
84	15777	0.45	0.45	0.51	0.51	-0.22	-0.25	-0.21	.
86	15777	0.38	0.38	0.29	-0.11	0.29	-0.10	-0.18	.
88	15777	0.68	0.68	0.33	-0.18	0.33	-0.23	-0.11	.
90	15777	0.26	0.26	0.32	-0.27	-0.04	-0.02	0.32	.
91	15777	0.52	0.52	0.35	-0.04	-0.28	0.35	-0.23	.
92	15777	0.28	0.28	0.10	-0.15	0.10	-0.18	0.16	.
93	15777	0.41	0.41	0.43	-0.17	-0.21	-0.19	0.43	.
94	15777	0.39	0.39	0.30	-0.18	0.30	-0.08	-0.21	.
96	15777	0.33	0.33	0.41	-0.38	0.41	-0.02	-0.02	.
97	15777	0.55	0.55	0.36	0.36	-0.22	-0.19	-0.14	.
98	15777	0.30	0.30	0.13	-0.20	-0.24	0.13	0.19	.
100	15777	0.27	0.27	0.19	-0.12	0.19	-0.14	0.01	.
101	15777	0.38	0.38	0.35	-0.17	-0.17	0.35	-0.13	.
102	15777	0.49	0.49	0.45	-0.28	-0.21	-0.15	0.45	.
103	15777	0.37	0.37	0.42	-0.17	-0.09	0.42	-0.28	.
104	15777	0.68	0.68	0.17	-0.15	0.00	0.17	-0.14	.
105	15777	0.40	0.40	0.22	0.22	-0.25	0.04	-0.18	.
106	15777	0.73	0.73	0.37	-0.24	-0.17	0.37	-0.17	.

Table A 12
Summary Item Statistics - Mathematics, Grade 8, Form D

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
2	15658	0.53	0.53	0.48	-0.19	0.48	-0.28	-0.21	.
3	15658	0.48	0.48	0.59	0.59	-0.21	-0.42	-0.15	.
4	15658	0.30	0.30	0.40	0.02	0.40	-0.28	-0.25	.
5	15658	0.43	0.43	0.55	0.55	-0.14	-0.29	-0.29	.
6	15658	0.68	0.68	0.46	-0.19	0.46	-0.30	-0.20	.
8	15658	0.53	0.53	0.38	-0.10	0.38	-0.19	-0.21	.
9	15658	0.48	0.48	0.15	0.15	-0.05	-0.09	-0.05	.
10	15658	0.48	0.48	0.41	-0.17	-0.23	-0.15	0.41	.
13	15658	0.47	0.47	0.34	-0.12	-0.15	0.34	-0.24	.
14	15658	0.43	0.43	0.55	0.55	-0.17	-0.33	-0.23	.
15	15658	0.68	0.68	0.48	0.48	-0.20	-0.30	-0.25	.
16	15658	0.34	0.34	0.36	-0.18	0.36	-0.14	-0.17	.
17	15658	0.25	0.25	0.34	-0.43	0.34	0.06	0.11	.
18	15658	0.53	0.53	0.54	-0.18	-0.36	-0.22	0.54	.
19	15658	0.36	0.36	0.22	0.03	0.22	-0.12	-0.23	.
20	15658	0.39	0.39	0.21	-0.08	-0.14	0.21	-0.08	.
21	15658	0.29	0.29	0.35	0.35	-0.24	-0.08	-0.07	.
22	15658	0.40	0.40	0.45	-0.24	-0.26	-0.09	0.45	.
24	15658	0.47	0.47	0.49	0.49	-0.11	-0.38	-0.16	.
25	15658	0.27	0.27	0.32	-0.19	-0.11	-0.07	0.32	.
26	15658	0.44	0.44	0.27	-0.13	-0.12	0.27	-0.11	.
27	15658	0.43	0.43	0.47	0.47	-0.13	-0.34	-0.11	.
28	15658	0.32	0.32	0.32	-0.14	0.32	-0.15	-0.09	.
30	15658	0.25	0.25	0.11	-0.13	0.11	-0.07	0.08	.
31	15658	0.22	0.22	0.17	-0.02	-0.08	-0.08	0.17	.
33	15658	0.50	0.50	0.38	-0.12	-0.23	0.38	-0.19	.
34	15658	0.59	0.59	0.39	-0.19	0.39	-0.21	-0.18	.
36	15658	0.25	0.25	0.36	-0.20	-0.26	0.05	0.36	.
37	15658	0.32	0.32	0.37	-0.21	-0.20	0.37	-0.07	.
38	15658	0.41	0.41	0.40	0.40	-0.13	-0.22	-0.17	.
40	15658	0.49	0.49	0.41	-0.26	-0.19	0.41	-0.07	.
42	15658	0.26	0.26	0.40	-0.33	0.40	0.04	-0.06	.
43	15658	0.50	0.50	0.41	0.41	-0.16	-0.11	-0.27	.
44	15658	0.53	0.53	0.45	-0.16	-0.23	-0.22	0.45	.
45	15658	0.27	0.27	0.27	-0.05	0.27	-0.15	-0.11	.
46A	15658	0.38	0.38	0.36	.	.	.	.	.

Table A 12
Summary Item Statistics - Mathematics, Grade 8, Form D (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
46B	15658	0.79	0.39	0.60	.	.	.	.	.
47	15658	0.27	0.27	0.64	0.64	.	.	.	.
48	15658	0.54	0.54	0.60	0.60	.	.	.	.
49	15658	0.56	0.56	0.28	0.28	.	.	.	.
50	15658	0.37	0.37	0.39	0.39	.	.	.	.
51A	15658	0.03	0.03	0.27	.	.	.	.	.
51B	15658	1.03	0.34	0.60	.	.	.	.	.
53	15658	0.55	0.55	0.52	0.52	.	.	.	.
54	15658	0.09	0.09	0.35	0.35	.	.	.	.
55	15658	0.20	0.20	0.63	0.63	.	.	.	.
56	15658	0.25	0.25	0.60	0.60	.	.	.	.
58A	15658	0.37	0.37	0.67	.	.	.	.	.
58B	15658	0.93	0.47	0.67	.	.	.	.	.
61	15658	0.41	0.41	0.37	-0.20	-0.12	0.37	-0.18	.
62	15658	0.29	0.29	0.34	-0.24	-0.19	-0.04	0.34	.
63	15658	0.44	0.44	0.37	-0.27	0.37	-0.10	-0.13	.
64A	15658	0.27	0.27	0.48	.	.	.	.	.
64B	15658	0.55	0.18	0.61	.	.	.	.	.
65	15658	0.31	0.31	0.44	0.44	.	.	.	.
67	15658	0.47	0.47	0.65	0.65	.	.	.	.
69	15658	0.23	0.23	0.42	0.01	-0.33	-0.11	0.42	.
71	15658	0.32	0.32	0.36	-0.22	0.36	-0.14	-0.12	.
72	15658	0.41	0.41	0.42	0.42	-0.17	-0.26	-0.11	.
74	15658	0.53	0.53	0.38	-0.10	0.38	-0.25	-0.19	.
75	15658	0.39	0.39	0.36	-0.05	-0.16	0.36	-0.22	.
76A	15658	0.33	0.33	0.57	.	.	.	.	.
76B	15658	0.69	0.35	0.60	.	.	.	.	.
82	15658	0.58	0.58	0.43	-0.13	-0.25	0.43	-0.25	.
83	15658	0.63	0.63	0.41	-0.23	-0.16	0.41	-0.25	.
89	15658	0.85	0.85	0.29	-0.14	-0.16	-0.16	0.29	.
92	15658	0.83	0.83	0.41	-0.26	-0.23	0.41	-0.14	.
96	15658	0.30	0.30	0.33	-0.20	-0.03	0.33	-0.21	.
102	15658	0.42	0.42	0.30	-0.12	0.30	-0.18	-0.10	.
103	15658	0.49	0.49	0.48	-0.19	-0.30	0.48	-0.18	.
105	15658	0.52	0.52	0.32	0.32	-0.14	-0.18	-0.16	.

Table A 13
Summary Item Statistics - Reading, Grade 10, Form A

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	9658	0.70	0.70	0.42	-0.10	-0.21	0.42	-0.20	
2	9658	0.55	0.55	0.41	0.41	-0.18	-0.17	-0.08	
3	9658	0.75	0.75	0.47	0.47	-0.20	-0.18	-0.21	
4	9658	0.84	0.84	0.51	-0.20	-0.20	-0.20	0.51	
5	9658	0.41	0.41	0.38	0.38	-0.22	-0.06	-0.06	
6	9658	0.74	0.74	0.46	-0.17	-0.16	-0.19	0.46	
7	9658	0.80	0.80	0.42	-0.19	0.42	-0.16	-0.15	
8	9658	0.57	0.57	0.41	0.41	-0.13	-0.23	-0.11	
9	9658	0.36	0.36	0.27	0.27	-0.09	-0.07	-0.05	
10	9658	0.63	0.63	0.47	-0.12	0.47	-0.20	-0.21	
11	9658	0.62	0.62	0.53	-0.27	-0.17	-0.20	0.53	
12	9658	0.82	0.82	0.56	-0.19	-0.25	-0.24	0.56	
13	9658	0.76	0.76	0.53	-0.22	0.53	-0.22	-0.18	
14	9658	0.64	0.64	0.54	-0.20	-0.17	-0.25	0.54	
15	9658	0.50	0.50	0.38	0.38	-0.16	-0.11	-0.08	
16	9658	0.40	0.40	0.24	0.05	-0.16	0.24	-0.05	
17	9658	0.53	0.53	0.59	-0.16	-0.28	-0.21	0.59	
18	9658	0.67	0.67	0.50	-0.17	-0.21	0.50	-0.19	
19	9658	0.64	0.64	0.51	-0.20	0.51	-0.18	-0.17	
20	9658	0.54	0.54	0.46	-0.13	-0.21	0.46	-0.13	
21	9658	0.66	0.66	0.46	-0.17	-0.13	0.46	-0.19	
22	9658	0.52	0.52	0.29	-0.24	0.08	0.29	-0.18	
23	9658	0.68	0.68	0.61	-0.24	-0.20	-0.25	0.61	
24	9658	0.54	0.54	0.48	-0.24	-0.05	-0.19	0.48	
25	9658	0.52	0.52	0.53	-0.18	-0.16	-0.18	0.53	
26	9658	0.69	0.69	0.60	-0.21	-0.25	0.60	-0.21	
27	9658	0.50	0.50	0.46	-0.21	0.46	-0.05	-0.19	
28	9658	0.62	0.62	0.50	-0.18	0.50	-0.18	-0.12	
29	9658	0.53	0.53	0.49	-0.16	0.49	-0.22	-0.08	
30	9658	0.45	0.45	0.43	0.43	-0.12	-0.09	-0.16	
31	9658	0.68	0.68	0.52	-0.20	-0.20	0.52	-0.15	
32	9658	0.53	0.53	0.29	-0.10	0.29	-0.08	-0.08	
33	9658	0.52	0.52	0.36	0.36	-0.07	-0.15	-0.12	
34	9658	0.52	0.52	0.41	-0.19	-0.11	0.41	-0.16	
35	9658	0.71	0.71	0.59	-0.26	-0.23	-0.23	0.59	
36	9658	0.67	0.67	0.47	-0.16	-0.20	0.47	-0.16	

Table A 13
Summary Item Statistics - Reading, Grade 10, Form A (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
37	9658	0.57	0.57	0.40	-0.16	-0.12	-0.13	0.40	
38	9658	0.61	0.61	0.42	0.42	-0.15	-0.12	-0.19	
39	9658	0.64	0.64	0.44	-0.23	0.44	-0.14	-0.15	
40	9658	0.65	0.65	0.50	-0.22	-0.20	0.50	-0.17	
41	9658	0.52	0.52	0.53	0.53	-0.27	-0.17	-0.12	
42	9658	0.59	0.59	0.37	-0.20	0.37	-0.09	-0.17	
43	9658	0.76	0.76	0.59	-0.23	0.59	-0.27	-0.20	
44	9658	0.72	0.72	0.52	0.52	-0.23	-0.23	-0.14	
45	9658	0.75	0.75	0.60	0.60	-0.25	-0.24	-0.21	
46	9658	0.41	0.41	0.35	-0.15	-0.15	-0.01	0.35	
47	9658	0.70	0.70	0.54	0.54	-0.26	-0.19	-0.21	
48	9658	0.58	0.58	0.57	-0.19	-0.21	-0.22	0.57	
49	9658	0.56	0.56	0.36	0.36	-0.04	-0.22	-0.08	
50	9658	0.65	0.65	0.50	-0.15	0.50	-0.23	-0.17	
51	9658	0.67	0.67	0.52	0.52	-0.26	-0.16	-0.18	
52	9658	0.57	0.57	0.42	-0.17	-0.18	0.42	-0.08	
53	9658	0.40	0.40	0.30	-0.02	0.30	-0.08	-0.10	
54	9658	0.54	0.54	0.36	0.36	-0.09	-0.18	-0.04	
55	9658	0.46	0.46	0.39	-0.22	0.39	-0.13	-0.02	
56	9658	0.55	0.55	0.48	0.48	-0.15	-0.18	-0.18	
57	9658	0.69	0.69	0.56	-0.23	-0.22	0.56	-0.18	
58	9658	0.43	0.43	0.34	-0.13	0.34	-0.18	0.04	
59	9658	0.49	0.49	0.57	-0.23	-0.16	-0.21	0.57	
60	9658	0.67	0.67	0.58	-0.21	-0.21	-0.23	0.58	
61	9658	0.82	0.82	0.54	-0.23	-0.19	0.54	-0.20	
62	9658	0.82	0.82	0.54	0.54	-0.20	-0.22	-0.22	
63	9658	0.51	0.51	0.51	-0.22	-0.22	0.51	-0.15	
64	9658	0.80	0.80	0.57	-0.26	-0.22	0.57	-0.21	
65	9658	0.65	0.65	0.51	-0.20	-0.24	-0.15	0.51	
66	9658	0.38	0.38	0.22	-0.17	-0.10	0.09	0.22	
67	9658	1.88	0.63	0.70	.	.	.	.
68	9658	0.82	0.82	0.50	0.50	-0.23	-0.24	-0.08	
69	9658	0.27	0.27	0.26	-0.15	-0.04	0.26	0.02	
70	9658	0.81	0.81	0.50	-0.20	-0.19	-0.20	0.50	
71	9658	1.72	0.57	0.69	.	.	.	.
72	9658	0.74	0.74	0.54	0.54	-0.21	-0.24	-0.17	
73	9658	0.28	0.28	0.30	0.02	-0.06	-0.24	0.30	

Table A 13
Summary Item Statistics - Reading, Grade 10, Form A (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
74	9658	0.84	0.84	0.56	-0.22	0.56	-0.20	-0.20	
75	9658	1.89	0.63	0.70	.	.	.	.
76	9658	0.72	0.72	0.43	-0.11	-0.24	0.43	-0.10	
77	9658	0.77	0.77	0.56	-0.19	-0.23	-0.24	0.56	
78	9658	0.50	0.50	0.30	-0.14	0.30	-0.06	-0.04	
79	9658	1.64	0.55	0.61	.	.	.	.
80	9658	0.48	0.48	0.30	0.30	-0.15	-0.12	-0.05	
81	9658	0.62	0.62	0.52	-0.24	0.52	-0.18	-0.18	
82	9658	0.55	0.55	0.45	-0.20	-0.18	-0.08	0.45	
83	9658	1.64	0.55	0.67	.	.	.	.
84	9658	0.47	0.47	0.13	-0.08	0.13	-0.14	0.16	
85	9658	0.72	0.72	0.55	-0.18	-0.21	-0.25	0.55	
86	9658	1.31	0.44	0.67	.	.	.	.
87	9658	0.72	0.72	0.63	-0.18	-0.30	-0.25	0.63	
88	9658	0.39	0.39	0.39	-0.15	-0.23	0.39	0.00	
89	9658	0.57	0.57	0.50	-0.12	0.50	-0.22	-0.17	
90	9658	0.66	0.66	0.57	-0.18	-0.25	-0.21	0.57	
91	9658	0.27	0.27	0.19	0.17	-0.18	0.19	-0.10	
92	9658	0.47	0.47	0.34	0.34	-0.08	-0.09	-0.11	
93	9658	0.45	0.45	0.39	-0.14	-0.19	0.39	-0.02	
94	9658	0.46	0.46	0.37	-0.22	0.37	-0.03	-0.08	
95	9658	0.52	0.52	0.52	0.52	-0.25	-0.10	-0.18	
96	9658	0.27	0.27	0.26	-0.02	0.26	-0.08	0.00	
97	9658	0.48	0.48	0.43	-0.17	-0.10	-0.11	0.43	
98	9658	0.59	0.59	0.53	0.53	-0.22	-0.22	-0.13	

Table A 14
Summary Item Statistics - Reading, Grade 10, Form B

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	9595	0.70	0.70	0.42	-0.10	-0.22	0.42	-0.20	
2	9595	0.55	0.55	0.39	0.39	-0.17	-0.14	-0.09	
3	9595	0.77	0.77	0.44	0.44	-0.19	-0.18	-0.19	
4	9595	0.84	0.84	0.50	-0.20	-0.18	-0.21	0.50	
5	9595	0.42	0.42	0.40	0.40	-0.23	-0.07	-0.07	
6	9595	0.74	0.74	0.44	-0.14	-0.16	-0.20	0.44	
7	9595	0.80	0.80	0.41	-0.19	0.41	-0.17	-0.14	
8	9595	0.57	0.57	0.42	0.42	-0.13	-0.25	-0.11	
9	9595	0.36	0.36	0.26	0.26	-0.09	-0.06	-0.04	
10	9595	0.63	0.63	0.46	-0.11	0.46	-0.22	-0.21	
11	9595	0.62	0.62	0.52	-0.25	-0.17	-0.21	0.52	
12	9595	0.82	0.82	0.55	-0.20	-0.25	-0.23	0.55	
13	9595	0.76	0.76	0.53	-0.21	0.53	-0.22	-0.20	
14	9595	0.62	0.62	0.55	-0.20	-0.18	-0.27	0.55	
15	9595	0.50	0.50	0.38	0.38	-0.15	-0.13	-0.07	
16	9595	0.40	0.40	0.23	0.06	-0.16	0.23	-0.06	
17	9595	0.54	0.54	0.60	-0.17	-0.29	-0.20	0.60	
18	9595	0.68	0.68	0.51	-0.19	-0.21	0.51	-0.20	
19	9595	0.64	0.64	0.49	-0.19	0.49	-0.17	-0.18	
20	9595	0.55	0.55	0.44	-0.12	-0.21	0.44	-0.12	
21	9595	0.67	0.67	0.46	-0.18	-0.14	0.46	-0.17	
22	9595	0.52	0.52	0.31	-0.25	0.06	0.31	-0.17	
23	9595	0.68	0.68	0.61	-0.24	-0.19	-0.26	0.61	
24	9595	0.54	0.54	0.48	-0.23	-0.05	-0.22	0.48	
25	9595	0.52	0.52	0.53	-0.18	-0.15	-0.19	0.53	
26	9595	0.69	0.69	0.61	-0.22	-0.26	0.61	-0.22	
27	9595	0.50	0.50	0.46	-0.20	0.46	-0.07	-0.20	
28	9595	0.62	0.62	0.47	-0.17	0.47	-0.16	-0.12	
29	9595	0.52	0.52	0.50	-0.18	0.50	-0.22	-0.08	
30	9595	0.44	0.44	0.41	0.41	-0.10	-0.09	-0.16	
31	9595	0.68	0.68	0.52	-0.17	-0.22	0.52	-0.17	
32	9595	0.53	0.53	0.27	-0.08	0.27	-0.07	-0.08	
33	9595	0.51	0.51	0.34	0.34	-0.07	-0.15	-0.11	
34	9595	0.53	0.53	0.39	-0.22	-0.08	0.39	-0.16	
35	9595	0.70	0.70	0.58	-0.26	-0.23	-0.23	0.58	
36	9595	0.67	0.67	0.48	-0.16	-0.21	0.48	-0.19	

Table A 14
Summary Item Statistics - Reading, Grade 10, Form B (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
37	9595	0.57	0.57	0.40	-0.15	-0.15	-0.12	0.40	
38	9595	0.61	0.61	0.42	0.42	-0.16	-0.13	-0.20	
39	9595	0.64	0.64	0.43	-0.22	0.43	-0.14	-0.16	
40	9595	0.66	0.66	0.49	-0.22	-0.20	0.49	-0.18	
41	9595	0.53	0.53	0.54	0.54	-0.27	-0.19	-0.12	
42	9595	0.58	0.58	0.38	-0.22	0.38	-0.10	-0.17	
43	9595	0.76	0.76	0.59	-0.24	0.59	-0.26	-0.21	
44	9595	0.72	0.72	0.52	0.52	-0.23	-0.23	-0.15	
45	9595	0.76	0.76	0.58	0.58	-0.24	-0.25	-0.21	
46	9595	0.40	0.40	0.36	-0.16	-0.15	-0.01	0.36	
47	9595	0.70	0.70	0.54	0.54	-0.27	-0.19	-0.21	
48	9595	0.58	0.58	0.58	-0.20	-0.23	-0.22	0.58	
49	9595	0.56	0.56	0.36	0.36	-0.03	-0.24	-0.09	
50	9595	0.65	0.65	0.50	-0.13	0.50	-0.25	-0.17	
51	9595	0.68	0.68	0.50	0.50	-0.25	-0.16	-0.18	
52	9595	0.56	0.56	0.44	-0.20	-0.19	0.44	-0.09	
53	9595	0.40	0.40	0.30	-0.02	0.30	-0.08	-0.12	
54	9595	0.54	0.54	0.36	0.36	-0.09	-0.20	-0.05	
55	9595	0.45	0.45	0.39	-0.21	0.39	-0.13	-0.02	
56	9595	0.55	0.55	0.49	0.49	-0.15	-0.18	-0.20	
57	9595	0.69	0.69	0.55	-0.23	-0.22	0.55	-0.18	
58	9595	0.43	0.43	0.32	-0.13	0.32	-0.16	0.03	
59	9595	0.48	0.48	0.57	-0.24	-0.16	-0.21	0.57	
60	9595	0.68	0.68	0.57	-0.21	-0.21	-0.23	0.57	
61	9595	0.70	0.70	0.45	0.45	-0.15	-0.22	-0.12	
62	9595	0.77	0.77	0.39	-0.22	0.39	-0.08	-0.11	
63	9595	1.41	0.47	0.62	.	.	.	.
64	9595	0.31	0.31	0.35	-0.05	-0.24	0.35	-0.06	
65	9595	0.34	0.34	0.35	-0.22	-0.08	0.35	0.02	
66	9595	0.61	0.61	0.49	-0.17	-0.21	0.49	-0.15	
67	9595	0.54	0.54	0.39	-0.18	-0.20	-0.06	0.39	
68	9595	1.61	0.54	0.71	.	.	.	.
69	9595	0.77	0.77	0.41	-0.21	-0.09	0.41	-0.10	
70	9595	0.44	0.44	0.37	0.37	-0.24	-0.02	-0.13	
71	9595	1.29	0.43	0.68	.	.	.	.
72	9595	0.24	0.24	0.37	0.37	-0.16	-0.05	-0.10	
73	9595	0.51	0.51	0.34	-0.07	-0.10	-0.09	0.34	

Table A 14
Summary Item Statistics - Reading, Grade 10, Form B (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
74	9595	0.57	0.57	0.46	-0.07	-0.18	-0.24	0.46	
75	9595	0.77	0.77	0.52	-0.19	-0.25	0.52	-0.15	
76	9595	0.41	0.41	0.36	0.36	-0.05	-0.10	-0.20	
77	9595	0.72	0.72	0.57	-0.23	0.57	-0.21	-0.25	
78	9595	0.79	0.79	0.58	-0.24	-0.23	-0.22	0.58	
79	9595	0.64	0.64	0.53	-0.22	-0.18	0.53	-0.21	
80	9595	1.85	0.62	0.64	.	.	.	.
81	9595	0.38	0.38	0.24	-0.03	0.24	-0.25	0.08	
82	9595	0.53	0.53	0.42	-0.27	0.42	-0.07	-0.16	
83	9595	0.37	0.37	0.23	0.23	-0.22	-0.29	0.23	
84	9595	1.50	0.50	0.67	.	.	.	.
85	9595	0.73	0.73	0.55	0.55	-0.24	-0.22	-0.17	
86	9595	0.47	0.47	0.37	-0.22	0.00	0.37	-0.16	
87	9595	0.60	0.60	0.49	0.49	-0.15	-0.28	-0.11	
88	9595	0.60	0.60	0.44	-0.09	-0.27	0.44	-0.22	
89	9595	0.60	0.60	0.56	-0.20	-0.25	-0.20	0.56	
90	9595	0.70	0.70	0.54	-0.25	0.54	-0.25	-0.14	
91	9595	0.56	0.56	0.39	-0.12	0.39	-0.15	-0.09	
92	9595	0.49	0.49	0.43	-0.09	-0.28	0.43	-0.03	
93	9595	0.79	0.79	0.56	-0.19	0.56	-0.25	-0.20	
94	9595	0.71	0.71	0.56	-0.22	-0.22	0.56	-0.20	
95	9595	1.39	0.46	0.67	.	.	.	.

Table A 15
Summary Item Statistics - Reading, Grade 10, Form C

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	9493	0.70	0.70	0.41	-0.11	-0.19	0.41	-0.21	
2	9493	0.55	0.55	0.39	0.39	-0.20	-0.14	-0.08	
3	9493	0.76	0.76	0.45	0.45	-0.19	-0.19	-0.20	
4	9493	0.84	0.84	0.49	-0.18	-0.19	-0.21	0.49	
5	9493	0.41	0.41	0.38	0.38	-0.23	-0.06	-0.06	
6	9493	0.74	0.74	0.44	-0.15	-0.17	-0.20	0.44	
7	9493	0.80	0.80	0.42	-0.19	0.42	-0.17	-0.15	
8	9493	0.57	0.57	0.41	0.41	-0.12	-0.24	-0.12	
9	9493	0.36	0.36	0.26	0.26	-0.09	-0.06	-0.04	
10	9493	0.63	0.63	0.48	-0.13	0.48	-0.22	-0.21	
11	9493	0.62	0.62	0.52	-0.25	-0.20	-0.20	0.52	
12	9493	0.82	0.82	0.57	-0.22	-0.26	-0.23	0.57	
13	9493	0.75	0.75	0.54	-0.23	0.54	-0.21	-0.21	
14	9493	0.63	0.63	0.55	-0.21	-0.17	-0.27	0.55	
15	9493	0.49	0.49	0.37	0.37	-0.14	-0.11	-0.09	
16	9493	0.40	0.40	0.23	0.06	-0.14	0.23	-0.06	
17	9493	0.54	0.54	0.60	-0.16	-0.28	-0.22	0.60	
18	9493	0.67	0.67	0.51	-0.18	-0.23	0.51	-0.20	
19	9493	0.64	0.64	0.51	-0.20	0.51	-0.18	-0.17	
20	9493	0.55	0.55	0.46	-0.13	-0.22	0.46	-0.12	
21	9493	0.67	0.67	0.45	-0.17	-0.13	0.45	-0.18	
22	9493	0.52	0.52	0.32	-0.24	0.05	0.32	-0.18	
23	9493	0.68	0.68	0.62	-0.26	-0.20	-0.25	0.62	
24	9493	0.54	0.54	0.49	-0.23	-0.07	-0.20	0.49	
25	9493	0.52	0.52	0.53	-0.19	-0.15	-0.19	0.53	
26	9493	0.69	0.69	0.61	-0.24	-0.25	0.61	-0.20	
27	9493	0.51	0.51	0.48	-0.21	0.48	-0.08	-0.18	
28	9493	0.62	0.62	0.49	-0.18	0.49	-0.17	-0.13	
29	9493	0.53	0.53	0.50	-0.17	0.50	-0.22	-0.08	
30	9493	0.44	0.44	0.44	0.44	-0.12	-0.09	-0.16	
31	9493	0.68	0.68	0.52	-0.19	-0.21	0.52	-0.15	
32	9493	0.53	0.53	0.29	-0.11	0.29	-0.07	-0.09	
33	9493	0.50	0.50	0.35	0.35	-0.07	-0.17	-0.10	
34	9493	0.52	0.52	0.39	-0.19	-0.10	0.39	-0.15	
35	9493	0.70	0.70	0.58	-0.27	-0.22	-0.22	0.58	
36	9493	0.67	0.67	0.47	-0.16	-0.20	0.47	-0.17	

Table A 15
Summary Item Statistics - Reading, Grade 10, Form C (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
37	9493	0.57	0.57	0.39	-0.15	-0.12	-0.13	0.39	
38	9493	0.60	0.60	0.42	0.42	-0.16	-0.13	-0.19	
39	9493	0.64	0.64	0.43	-0.22	0.43	-0.14	-0.16	
40	9493	0.65	0.65	0.49	-0.23	-0.19	0.49	-0.18	
41	9493	0.53	0.53	0.53	0.53	-0.28	-0.18	-0.11	
42	9493	0.59	0.59	0.36	-0.21	0.36	-0.08	-0.19	
43	9493	0.76	0.76	0.60	-0.24	0.60	-0.28	-0.20	
44	9493	0.72	0.72	0.52	0.52	-0.23	-0.22	-0.16	
45	9493	0.75	0.75	0.59	0.59	-0.24	-0.25	-0.22	
46	9493	0.40	0.40	0.36	-0.16	-0.15	-0.02	0.36	
47	9493	0.69	0.69	0.55	0.55	-0.28	-0.18	-0.21	
48	9493	0.58	0.58	0.57	-0.19	-0.21	-0.23	0.57	
49	9493	0.56	0.56	0.36	0.36	-0.04	-0.23	-0.09	
50	9493	0.66	0.66	0.50	-0.16	0.50	-0.22	-0.17	
51	9493	0.67	0.67	0.52	0.52	-0.24	-0.17	-0.20	
52	9493	0.56	0.56	0.44	-0.19	-0.19	0.44	-0.09	
53	9493	0.40	0.40	0.30	-0.01	0.30	-0.09	-0.11	
54	9493	0.54	0.54	0.36	0.36	-0.10	-0.19	-0.04	
55	9493	0.46	0.46	0.37	-0.21	0.37	-0.13	-0.01	
56	9493	0.56	0.56	0.50	0.50	-0.16	-0.19	-0.18	
57	9493	0.69	0.69	0.55	-0.23	-0.22	0.55	-0.17	
58	9493	0.43	0.43	0.32	-0.14	0.32	-0.18	0.06	
59	9493	0.48	0.48	0.57	-0.25	-0.14	-0.21	0.57	
60	9493	0.68	0.68	0.58	-0.22	-0.20	-0.23	0.58	
61	9493	0.44	0.44	0.35	-0.12	0.35	-0.12	-0.03	
62	9493	0.60	0.60	0.41	-0.18	-0.11	0.41	-0.17	
63	9493	0.50	0.50	0.47	-0.21	-0.17	0.47	-0.10	
64	9493	1.75	0.58	0.69	.	.	.	.
65	9493	0.63	0.63	0.43	0.43	-0.18	-0.11	-0.18	
66	9493	0.84	0.84	0.53	0.53	-0.22	-0.20	-0.16	
67	9493	0.64	0.64	0.37	-0.15	-0.08	0.37	-0.14	
68	9493	0.78	0.78	0.54	-0.20	-0.21	-0.22	0.54	
69	9493	0.69	0.69	0.57	-0.19	-0.24	-0.23	0.57	
70	9493	1.59	0.53	0.71	.	.	.	.
71	9493	0.78	0.78	0.53	-0.20	0.53	-0.22	-0.17	
72	9493	0.63	0.63	0.55	0.55	-0.16	-0.25	-0.20	
73	9493	1.56	0.52	0.66	.	.	.	.

Table A 15
Summary Item Statistics - Reading, Grade 10, Form C (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
74	9493	0.73	0.73	0.55	0.55	-0.23	-0.19	-0.23	
75	9493	0.34	0.34	0.32	-0.01	-0.17	-0.14	0.32	
76	9493	0.50	0.50	0.45	0.45	-0.24	-0.07	-0.17	
77	9493	0.65	0.65	0.52	-0.16	-0.20	-0.22	0.52	
78	9493	0.76	0.76	0.58	-0.20	-0.26	-0.22	0.58	
79	9493	0.78	0.78	0.43	-0.15	-0.21	0.43	-0.07	
80	9493	0.72	0.72	0.58	-0.29	-0.20	0.58	-0.19	
81	9493	0.62	0.62	0.56	0.56	-0.28	-0.17	-0.19	
82	9493	0.40	0.40	0.37	0.02	0.37	-0.25	-0.19	
83	9493	0.44	0.44	0.37	-0.03	-0.19	0.37	-0.12	
84	9493	1.39	0.46	0.66	.	.	.	.
85	9493	0.32	0.32	0.32	-0.02	0.32	-0.07	-0.17	
86	9493	0.46	0.46	0.40	-0.08	0.40	-0.15	-0.13	
87	9493	0.69	0.69	0.54	0.54	-0.25	-0.22	-0.16	
88	9493	0.48	0.48	0.37	-0.25	0.37	-0.24	0.06	
89	9493	1.45	0.48	0.67	.	.	.	.
90	9493	0.50	0.50	0.46	-0.23	-0.08	-0.20	0.46	
91	9493	0.51	0.51	0.38	0.00	-0.23	0.38	-0.13	
92	9493	0.72	0.72	0.57	-0.22	-0.23	0.57	-0.19	
93	9493	1.45	0.48	0.68	.	.	.	.

Table A 16
Summary Item Statistics - Reading, Grade 10, Form D

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	9445	0.70	0.70	0.42	-0.11	-0.21	0.42	-0.19	
2	9445	0.56	0.56	0.39	0.39	-0.19	-0.15	-0.07	
3	9445	0.77	0.77	0.44	0.44	-0.18	-0.16	-0.20	
4	9445	0.84	0.84	0.50	-0.19	-0.20	-0.19	0.50	
5	9445	0.42	0.42	0.39	0.39	-0.25	-0.05	-0.05	
6	9445	0.74	0.74	0.45	-0.16	-0.16	-0.19	0.45	
7	9445	0.80	0.80	0.41	-0.17	0.41	-0.17	-0.14	
8	9445	0.57	0.57	0.40	0.40	-0.11	-0.22	-0.11	
9	9445	0.36	0.36	0.28	0.28	-0.10	-0.05	-0.06	
10	9445	0.63	0.63	0.47	-0.12	0.47	-0.22	-0.20	
11	9445	0.62	0.62	0.52	-0.25	-0.19	-0.20	0.52	
12	9445	0.82	0.82	0.56	-0.20	-0.25	-0.22	0.56	
13	9445	0.76	0.76	0.54	-0.23	0.54	-0.22	-0.19	
14	9445	0.64	0.64	0.54	-0.20	-0.17	-0.25	0.54	
15	9445	0.51	0.51	0.37	0.37	-0.15	-0.10	-0.09	
16	9445	0.41	0.41	0.22	0.08	-0.14	0.22	-0.07	
17	9445	0.54	0.54	0.60	-0.18	-0.28	-0.22	0.60	
18	9445	0.67	0.67	0.52	-0.18	-0.22	0.52	-0.21	
19	9445	0.65	0.65	0.51	-0.20	0.51	-0.18	-0.17	
20	9445	0.56	0.56	0.46	-0.10	-0.23	0.46	-0.14	
21	9445	0.66	0.66	0.44	-0.17	-0.12	0.44	-0.17	
22	9445	0.53	0.53	0.30	-0.24	0.08	0.30	-0.18	
23	9445	0.67	0.67	0.60	-0.25	-0.17	-0.24	0.60	
24	9445	0.55	0.55	0.49	-0.22	-0.06	-0.20	0.49	
25	9445	0.52	0.52	0.51	-0.16	-0.14	-0.18	0.51	
26	9445	0.69	0.69	0.60	-0.22	-0.26	0.60	-0.19	
27	9445	0.50	0.50	0.46	-0.19	0.46	-0.06	-0.19	
28	9445	0.62	0.62	0.48	-0.17	0.48	-0.16	-0.14	
29	9445	0.51	0.51	0.50	-0.21	0.50	-0.19	-0.07	
30	9445	0.43	0.43	0.43	0.43	-0.11	-0.10	-0.16	
31	9445	0.67	0.67	0.52	-0.18	-0.21	0.52	-0.16	
32	9445	0.53	0.53	0.29	-0.11	0.29	-0.06	-0.10	
33	9445	0.51	0.51	0.35	0.35	-0.08	-0.14	-0.12	
34	9445	0.53	0.53	0.39	-0.19	-0.09	0.39	-0.15	
35	9445	0.70	0.70	0.57	-0.24	-0.22	-0.22	0.57	
36	9445	0.67	0.67	0.46	-0.16	-0.20	0.46	-0.16	

Table A 16
Summary Item Statistics - Reading, Grade 10, Form D (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
37	9445	0.57	0.57	0.40	-0.15	-0.13	-0.13	0.40	
38	9445	0.62	0.62	0.42	0.42	-0.16	-0.11	-0.20	
39	9445	0.65	0.65	0.45	-0.22	0.45	-0.16	-0.15	
40	9445	0.66	0.66	0.50	-0.23	-0.20	0.50	-0.17	
41	9445	0.54	0.54	0.52	0.52	-0.26	-0.18	-0.11	
42	9445	0.59	0.59	0.39	-0.22	0.39	-0.10	-0.17	
43	9445	0.76	0.76	0.58	-0.23	0.58	-0.26	-0.20	
44	9445	0.72	0.72	0.52	0.52	-0.23	-0.22	-0.15	
45	9445	0.75	0.75	0.59	0.59	-0.25	-0.25	-0.21	
46	9445	0.40	0.40	0.35	-0.15	-0.18	0.01	0.35	
47	9445	0.70	0.70	0.54	0.54	-0.28	-0.17	-0.20	
48	9445	0.58	0.58	0.55	-0.19	-0.21	-0.21	0.55	
49	9445	0.56	0.56	0.36	0.36	-0.05	-0.22	-0.08	
50	9445	0.66	0.66	0.51	-0.16	0.51	-0.22	-0.19	
51	9445	0.67	0.67	0.52	0.52	-0.25	-0.15	-0.21	
52	9445	0.56	0.56	0.44	-0.20	-0.19	0.44	-0.07	
53	9445	0.41	0.41	0.32	-0.04	0.32	-0.09	-0.11	
54	9445	0.55	0.55	0.37	0.37	-0.11	-0.19	-0.04	
55	9445	0.45	0.45	0.38	-0.22	0.38	-0.12	-0.02	
56	9445	0.56	0.56	0.47	0.47	-0.15	-0.16	-0.19	
57	9445	0.69	0.69	0.54	-0.22	-0.22	0.54	-0.16	
58	9445	0.42	0.42	0.34	-0.12	0.34	-0.18	0.03	
59	9445	0.48	0.48	0.56	-0.24	-0.14	-0.22	0.56	
60	9445	0.68	0.68	0.59	-0.23	-0.21	-0.22	0.59	
61	9445	0.69	0.69	0.47	-0.14	-0.22	-0.16	0.47	
62	9445	0.78	0.78	0.48	-0.23	-0.13	-0.16	0.48	
63	9445	1.64	0.55	0.61	.	.	.	.
64	9445	0.76	0.76	0.40	-0.15	0.40	-0.14	-0.11	
65	9445	0.89	0.89	0.51	-0.16	-0.19	0.51	-0.17	
66	9445	1.48	0.49	0.69	.	.	.	.
67	9445	0.51	0.51	0.35	-0.15	-0.14	0.35	-0.01	
68	9445	0.55	0.55	0.32	0.07	0.32	-0.22	-0.18	
69	9445	0.79	0.79	0.54	-0.19	-0.21	-0.20	0.54	
70	9445	0.65	0.65	0.46	-0.20	0.46	-0.18	-0.12	
71	9445	0.44	0.44	0.36	-0.18	0.36	-0.21	0.08	
72	9445	0.37	0.37	0.30	-0.24	-0.25	0.11	0.30	
73	9445	0.42	0.42	0.29	0.29	-0.16	0.01	-0.07	

Table A 16
Summary Item Statistics - Reading, Grade 10, Form D (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
74	9445	1.67	0.56	0.68	.	.	.	.
75	9445	0.60	0.60	0.47	-0.24	-0.11	0.47	-0.14	
76	9445	0.49	0.49	0.47	-0.12	0.47	-0.19	-0.15	
77	9445	0.65	0.65	0.51	-0.18	-0.25	0.51	-0.15	
78	9445	0.49	0.49	0.37	0.37	-0.06	-0.17	-0.11	
79	9445	0.52	0.52	0.42	0.42	-0.17	-0.19	-0.07	
80	9445	1.41	0.47	0.65	.	.	.	.
81	9445	0.64	0.64	0.41	0.41	-0.07	-0.21	-0.20	
82	9445	0.68	0.68	0.49	-0.21	0.49	-0.26	-0.08	
83	9445	0.66	0.66	0.53	-0.25	-0.18	0.53	-0.17	
84	9445	0.57	0.57	0.44	0.44	-0.25	-0.19	-0.03	
85	9445	0.13	0.13	0.06	-0.19	0.06	-0.09	0.26	
86	9445	0.66	0.66	0.49	0.49	-0.14	-0.25	-0.20	
87	9445	0.57	0.57	0.55	-0.17	-0.22	-0.21	0.55	
88	9445	1.50	0.50	0.67	.	.	.	.
89	9445	0.75	0.75	0.60	0.60	-0.25	-0.26	-0.20	
90	9445	0.65	0.65	0.49	-0.15	-0.21	0.49	-0.16	
91	9445	0.69	0.69	0.55	0.55	-0.22	-0.27	-0.13	
92	9445	0.68	0.68	0.54	-0.27	-0.15	-0.21	0.54	
93	9445	0.73	0.73	0.56	-0.22	0.56	-0.21	-0.22	
94	9445	0.70	0.70	0.55	-0.19	-0.23	0.55	-0.18	
95	9445	1.43	0.48	0.67	.	.	.	.

Table A 17
Summary Item Statistics - Reading, Grade 10, Form E

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	9870	0.70	0.70	0.41	-0.11	-0.19	0.41	-0.21	
2	9870	0.56	0.56	0.40	0.40	-0.20	-0.16	-0.07	
3	9870	0.77	0.77	0.47	0.47	-0.22	-0.19	-0.19	
4	9870	0.84	0.84	0.51	-0.20	-0.21	-0.21	0.51	
5	9870	0.42	0.42	0.39	0.39	-0.24	-0.06	-0.07	
6	9870	0.74	0.74	0.44	-0.15	-0.16	-0.21	0.44	
7	9870	0.80	0.80	0.42	-0.20	0.42	-0.16	-0.16	
8	9870	0.57	0.57	0.39	0.39	-0.10	-0.24	-0.12	
9	9870	0.37	0.37	0.27	0.27	-0.10	-0.07	-0.04	
10	9870	0.64	0.64	0.46	-0.12	0.46	-0.21	-0.22	
11	9870	0.63	0.63	0.52	-0.25	-0.17	-0.22	0.52	
12	9870	0.82	0.82	0.56	-0.21	-0.25	-0.23	0.56	
13	9870	0.77	0.77	0.53	-0.24	0.53	-0.22	-0.19	
14	9870	0.64	0.64	0.55	-0.20	-0.19	-0.26	0.55	
15	9870	0.51	0.51	0.36	0.36	-0.16	-0.10	-0.09	
16	9870	0.41	0.41	0.22	0.09	-0.18	0.22	-0.06	
17	9870	0.55	0.55	0.60	-0.18	-0.29	-0.21	0.60	
18	9870	0.68	0.68	0.50	-0.18	-0.22	0.50	-0.20	
19	9870	0.65	0.65	0.51	-0.20	0.51	-0.18	-0.18	
20	9870	0.56	0.56	0.45	-0.13	-0.21	0.45	-0.13	
21	9870	0.67	0.67	0.44	-0.18	-0.13	0.44	-0.17	
22	9870	0.52	0.52	0.30	-0.23	0.07	0.30	-0.20	
23	9870	0.68	0.68	0.62	-0.26	-0.20	-0.27	0.62	
24	9870	0.55	0.55	0.49	-0.24	-0.08	-0.19	0.49	
25	9870	0.54	0.54	0.51	-0.17	-0.15	-0.19	0.51	
26	9870	0.69	0.69	0.61	-0.24	-0.26	0.61	-0.20	
27	9870	0.51	0.51	0.46	-0.21	0.46	-0.07	-0.19	
28	9870	0.62	0.62	0.48	-0.18	0.48	-0.17	-0.13	
29	9870	0.53	0.53	0.48	-0.16	0.48	-0.22	-0.08	
30	9870	0.45	0.45	0.42	0.42	-0.11	-0.09	-0.16	
31	9870	0.68	0.68	0.52	-0.18	-0.21	0.52	-0.16	
32	9870	0.53	0.53	0.28	-0.10	0.28	-0.06	-0.09	
33	9870	0.51	0.51	0.36	0.36	-0.08	-0.16	-0.10	
34	9870	0.53	0.53	0.39	-0.20	-0.10	0.39	-0.15	
35	9870	0.71	0.71	0.58	-0.25	-0.24	-0.22	0.58	
36	9870	0.67	0.67	0.47	-0.14	-0.22	0.47	-0.19	

Table A 17
Summary Item Statistics - Reading, Grade 10, Form E (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
37	9870	0.57	0.57	0.41	-0.17	-0.15	-0.12	0.41	
38	9870	0.61	0.61	0.41	0.41	-0.15	-0.13	-0.19	
39	9870	0.65	0.65	0.44	-0.21	0.44	-0.16	-0.16	
40	9870	0.65	0.65	0.50	-0.23	-0.20	0.50	-0.18	
41	9870	0.54	0.54	0.53	0.53	-0.27	-0.19	-0.12	
42	9870	0.59	0.59	0.36	-0.21	0.36	-0.10	-0.17	
43	9870	0.77	0.77	0.59	-0.26	0.59	-0.25	-0.22	
44	9870	0.73	0.73	0.51	0.51	-0.23	-0.23	-0.15	
45	9870	0.76	0.76	0.59	0.59	-0.26	-0.25	-0.21	
46	9870	0.40	0.40	0.36	-0.15	-0.17	-0.01	0.36	
47	9870	0.70	0.70	0.54	0.54	-0.27	-0.19	-0.22	
48	9870	0.59	0.59	0.56	-0.21	-0.21	-0.21	0.56	
49	9870	0.56	0.56	0.36	0.36	-0.05	-0.23	-0.09	
50	9870	0.66	0.66	0.51	-0.17	0.51	-0.23	-0.17	
51	9870	0.68	0.68	0.52	0.52	-0.26	-0.17	-0.18	
52	9870	0.57	0.57	0.44	-0.19	-0.19	0.44	-0.09	
53	9870	0.41	0.41	0.30	-0.02	0.30	-0.09	-0.11	
54	9870	0.55	0.55	0.37	0.37	-0.09	-0.20	-0.05	
55	9870	0.47	0.47	0.37	-0.21	0.37	-0.13	-0.01	
56	9870	0.56	0.56	0.47	0.47	-0.14	-0.17	-0.19	
57	9870	0.70	0.70	0.55	-0.23	-0.22	0.55	-0.17	
58	9870	0.43	0.43	0.32	-0.13	0.32	-0.17	0.05	
59	9870	0.49	0.49	0.57	-0.24	-0.16	-0.21	0.57	
60	9870	0.68	0.68	0.57	-0.22	-0.20	-0.23	0.57	
61	9870	0.60	0.60	0.36	-0.03	0.36	-0.26	-0.08	
62	9870	0.61	0.61	0.47	-0.19	0.47	-0.17	-0.18	
63	9870	0.45	0.45	0.42	-0.09	-0.21	0.42	-0.15	
64	9870	0.70	0.70	0.48	-0.18	-0.16	0.48	-0.22	
65	9870	1.44	0.48	0.67	.	.	.	.
66	9870	0.55	0.55	0.30	-0.05	-0.20	0.30	-0.03	
67	9870	0.58	0.58	0.55	-0.24	-0.23	-0.18	0.55	
68	9870	0.70	0.70	0.57	-0.25	0.57	-0.24	-0.18	
69	9870	0.55	0.55	0.32	-0.08	-0.04	0.32	-0.20	
70	9870	1.30	0.43	0.70	.	.	.	.
71	9870	0.42	0.42	0.35	0.35	-0.06	-0.15	-0.06	
72	9870	0.59	0.59	0.41	0.41	-0.13	-0.19	-0.07	

Table A 17
Summary Item Statistics - Reading, Grade 10, Form E (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
73	9870	1.19	0.40	0.66	.	.	.	.
74	9870	0.59	0.59	0.44	-0.17	-0.17	0.44	-0.13	
75	9870	0.65	0.65	0.42	-0.09	-0.16	-0.22	0.42	
76	9870	0.58	0.58	0.41	-0.17	0.41	-0.08	-0.19	
77	9870	0.81	0.81	0.58	0.58	-0.25	-0.23	-0.22	
78	9870	0.62	0.62	0.46	0.46	-0.11	-0.21	-0.17	
79	9870	1.65	0.55	0.71	.	.	.	.
80	9870	0.73	0.73	0.53	-0.16	-0.24	-0.20	0.53	
81	9870	0.81	0.81	0.61	-0.26	-0.24	-0.24	0.61	
82	9870	0.61	0.61	0.50	-0.14	0.50	-0.21	-0.20	
83	9870	1.56	0.52	0.68	.	.	.	.
84	9870	0.25	0.25	0.07	0.07	-0.15	0.00	0.18	
85	9870	0.77	0.77	0.60	-0.21	-0.25	-0.26	0.60	
86	9870	0.64	0.64	0.59	-0.22	-0.28	-0.18	0.59	
87	9870	0.64	0.64	0.55	-0.22	-0.20	0.55	-0.21	
88	9870	0.37	0.37	0.34	0.34	-0.11	-0.01	-0.13	
89	9870	1.41	0.47	0.70	.	.	.	.
90	9870	0.61	0.61	0.46	-0.16	0.46	-0.21	-0.12	
91	9870	0.54	0.54	0.36	0.36	-0.21	0.02	-0.16	
92	9870	0.59	0.59	0.52	-0.23	-0.16	0.52	-0.22	
93	9870	0.56	0.56	0.42	-0.25	-0.12	-0.05	0.42	
94	9870	1.49	0.50	0.67	.	.	.	.

Table A 18
Summary Item Statistics - Reading, Grade 10, Form F

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
1	9359	0.69	0.69	0.43	-0.11	-0.21	0.43	-0.19	
2	9359	0.56	0.56	0.41	0.41	-0.18	-0.16	-0.08	
3	9359	0.76	0.76	0.47	0.47	-0.19	-0.20	-0.18	
4	9359	0.83	0.83	0.51	-0.20	-0.17	-0.20	0.51	
5	9359	0.42	0.42	0.41	0.41	-0.24	-0.06	-0.06	
6	9359	0.73	0.73	0.46	-0.15	-0.17	-0.18	0.46	
7	9359	0.79	0.79	0.43	-0.19	0.43	-0.16	-0.14	
8	9359	0.57	0.57	0.42	0.42	-0.12	-0.22	-0.13	
9	9359	0.37	0.37	0.27	0.27	-0.09	-0.06	-0.04	
10	9359	0.63	0.63	0.48	-0.12	0.48	-0.21	-0.21	
11	9359	0.62	0.62	0.52	-0.26	-0.16	-0.19	0.52	
12	9359	0.82	0.82	0.57	-0.19	-0.26	-0.23	0.57	
13	9359	0.75	0.75	0.55	-0.23	0.55	-0.22	-0.19	
14	9359	0.63	0.63	0.55	-0.19	-0.17	-0.25	0.55	
15	9359	0.50	0.50	0.38	0.38	-0.14	-0.10	-0.09	
16	9359	0.40	0.40	0.27	0.05	-0.17	0.27	-0.05	
17	9359	0.54	0.54	0.60	-0.15	-0.27	-0.22	0.60	
18	9359	0.67	0.67	0.51	-0.18	-0.22	0.51	-0.19	
19	9359	0.64	0.64	0.53	-0.20	0.53	-0.18	-0.18	
20	9359	0.55	0.55	0.46	-0.12	-0.21	0.46	-0.12	
21	9359	0.66	0.66	0.47	-0.17	-0.13	0.47	-0.19	
22	9359	0.53	0.53	0.31	-0.24	0.08	0.31	-0.19	
23	9359	0.68	0.68	0.62	-0.24	-0.20	-0.24	0.62	
24	9359	0.55	0.55	0.49	-0.23	-0.06	-0.19	0.49	
25	9359	0.53	0.53	0.52	-0.18	-0.14	-0.17	0.52	
26	9359	0.69	0.69	0.61	-0.22	-0.27	0.61	-0.19	
27	9359	0.51	0.51	0.49	-0.21	0.49	-0.08	-0.18	
28	9359	0.61	0.61	0.49	-0.18	0.49	-0.16	-0.11	
29	9359	0.53	0.53	0.50	-0.16	0.50	-0.22	-0.08	
30	9359	0.44	0.44	0.43	0.43	-0.13	-0.07	-0.14	
31	9359	0.68	0.68	0.53	-0.20	-0.20	0.53	-0.15	
32	9359	0.52	0.52	0.29	-0.09	0.29	-0.06	-0.08	
33	9359	0.51	0.51	0.34	0.34	-0.07	-0.14	-0.09	
34	9359	0.52	0.52	0.39	-0.19	-0.09	0.39	-0.14	
35	9359	0.71	0.71	0.58	-0.24	-0.22	-0.22	0.58	
36	9359	0.67	0.67	0.47	-0.14	-0.20	0.47	-0.17	

Table A 18
Summary Item Statistics - Reading, Grade 10, Form F (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
37	9359	0.57	0.57	0.40	-0.15	-0.13	-0.12	0.40	
38	9359	0.62	0.62	0.42	0.42	-0.13	-0.13	-0.19	
39	9359	0.65	0.65	0.45	-0.20	0.45	-0.16	-0.15	
40	9359	0.64	0.64	0.51	-0.24	-0.19	0.51	-0.17	
41	9359	0.53	0.53	0.54	0.54	-0.27	-0.18	-0.11	
42	9359	0.59	0.59	0.38	-0.21	0.38	-0.08	-0.17	
43	9359	0.75	0.75	0.60	-0.23	0.60	-0.26	-0.21	
44	9359	0.71	0.71	0.53	0.53	-0.24	-0.22	-0.14	
45	9359	0.75	0.75	0.60	0.60	-0.25	-0.24	-0.20	
46	9359	0.39	0.39	0.36	-0.14	-0.15	-0.01	0.36	
47	9359	0.69	0.69	0.55	0.55	-0.28	-0.17	-0.19	
48	9359	0.58	0.58	0.57	-0.18	-0.20	-0.23	0.57	
49	9359	0.57	0.57	0.38	0.38	-0.03	-0.23	-0.09	
50	9359	0.65	0.65	0.51	-0.16	0.51	-0.22	-0.17	
51	9359	0.67	0.67	0.52	0.52	-0.26	-0.15	-0.17	
52	9359	0.55	0.55	0.44	-0.19	-0.18	0.44	-0.08	
53	9359	0.41	0.41	0.30	-0.01	0.30	-0.08	-0.10	
54	9359	0.54	0.54	0.36	0.36	-0.08	-0.20	-0.04	
55	9359	0.45	0.45	0.39	-0.21	0.39	-0.12	-0.02	
56	9359	0.55	0.55	0.50	0.50	-0.15	-0.18	-0.19	
57	9359	0.68	0.68	0.58	-0.24	-0.23	0.58	-0.16	
58	9359	0.42	0.42	0.32	-0.12	0.32	-0.15	0.04	
59	9359	0.49	0.49	0.57	-0.24	-0.14	-0.22	0.57	
60	9359	0.68	0.68	0.59	-0.22	-0.20	-0.23	0.59	
61	9359	0.65	0.65	0.49	0.49	-0.13	-0.24	-0.22	
62	9359	0.71	0.71	0.41	-0.19	0.41	-0.27	-0.02	
63	9359	0.73	0.73	0.46	0.46	-0.12	-0.20	-0.18	
64	9359	0.53	0.53	0.43	-0.20	-0.26	0.43	-0.04	
65	9359	0.41	0.41	0.40	0.00	0.40	-0.24	-0.17	
66	9359	0.72	0.72	0.56	-0.22	0.56	-0.28	-0.16	
67	9359	1.51	0.50	0.62	.	.	.	.
68	9359	0.23	0.23	0.08	0.08	0.16	-0.20	0.00	
69	9359	0.39	0.39	0.40	-0.14	-0.02	-0.20	0.40	
70	9359	1.49	0.50	0.69	.	.	.	.
71	9359	0.44	0.44	0.51	-0.11	-0.23	-0.14	0.51	
72	9359	0.73	0.73	0.54	-0.20	0.54	-0.22	-0.19	
73	9359	0.67	0.67	0.56	-0.21	-0.21	0.56	-0.21	

Table A 18
Summary Item Statistics - Reading, Grade 10, Form F (cont.)

ITEM	N	RAWMEAN	P_VAL	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	P_BIS5
74	9359	1.35	0.45	0.64	.	.	.	.
75	9359	0.78	0.78	0.52	0.52	-0.23	-0.22	-0.15	
76	9359	0.68	0.68	0.47	-0.11	0.47	-0.26	-0.15	
77	9359	1.34	0.45	0.65	.	.	.	.
78	9359	0.74	0.74	0.49	0.49	-0.24	-0.22	-0.11	
79	9359	0.45	0.45	0.37	-0.10	-0.24	-0.03	0.37	
80	9359	0.64	0.64	0.46	-0.24	-0.09	0.46	-0.17	
81	9359	0.37	0.37	0.27	0.27	-0.19	0.04	-0.14	
82	9359	0.59	0.59	0.51	0.51	-0.26	-0.18	-0.12	
83	9359	0.69	0.69	0.39	0.39	-0.21	-0.22	-0.02	
84	9359	0.54	0.54	0.52	-0.19	-0.18	-0.19	0.52	
85	9359	0.74	0.74	0.58	-0.22	0.58	-0.25	-0.22	
86	9359	0.76	0.76	0.59	-0.26	-0.23	0.59	-0.19	
87	9359	0.38	0.38	0.17	0.17	0.13	-0.11	-0.20	
88	9359	1.33	0.44	0.63	.	.	.	.
89	9359	0.52	0.52	0.52	-0.16	0.52	-0.27	-0.11	
90	9359	0.71	0.71	0.54	-0.22	0.54	-0.22	-0.15	
91	9359	1.42	0.47	0.67	.	.	.	.
92	9359	0.64	0.64	0.49	-0.15	-0.23	0.49	-0.14	
93	9359	0.48	0.48	0.43	-0.22	-0.03	-0.17	0.43	

Appendix B. IRT Item Parameters

Table B 1
Item Parameters for Mathematics Grade 3 Form A

Item #	Item Designation	Item Type	Item Parameters		
			a	b	c
1	anchor	SR	0.488	-2.096	0.150
2	anchor	SR	0.521	-2.689	0.150
4	anchor	SR	0.652	-1.999	0.188
10	anchor	SR	0.834	-1.807	0.102
12	anchor	SR	0.807	-1.906	0.200
13	anchor	SR	0.953	-1.430	0.178
14	anchor	SR	0.548	-1.794	0.200
16	anchor	SR	0.407	-2.867	0.200
17	anchor	SR	0.491	-2.237	0.200
18	anchor	SR	0.580	-3.791	0.200
24	anchor	SR	1.083	-2.655	0.168
32	anchor	SR	1.099	-1.974	0.060
34	anchor	SR	1.090	-2.340	0.098
35	anchor	SR	0.409	0.485	0.156
36	anchor	SR	0.809	-2.880	0.200
37	anchor	SR	0.809	-0.993	0.062
38	anchor	SR	0.921	-2.041	0.076
39	anchor	SR	0.190	-4.180	0.200
40	anchor	SR	1.203	-1.663	0.038
41	anchor	SR	1.044	0.115	0.244
43	anchor	SR	1.288	-0.664	0.123
44	anchor	SR	0.596	-1.888	0.200
46	anchor	SR	0.647	-1.617	0.090
47	unique	SR	0.789	-2.606	0.200
48	anchor	SR	0.765	-1.406	0.168
49	anchor	SR	0.686	-1.508	0.061
52	anchor	SR	1.169	-1.795	0.060
54	anchor	SR	0.434	1.315	0.248
55	anchor	SR	0.915	-0.856	0.084
57	anchor	SR	0.840	1.994	0.143
58	anchor	SR	0.670	-1.027	0.117
60	anchor	SR	0.857	-1.298	0.200
61	anchor	SR	1.197	-0.090	0.266
62	anchor	SR	0.847	-2.151	0.200
63	anchor	SR	0.614	-1.005	0.097
64	anchor	SR	0.453	-0.749	0.200
66	anchor	SR	0.788	-0.428	0.234

Table B 1 (cont.)
Item Parameters for Mathematics Grade 3 Form A

Item #	Item Designation	Item Type	Item Parameters		
			a	b	c
67	anchor	SR	0.275	3.987	0.200
68	unique	SR	0.785	-2.062	0.200
71	anchor	SR	0.925	-1.157	0.396
72	anchor	SR	1.210	0.149	0.212
74	anchor	SR	0.783	-2.116	0.088
31A	unique	CR	1.176	-3.345	
31B	unique	CR	1.052	-1.199	1.707
42A	unique	CR	1.130	-1.607	
42B	unique	CR	0.787	-0.341	0.484
50B	unique	CR	0.993	-1.049	-0.561
51A	unique	CR	1.327	1.791	
51B	unique	CR	0.895	-0.159	1.413
69A	unique	CR	1.063	-0.830	
69B	unique	CR	1.344	-1.079	0.849
77A	unique	CR	0.923	-1.981	
77B	unique	CR	0.980	-1.498	0.072
80	unique	SR	0.798	1.294	0.187
82	unique	SR	1.034	-1.078	0.205
83	unique	SR	1.339	-1.321	0.221
89	unique	SR	1.407	-0.894	0.158
93	unique	SR	0.877	-0.358	0.196
94	unique	SR	0.818	-1.285	0.121
99	unique	SR	1.003	-0.368	0.166
101	unique	SR	1.093	1.037	0.155
103	unique	SR	1.117	-0.725	0.353
106	unique	SR	0.995	-0.089	0.184
107	unique	SR	0.352	-0.281	0.121

Table B 2
Item Parameters for Mathematics Grade 3 Form B

Item #	Item Designation	Item Type	Item Parameters		
			a	B	c
1	anchor	SR	0.488	-2.096	0.150
2	anchor	SR	0.521	-2.689	0.150
4	anchor	SR	0.652	-1.999	0.188
10	anchor	SR	0.834	-1.807	0.102
12	anchor	SR	0.807	-1.906	0.200
13	anchor	SR	0.953	-1.430	0.178
14	anchor	SR	0.548	-1.794	0.200
16	anchor	SR	0.407	-2.867	0.200
17	anchor	SR	0.491	-2.237	0.200
18	anchor	SR	0.580	-3.791	0.200
24	anchor	SR	1.083	-2.655	0.168
32	anchor	SR	1.099	-1.974	0.060
34	anchor	SR	1.090	-2.340	0.098
35	anchor	SR	0.409	0.485	0.156
36	anchor	SR	0.809	-2.880	0.200
37	anchor	SR	0.809	-0.993	0.062
38	anchor	SR	0.921	-2.041	0.076
39	anchor	SR	0.190	-4.180	0.200
40	anchor	SR	1.203	-1.663	0.038
41	anchor	SR	1.044	0.115	0.244
43	anchor	SR	1.288	-0.664	0.123
44	anchor	SR	0.596	-1.888	0.200
46	anchor	SR	0.647	-1.617	0.090
47	unique	SR	0.789	-2.606	0.200
48	anchor	SR	0.765	-1.406	0.168
49	anchor	SR	0.686	-1.508	0.061
52	anchor	SR	1.169	-1.795	0.060
54	anchor	SR	0.434	1.315	0.248
55	anchor	SR	0.915	-0.856	0.084
57	anchor	SR	0.840	1.994	0.143
58	anchor	SR	0.670	-1.027	0.117
60	anchor	SR	0.857	-1.298	0.200
61	anchor	SR	1.197	-0.090	0.266
62	anchor	SR	0.847	-2.151	0.200
63	anchor	SR	0.614	-1.005	0.097
64	anchor	SR	0.453	-0.749	0.200
66	anchor	SR	0.788	-0.428	0.234
67	anchor	SR	0.275	3.987	0.200
68	unique	SR	0.785	-2.062	0.200
71	anchor	SR	0.925	-1.157	0.396

Table B 2 (cont.)
Item Parameters for Mathematics Grade 3 Form B

Item #	Item Designation	Item Type	Item Parameters		
			a	b	c
72	anchor	SR	1.210	0.149	0.212
73	unique	SR	1.004	-0.968	0.221
74	anchor	SR	0.783	-2.116	0.088
31A	unique	CR	1.394	-2.127	
31B	unique	CR	0.935	-0.531	0.366
42A	unique	CR	0.634	-1.352	
42B	unique	CR	0.749	-0.436	0.491
50A	unique	CR	1.212	-0.613	
50B	unique	CR	1.026	-0.654	-0.163
51A	unique	CR	0.825	-0.589	
51B	unique	CR	0.668	-0.130	0.061
59A	unique	CR	1.273	-2.506	
59B	unique	CR	1.044	-0.879	1.040
69A	unique	CR	1.194	-1.711	
69B	unique	CR	0.820	-0.162	-0.851
77A	unique	CR	1.122	-1.203	
77B	unique	CR	0.799	-1.641	-0.043
82	unique	SR	0.696	-1.296	0.147
84	unique	SR	0.714	-0.165	0.093
85	unique	SR	0.776	-1.220	0.200
87	unique	SR	0.925	-2.965	0.200
95	unique	SR	0.997	0.074	0.088
98	unique	SR	0.709	-0.876	0.339
102	unique	SR	1.408	-1.100	0.341
107	unique	SR	1.287	0.677	0.155

Table B 3
Item Parameters for Mathematics Grade 3 Form C

Item #	Item Designation	Item Type	Item Parameters		
			a	B	c
1	anchor	SR	0.488	-2.096	0.150
2	anchor	SR	0.521	-2.689	0.150
4	anchor	SR	0.652	-1.999	0.188
10	anchor	SR	0.834	-1.807	0.102
12	anchor	SR	0.807	-1.906	0.200
13	anchor	SR	0.953	-1.430	0.178
14	anchor	SR	0.548	-1.794	0.200
16	anchor	SR	0.407	-2.867	0.200
17	anchor	SR	0.491	-2.237	0.200
18	anchor	SR	0.580	-3.791	0.200
24	anchor	SR	1.083	-2.655	0.168
32	anchor	SR	1.099	-1.974	0.060
34	anchor	SR	1.090	-2.340	0.098
35	anchor	SR	0.409	0.485	0.156
36	anchor	SR	0.809	-2.880	0.200
37	anchor	SR	0.809	-0.993	0.062
38	anchor	SR	0.921	-2.041	0.076
39	anchor	SR	0.190	-4.180	0.200
40	anchor	SR	1.203	-1.663	0.038
41	anchor	SR	1.044	0.115	0.244
43	anchor	SR	1.288	-0.664	0.123
44	anchor	SR	0.596	-1.888	0.200
46	anchor	SR	0.647	-1.617	0.090
48	anchor	SR	0.765	-1.406	0.168
49	anchor	SR	0.686	-1.508	0.061
52	anchor	SR	1.169	-1.795	0.060
54	anchor	SR	0.434	1.315	0.248
55	anchor	SR	0.915	-0.856	0.084
57	anchor	SR	0.840	1.994	0.143
58	anchor	SR	0.670	-1.027	0.117
60	anchor	SR	0.857	-1.298	0.200
61	anchor	SR	1.197	-0.090	0.266
62	anchor	SR	0.847	-2.151	0.200
63	anchor	SR	0.614	-1.005	0.097
64	anchor	SR	0.453	-0.749	0.200
66	anchor	SR	0.788	-0.428	0.234
67	anchor	SR	0.275	3.987	0.200
68	unique	SR	0.785	-2.062	0.200
71	anchor	SR	0.925	-1.157	0.396
72	anchor	SR	1.210	0.149	0.212

Table B 3 (cont.)
Item Parameters for Mathematics Grade 3 Form C

Item #	Item Designation	Item Type	Item Parameters		
			a	b	c
74	anchor	SR	0.783	-2.116	0.088
31A	unique	CR	1.449	-1.552	
31B	unique	CR	1.181	-1.050	2.090
42A	unique	CR	0.650	1.111	
42B	unique	CR	0.779	-0.032	0.877
50A	unique	CR	0.677	-0.535	
50B	unique	CR	0.993	-0.333	-0.297
51A	unique	CR	1.069	-2.915	
51B	unique	CR	0.824	-0.852	0.521
59A	unique	CR	1.477	-2.789	
59B	unique	CR	1.051	-1.104	0.956
69A	unique	CR	1.072	-0.744	
69B	unique	CR	1.344	-0.647	0.704
77A	unique	CR	1.185	-2.480	
77B	unique	CR	0.789	-0.524	2.581
80	unique	SR	0.329	0.144	0.200
84	unique	SR	0.746	-1.350	0.168
85	unique	SR	0.927	-1.330	0.086
87	unique	SR	1.035	0.186	0.114
94	unique	SR	0.766	-1.334	0.103
99	unique	SR	1.137	-1.475	0.216
102	unique	SR	0.946	-0.246	0.084
104	unique	SR	1.076	-1.035	0.336
105	unique	SR	0.633	-0.161	0.239
107	unique	SR	0.854	-2.138	0.168

Table B 4
Item Parameters for Mathematics Grade 3 Form D

Item #	Item Designation	Item Type	Item Parameters		
			a	B	c
78	anchor	SR	0.488	-2.096	0.150
79	anchor	SR	0.521	-2.689	0.150
81	anchor	SR	0.652	-1.999	0.188
87	anchor	SR	0.834	-1.807	0.102
89	anchor	SR	0.807	-1.906	0.200
90	anchor	SR	0.953	-1.430	0.178
91	anchor	SR	0.548	-1.794	0.200
93	anchor	SR	0.407	-2.867	0.200
94	anchor	SR	0.491	-2.237	0.200
95	anchor	SR	0.580	-3.791	0.200
101	anchor	SR	1.083	-2.655	0.168
32	anchor	SR	1.099	-1.974	0.060
34	anchor	SR	1.090	-2.340	0.098
35	anchor	SR	0.409	0.485	0.156
36	anchor	SR	0.809	-2.880	0.200
37	anchor	SR	0.809	-0.993	0.062
38	anchor	SR	0.921	-2.041	0.076
39	anchor	SR	0.190	-4.180	0.200
40	anchor	SR	1.203	-1.663	0.038
41	anchor	SR	1.044	0.115	0.244
43	anchor	SR	1.288	-0.664	0.123
44	anchor	SR	0.596	-1.888	0.200
46	anchor	SR	0.647	-1.617	0.090
47	unique	SR	0.789	-2.606	0.200
48	anchor	SR	0.765	-1.406	0.168
49	anchor	SR	0.686	-1.508	0.061
52	anchor	SR	1.169	-1.795	0.060
54	anchor	SR	0.434	1.315	0.248
55	anchor	SR	0.915	-0.856	0.084
57	anchor	SR	0.840	1.994	0.143
58	anchor	SR	0.670	-1.027	0.117
60	anchor	SR	0.857	-1.298	0.200
61	anchor	SR	1.197	-0.090	0.266
62	anchor	SR	0.847	-2.151	0.200
63	anchor	SR	0.614	-1.005	0.097
64	anchor	SR	0.453	-0.749	0.200
66	anchor	SR	0.788	-0.428	0.234
67	anchor	SR	0.275	3.987	0.200
71	anchor	SR	0.925	-1.157	0.396
72	anchor	SR	1.210	0.149	0.212

Table B 4 (cont.)
Item Parameters for Mathematics Grade 3 Form D

Item #	Item Designation	Item Type	Item Parameters		
			a	b	c
74	anchor	SR	0.783	-2.116	0.088
3	unique	SR	0.568	-3.181	0.200
4	unique	SR	0.630	-0.205	0.345
7	unique	SR	0.801	-0.042	0.121
10	unique	SR	0.877	0.926	0.322
16	unique	SR	1.078	-1.132	0.089
17	unique	SR	0.750	-0.638	0.270
19	unique	SR	1.052	-0.399	0.027
20	unique	SR	1.427	1.093	0.095
24	unique	SR	0.819	-0.437	0.495
27	unique	SR	0.846	1.575	0.134
28	unique	SR	0.855	0.513	0.069
29	unique	SR	0.518	-0.037	0.202
31A	unique	CR	1.053	0.203	
31B	unique	CR	0.863	-0.157	-0.223
50A	unique	CR	1.791	-0.461	
50B	unique	CR	1.142	-0.024	-0.604
51A	unique	CR	0.917	0.440	
51B	unique	CR	1.089	-0.916	1.552
69A	unique	CR	1.504	-3.525	
69B	unique	CR	0.999	-0.359	1.585
77A	unique	CR	0.793	1.051	
77B	unique	CR	1.486	1.888	2.957

Table B 5
Item Parameters for Mathematics Grade 5 Form A

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
2	anchor	SR	0.861	-0.467	0.087	
4	anchor	SR	0.794	-0.325	0.092	
6	anchor	SR	0.729	-0.982	0.216	
8	anchor	SR	1.003	0.193	0.272	
12	anchor	SR	0.970	-0.471	0.215	
13	anchor	SR	0.384	-1.396	0.200	
17	unique	SR	0.459	1.164	0.499	
23	anchor	SR	1.129	-0.200	0.183	
26	anchor	SR	1.037	0.371	0.161	
27	anchor	SR	1.340	0.170	0.174	
28	anchor	SR	1.120	0.396	0.385	
31	anchor	SR	1.000	-0.014	0.175	
32	anchor	SR	0.891	-0.733	0.193	
34	anchor	SR	0.960	-1.299	0.303	
35	anchor	SR	1.550	0.537	0.304	
37	anchor	SR	0.560	0.941	0.390	
38	anchor	SR	1.082	1.269	0.300	
40	anchor	SR	0.939	0.691	0.176	
41	anchor	SR	0.457	1.274	0.144	
42	anchor	SR	0.826	0.838	0.289	
43	anchor	SR	1.028	0.022	0.229	
45	anchor	SR	0.624	-1.540	0.216	
46	anchor	SR	1.076	-0.148	0.203	
48	anchor	SR	0.788	1.568	0.172	
49	anchor	SR	0.412	1.382	0.155	
50	anchor	SR	1.284	-0.275	0.226	
57	anchor	SR	0.977	0.697	0.355	
60	anchor	SR	1.152	0.293	0.160	
61	anchor	SR	0.786	0.667	0.208	
62	anchor	SR	1.041	0.515	0.193	
63	anchor	SR	0.859	-0.543	0.206	
66	anchor	SR	0.903	-0.088	0.250	
67	unique	SR	0.357	0.723	0.216	
69	anchor	SR	0.738	0.406	0.137	
70	anchor	SR	0.775	-0.274	0.122	
71	anchor	SR	1.350	1.091	0.182	
72	anchor	SR	0.889	2.448	0.198	
73	anchor	SR	0.639	0.492	0.207	
74	anchor	SR	0.874	1.107	0.176	
75	anchor	SR	0.298	0.270	0.332	

Table B 5 (cont.)
Item Parameters for Mathematics Grade 5 Form A

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
33A	unique	CR	2.026	-0.393		
33B	unique	CR	1.205	-0.066	-0.224	0.682
44A	unique	CR	1.080	-1.097		
44B	unique	CR	0.817	-0.041	0.467	
52A	unique	CR	1.023	1.456		
52B	unique	CR	0.762	0.802	1.092	
53A	unique	CR	1.663	1.513		
53B	unique	CR	1.109	1.431	0.739	
54A	unique	CR	2.005	1.301		
54B	unique	CR	1.316	0.542	0.955	
55A	unique	CR	0.644	0.439		
55B	unique	CR	1.018	0.150	1.397	
59A	unique	CR	2.197	-0.812		
59B	unique	CR	1.182	-0.268	0.252	
68A	unique	CR	0.353	-2.441		
68B	unique	CR	0.675	0.346	1.566	
77	unique	SR	0.769	-1.124	0.162	
78	unique	SR	0.762	-0.522	0.251	
87	unique	SR	0.842	0.274	0.149	
89	unique	SR	1.312	0.353	0.193	
91	unique	SR	0.992	-0.704	0.260	
93	unique	SR	1.756	1.448	0.067	
97	unique	SR	0.899	0.767	0.209	
100	unique	SR	0.931	0.278	0.315	
103	unique	SR	1.399	0.939	0.239	

Table B 6
Item Parameters for Mathematics Grade 5 Form B

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
2	anchor	SR	0.861	-0.467	0.087	
4	anchor	SR	0.794	-0.325	0.092	
6	anchor	SR	0.729	-0.982	0.216	
8	anchor	SR	1.003	0.193	0.272	
12	anchor	SR	0.970	-0.471	0.215	
13	anchor	SR	0.384	-1.396	0.200	
17	unique	SR	0.459	1.164	0.499	
23	anchor	SR	1.129	-0.200	0.183	
26	anchor	SR	1.037	0.371	0.161	
27	anchor	SR	1.340	0.170	0.174	
28	anchor	SR	1.120	0.396	0.385	
31	anchor	SR	1.000	-0.014	0.175	
32	anchor	SR	0.891	-0.733	0.193	
34	anchor	SR	0.960	-1.299	0.303	
35	anchor	SR	1.550	0.537	0.304	
37	anchor	SR	0.560	0.941	0.390	
38	anchor	SR	1.082	1.269	0.300	
40	anchor	SR	0.939	0.691	0.176	
41	anchor	SR	0.457	1.274	0.144	
42	anchor	SR	0.826	0.838	0.289	
43	anchor	SR	1.028	0.022	0.229	
45	anchor	SR	0.624	-1.540	0.216	
46	anchor	SR	1.076	-0.148	0.203	
48	anchor	SR	0.788	1.568	0.172	
49	anchor	SR	0.412	1.382	0.155	
50	anchor	SR	1.284	-0.275	0.226	
57	anchor	SR	0.977	0.697	0.355	
60	anchor	SR	1.152	0.293	0.160	
61	anchor	SR	0.786	0.667	0.208	
62	anchor	SR	1.041	0.515	0.193	
63	anchor	SR	0.859	-0.543	0.206	
64	unique	SR	1.210	-0.410	0.183	
66	anchor	SR	0.903	-0.088	0.250	
67	unique	SR	0.357	0.723	0.216	
69	anchor	SR	0.738	0.406	0.137	
70	anchor	SR	0.775	-0.274	0.122	
71	anchor	SR	1.350	1.091	0.182	
72	anchor	SR	0.889	2.448	0.198	
73	anchor	SR	0.639	0.492	0.207	
74	anchor	SR	0.874	1.107	0.176	

Table B 6 (cont.)
Item Parameters for Mathematics Grade 5 Form B

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
75	anchor	SR	0.298	0.270	0.332	
33A	unique	CR	1.753	0.071		
33B	unique	CR	1.129	0.936	-0.548	0.984
55A	unique	CR	2.061	1.034		
55B	unique	CR	1.541	-0.342	0.910	
59A	unique	CR	0.858	-0.158		
59B	unique	CR	0.913	0.137	1.330	
68A	unique	CR	1.311	-0.528		
68B	unique	CR	1.779	-0.188	4.432	
78	unique	SR	0.950	0.770	0.491	
79	unique	SR	0.574	-0.060	0.216	
80	unique	SR	1.706	1.467	0.048	
82	unique	SR	1.227	-0.309	0.166	
85	unique	SR	1.321	1.679	0.145	
86	unique	SR	0.837	0.180	0.327	
87	unique	SR	1.317	2.405	0.284	
91	unique	SR	1.653	0.782	0.110	
94	unique	SR	1.138	0.662	0.208	
96	unique	SR	0.763	0.431	0.219	
104	unique	SR	1.189	0.904	0.246	
106	unique	SR	0.268	1.904	0.157	

Table B 7
Item Parameters for Mathematics Grade 5 Form C

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
2	anchor	SR	0.861	-0.467	0.087	
4	anchor	SR	0.794	-0.325	0.092	
6	anchor	SR	0.729	-0.982	0.216	
8	anchor	SR	1.003	0.193	0.272	
12	anchor	SR	0.970	-0.471	0.215	
13	anchor	SR	0.384	-1.396	0.200	
17	unique	SR	0.459	1.164	0.499	
23	anchor	SR	1.129	-0.200	0.183	
26	anchor	SR	1.037	0.371	0.161	
27	anchor	SR	1.340	0.170	0.174	
28	anchor	SR	1.120	0.396	0.385	
31	anchor	SR	1.000	-0.014	0.175	
32	anchor	SR	0.891	-0.733	0.193	
34	anchor	SR	0.960	-1.299	0.303	
35	anchor	SR	1.550	0.537	0.304	
37	anchor	SR	0.560	0.941	0.390	
38	anchor	SR	1.082	1.269	0.300	
40	anchor	SR	0.939	0.691	0.176	
41	anchor	SR	0.457	1.274	0.144	
42	anchor	SR	0.826	0.838	0.289	
43	anchor	SR	1.028	0.022	0.229	
45	anchor	SR	0.624	-1.540	0.216	
46	anchor	SR	1.076	-0.148	0.203	
48	anchor	SR	0.788	1.568	0.172	
49	anchor	SR	0.412	1.382	0.155	
50	anchor	SR	1.284	-0.275	0.226	
57	anchor	SR	0.977	0.697	0.355	
60	anchor	SR	1.152	0.293	0.160	
61	anchor	SR	0.786	0.667	0.208	
62	anchor	SR	1.041	0.515	0.193	
63	anchor	SR	0.859	-0.543	0.206	
66	anchor	SR	0.903	-0.088	0.250	
69	anchor	SR	0.738	0.406	0.137	
70	anchor	SR	0.775	-0.274	0.122	
71	anchor	SR	1.350	1.091	0.182	
72	anchor	SR	0.889	2.448	0.198	
73	anchor	SR	0.639	0.492	0.207	
74	anchor	SR	0.874	1.107	0.176	
75	anchor	SR	0.298	0.270	0.332	
33A	unique	CR	1.748	-0.971		

Table B 7 (cont.)
Item Parameters for Mathematics Grade 5 Form C

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
33B	unique	CR	1.065	-0.221	-0.928	0.638
44A	unique	CR	1.192	0.598		
44B	unique	CR	0.972	-0.705	0.745	
53A	unique	CR	1.735	1.470		
53B	unique	CR	1.648	0.343	1.777	
54A	unique	CR	1.630	-0.980		
54B	unique	CR	1.195	-0.789	-0.334	
55A	unique	CR	1.301	-3.526		
55B	unique	CR	0.677	-0.473	1.357	
59A	unique	CR	1.428	2.634		
59B	unique	CR	1.011	0.221	1.733	
68A	unique	CR	1.497	0.019		
68B	unique	CR	1.190	0.783	-0.168	
77	unique	SR	1.397	0.989	0.386	
83	unique	SR	0.955	-0.905	0.343	
84	unique	SR	0.943	0.350	0.269	
88	unique	SR	0.864	0.573	0.149	
90	unique	SR	1.108	0.289	0.229	
91	unique	SR	0.957	0.661	0.217	
92	unique	SR	1.504	0.934	0.139	
93	unique	SR	0.842	-0.027	0.375	
98	unique	SR	1.635	0.475	0.112	
102	unique	SR	0.603	1.995	0.173	
106	unique	SR	1.076	0.208	0.207	

Table B 8
Item Parameters for Mathematics Grade 5 Form D

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
78	anchor	SR	0.861	-0.467	0.087	
80	anchor	SR	0.794	-0.325	0.092	
82	anchor	SR	0.729	-0.982	0.216	
84	anchor	SR	1.003	0.193	0.272	
88	anchor	SR	0.970	-0.471	0.215	
89	anchor	SR	0.384	-1.396	0.200	
93	unique	SR	0.459	1.164	0.499	
99	anchor	SR	1.129	-0.200	0.183	
102	anchor	SR	1.037	0.371	0.161	
103	anchor	SR	1.340	0.170	0.174	
104	anchor	SR	1.120	0.396	0.385	
107	anchor	SR	1.000	-0.014	0.175	
108	anchor	SR	0.891	-0.733	0.193	
34	anchor	SR	0.960	-1.299	0.303	
35	anchor	SR	1.550	0.537	0.304	
37	anchor	SR	0.560	0.941	0.390	
38	anchor	SR	1.082	1.269	0.300	
39	unique	SR	1.070	0.428	0.131	
40	anchor	SR	0.939	0.691	0.176	
41	anchor	SR	0.457	1.274	0.144	
42	anchor	SR	0.826	0.838	0.289	
43	anchor	SR	1.028	0.022	0.229	
45	anchor	SR	0.624	-1.540	0.216	
46	anchor	SR	1.076	-0.148	0.203	
48	anchor	SR	0.788	1.568	0.172	
49	anchor	SR	0.412	1.382	0.155	
50	anchor	SR	1.284	-0.275	0.226	
57	anchor	SR	0.977	0.697	0.355	
58	unique	SR	1.778	1.139	0.101	
60	anchor	SR	1.152	0.293	0.160	
61	anchor	SR	0.786	0.667	0.208	
62	anchor	SR	1.041	0.515	0.193	
63	anchor	SR	0.859	-0.543	0.206	
66	anchor	SR	0.903	-0.088	0.250	
67	unique	SR	0.357	0.723	0.216	
69	anchor	SR	0.738	0.406	0.137	
70	anchor	SR	0.775	-0.274	0.122	
71	anchor	SR	1.350	1.091	0.182	
72	anchor	SR	0.889	2.448	0.198	
73	anchor	SR	0.639	0.492	0.207	

Table B 8 (cont.)
Item Parameters for Mathematics Grade 5 Form D

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
74	anchor	SR	0.874	1.107	0.176	
75	anchor	SR	0.298	0.270	0.332	
2	unique	SR	1.036	-0.804	0.193	
9	unique	SR	0.706	-1.906	0.200	
15	unique	SR	0.830	-0.851	0.130	
22	unique	SR	0.529	-0.274	0.089	
24	unique	SR	1.898	1.148	0.091	
25	unique	SR	0.943	0.350	0.269	
27	unique	SR	1.394	0.218	0.177	
28	unique	SR	1.390	0.580	0.119	
30	unique	SR	1.260	0.537	0.236	
33A	unique	2	1.672	1.389		
33B	unique	2	1.096	1.280	0.632	2.421
44A	unique	2	0.965	0.157		
44B	unique	2	1.132	0.783	1.548	
52A	unique	2	0.764	-1.107		
52B	unique	2	0.619	-1.925	0.473	
53A	unique	2	1.749	0.788		
53B	unique	2	1.444	0.408	0.894	
55A	unique	2	0.923	-0.456		
55B	unique	2	0.886	-0.279	1.609	

Table B 9
Item Parameters for Mathematics Grade 8 Form A

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
6	anchor	SR	1.472	0.522	0.379	
7	anchor	SR	0.978	0.042	0.339	
13	anchor	SR	0.599	-2.205	0.200	
16	anchor	SR	1.121	-1.448	0.148	
20	anchor	SR	1.099	1.487	0.192	
26	anchor	SR	0.750	1.105	0.254	
27	anchor	SR	0.947	0.637	0.182	
29	anchor	SR	0.691	0.556	0.296	
33	anchor	SR	0.845	0.515	0.241	
34	anchor	SR	0.836	-0.114	0.255	
36	anchor	SR	0.932	1.380	0.087	
37	anchor	SR	1.118	1.273	0.180	
38	anchor	SR	1.682	1.202	0.268	
40	anchor	SR	0.719	0.398	0.188	
43	anchor	SR	0.589	0.053	0.084	
44	anchor	SR	1.015	0.381	0.246	
45	anchor	SR	0.606	2.560	0.145	
61	anchor	SR	0.671	0.879	0.160	
62	anchor	SR	0.734	1.277	0.101	
63	anchor	SR	1.172	1.046	0.282	
69	anchor	SR	1.406	1.288	0.101	
71	anchor	SR	1.307	1.177	0.216	
72	anchor	SR	1.461	0.841	0.250	
74	anchor	SR	1.424	0.715	0.371	
75	anchor	SR	1.115	1.038	0.238	
32A	unique	CR	1.802	1.834		
32B	unique	CR	1.193	0.446	0.985	1.356
46A	unique	CR	1.774	1.862		
46B	unique	CR	1.293	2.019	1.042	
47	unique	GR	2.321	3.626		
48	unique	GR	1.349	0.858		
49	unique	GR	1.408	0.708		
50	unique	GR	2.387	1.811		
52A	unique	CR	3.286	3.645		
52B	unique	CR	2.072	1.027	2.183	
53	unique	GR	1.491	0.371		
54	unique	GR	1.658	1.286		
56	unique	GR	2.456	3.398		
57A	unique	CR	1.484	-0.710		
57B	unique	CR	1.157	-1.505	-0.310	

Table B 9 (cont.)
Item Parameters for Mathematics Grade 8 Form A

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
58A	unique	CR	1.298	-0.100		
58B	unique	CR	1.152	-0.236	-0.757	
64A	unique	CR	0.794	0.203		
64B	unique	CR	1.490	-0.668	2.134	3.699
65	unique	GR	2.138	-0.434		
79	unique	SR	1.241	1.895	0.069	
80	unique	SR	0.874	1.038	0.202	
84	unique	SR	1.465	0.733	0.142	
87	unique	SR	0.759	-1.710	0.200	
91	unique	SR	1.911	-0.078	0.283	
92	unique	SR	0.979	0.676	0.326	
93	unique	SR	0.425	2.268	0.172	
96	unique	SR	0.576	1.547	0.215	
97	unique	SR	1.131	-0.292	0.284	
98	unique	SR	0.820	1.508	0.283	
99	unique	SR	0.956	1.089	0.269	
101	unique	SR	0.969	0.209	0.210	
102	unique	SR	0.668	0.797	0.190	
106	unique	SR	0.404	0.821	0.200	

Table B 10
Item Parameters for Mathematics Grade 8 Form B

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
6	anchor	SR	1.472	0.522	0.379	
7	anchor	SR	0.978	0.042	0.339	
13	anchor	SR	0.599	-2.205	0.200	
16	anchor	SR	1.121	-1.448	0.148	
20	anchor	SR	1.099	1.487	0.192	
26	anchor	SR	0.750	1.105	0.254	
27	anchor	SR	0.947	0.637	0.182	
29	anchor	SR	0.691	0.556	0.296	
33	anchor	SR	0.845	0.515	0.241	
34	anchor	SR	0.836	-0.114	0.255	
36	anchor	SR	0.932	1.380	0.087	
37	anchor	SR	1.118	1.273	0.180	
38	anchor	SR	1.682	1.202	0.268	
40	anchor	SR	0.719	0.398	0.188	
43	anchor	SR	0.589	0.053	0.084	
44	anchor	SR	1.015	0.381	0.246	
45	anchor	SR	0.606	2.560	0.145	
61	anchor	SR	0.671	0.879	0.160	
62	anchor	SR	0.734	1.277	0.101	
63	anchor	SR	1.172	1.046	0.282	
69	anchor	SR	1.406	1.288	0.101	
71	anchor	SR	1.307	1.177	0.216	
72	anchor	SR	1.461	0.841	0.250	
74	anchor	SR	1.424	0.715	0.371	
75	anchor	SR	1.115	1.038	0.238	
46A	unique	CR	0.722	-0.207		
46B	unique	CR	1.141	-0.929	1.785	
50	unique	GR	1.711	0.555		
51A	unique	CR	1.927	1.002		
51B	unique	CR	1.372	0.461	1.812	
52B	unique	CR	1.134	-0.081	2.219	
53	unique	GR	1.798	0.407		
54	unique	GR	1.438	-0.446		
55	unique	GR	1.254	1.180		
58A	unique	CR	1.992	2.880		
58B	unique	CR	1.505	0.962	2.510	
65	unique	GR	1.981	0.319		
67	unique	GR	1.341	0.252		
76A	unique	CR	3.017	0.758		
76B	unique	CR	1.902	0.364	2.643	

Table B 10 (cont.)
Item Parameters for Mathematics Grade 8 Form B

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
77	unique	SR	1.195	-0.483	0.061	
79	unique	SR	0.685	0.217	0.355	
80	unique	SR	1.782	0.582	0.223	
82	unique	SR	0.461	0.593	0.112	
83	unique	SR	1.080	0.079	0.250	
84	unique	SR	1.220	2.125	0.114	
86	unique	SR	0.638	0.753	0.497	
89	unique	SR	1.090	0.590	0.205	
91	unique	SR	0.303	0.413	0.200	
93	unique	SR	0.645	-0.056	0.144	
94	unique	SR	1.221	1.410	0.336	
95	unique	SR	1.205	0.467	0.234	
96	unique	SR	1.283	0.145	0.118	
98	unique	SR	0.988	1.164	0.207	
99	unique	SR	0.870	2.636	0.106	
102	unique	SR	0.907	0.537	0.172	
104	unique	SR	1.297	0.356	0.089	
106	unique	SR	1.979	1.392	0.103	

Table B 11
Item Parameters for Mathematics Grade 8 Form C

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
6	anchor	SR	1.472	0.522	0.379	
7	anchor	SR	0.978	0.042	0.339	
13	anchor	SR	0.599	-2.205	0.200	
16	anchor	SR	1.121	-1.448	0.148	
20	anchor	SR	1.099	1.487	0.192	
26	anchor	SR	0.750	1.105	0.254	
27	anchor	SR	0.947	0.637	0.182	
29	anchor	SR	0.691	0.556	0.296	
33	anchor	SR	0.845	0.515	0.241	
34	anchor	SR	0.836	-0.114	0.255	
36	anchor	SR	0.932	1.380	0.087	
37	anchor	SR	1.118	1.273	0.180	
38	anchor	SR	1.682	1.202	0.268	
40	anchor	SR	0.719	0.398	0.188	
43	anchor	SR	0.589	0.053	0.084	
44	anchor	SR	1.015	0.381	0.246	
45	anchor	SR	0.606	2.560	0.145	
61	anchor	SR	0.671	0.879	0.160	
62	anchor	SR	0.734	1.277	0.101	
63	anchor	SR	1.172	1.046	0.282	
69	anchor	SR	1.406	1.288	0.101	
71	anchor	SR	1.307	1.177	0.216	
72	anchor	SR	1.461	0.841	0.250	
74	anchor	SR	1.424	0.715	0.371	
75	anchor	SR	1.115	1.038	0.238	
32A	unique	CR	2.467	-0.038		
32B	unique	CR	1.312	0.562	-0.759	1.528
46B	unique	CR	1.110	-0.455	1.693	
48	unique	GR	1.825	-1.899		
49	unique	GR	1.189	0.677		
50	unique	GR	0.878	0.678		
52B	unique	CR	1.751	0.950	1.477	
54	unique	GR	1.678	3.674		
56	unique	GR	2.160	2.289		
57A	unique	CR	2.160	1.996		
57B	unique	CR	1.765	-1.253	1.673	
58A	unique	CR	2.616	0.412		
58B	unique	CR	1.807	-1.808	0.442	
64A	unique	CR	2.038	-0.527		
64B	unique	CR	1.717	-0.696	1.877	2.020

Table B 11 (cont.)
Item Parameters for Mathematics Grade 8 Form C

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
65	unique	GR	1.361	1.880		
66	unique	GR	1.247	2.085		
76A	unique	CR	2.657	1.344		
76B	unique	CR	1.723	0.784	0.104	
78	unique	SR	0.543	0.459	0.203	
82	unique	SR	0.601	0.720	0.150	
86	unique	SR	0.701	1.298	0.214	
88	unique	SR	0.671	-0.222	0.329	
91	unique	SR	0.551	0.186	0.114	
92	unique	SR	1.787	2.106	0.264	
93	unique	SR	1.018	0.763	0.173	
94	unique	SR	1.216	1.092	0.200	
96	unique	SR	0.722	0.906	0.053	
97	unique	SR	0.673	0.253	0.204	
100	unique	SR	1.249	1.913	0.223	
101	unique	SR	0.926	1.095	0.211	
102	unique	SR	0.819	0.251	0.113	
103	unique	SR	1.398	0.943	0.200	
104	unique	SR	0.241	-1.194	0.200	
106	unique	SR	0.664	-1.000	0.126	

Table B 12
Item Parameters for Mathematics Grade 8 Form D

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
82	anchor	SR	1.472	0.522	0.379	
83	anchor	SR	0.978	0.042	0.339	
89	anchor	SR	0.599	-2.205	0.200	
92	anchor	SR	1.121	-1.448	0.148	
96	anchor	SR	1.099	1.487	0.192	
102	anchor	SR	0.750	1.105	0.254	
103	anchor	SR	0.947	0.637	0.182	
105	anchor	SR	0.691	0.556	0.296	
33	anchor	SR	0.845	0.515	0.241	
34	anchor	SR	0.836	-0.114	0.255	
36	anchor	SR	0.932	1.380	0.087	
37	anchor	SR	1.118	1.273	0.180	
38	anchor	SR	1.682	1.202	0.268	
40	anchor	SR	0.719	0.398	0.188	
43	anchor	SR	0.589	0.053	0.084	
44	anchor	SR	1.015	0.381	0.246	
45	anchor	SR	0.606	2.560	0.145	
61	anchor	SR	0.671	0.879	0.160	
62	anchor	SR	0.734	1.277	0.101	
63	anchor	SR	1.172	1.046	0.282	
69	anchor	SR	1.406	1.288	0.101	
71	anchor	SR	1.307	1.177	0.216	
72	anchor	SR	1.461	0.841	0.250	
74	anchor	SR	1.424	0.715	0.371	
75	anchor	SR	1.115	1.038	0.238	
2	unique	SR	1.613	0.478	0.294	
4	unique	SR	0.899	1.178	0.109	
6	unique	SR	1.324	-0.127	0.345	
9	unique	SR	0.897	2.183	0.464	
10	unique	SR	1.683	0.777	0.342	
13	unique	SR	0.821	0.912	0.270	
16	unique	SR	0.987	1.215	0.185	
18	unique	SR	1.034	-0.059	0.059	
19	unique	SR	0.594	1.838	0.244	
20	unique	SR	0.676	1.848	0.293	
21	unique	SR	1.008	1.388	0.157	
22	unique	SR	1.085	0.748	0.172	
24	unique	SR	0.925	0.283	0.118	
26	unique	SR	1.520	1.342	0.367	
27	unique	SR	1.022	0.568	0.163	

Table B 12 (cont.)
Item Parameters for Mathematics Grade 8 Form D

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
31	unique	SR	0.420	3.103	0.144	
46A	unique	CR	0.763	0.451		
46B	unique	CR	1.273	-0.647	1.459	
47	unique	GR	2.362	1.743		
48	unique	GR	2.011	-0.388		
49	unique	GR	0.655	-0.330		
50	unique	GR	0.898	0.581		
51A	unique	CR	1.781	4.898		
51B	unique	CR	1.208	-1.655	0.949	4.174
56	unique	GR	2.156	1.878		
58A	unique	CR	2.375	0.760		
58B	unique	CR	1.501	-0.285	0.032	
64A	unique	CR	1.249	1.096		
64B	unique	CR	1.170	0.773	1.517	2.440
65	unique	GR	1.159	0.981		
67	unique	GR	2.337	0.166		
76A	unique	CR	1.615	0.738		
76B	unique	CR	1.055	0.449	0.228	

Table B 13
Item Parameters for Reading Grade 10 Form A

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
1	anchor	SR	0.705	-0.590	0.307	
2	anchor	SR	0.960	0.285	0.301	
3	anchor	SR	0.685	-1.335	0.178	
4	anchor	SR	0.873	-1.857	0.074	
5	anchor	SR	1.032	0.651	0.197	
6	anchor	SR	0.628	-1.215	0.178	
13	anchor	SR	1.123	-0.841	0.312	
14	anchor	SR	0.944	-0.555	0.119	
15	anchor	SR	0.647	0.345	0.211	
16	anchor	SR	0.446	1.566	0.237	
17	anchor	SR	1.585	-0.087	0.145	
22	anchor	SR	0.329	0.215	0.200	
23	anchor	SR	1.227	-0.783	0.143	
24	anchor	SR	0.674	-0.384	0.076	
25	anchor	SR	0.985	-0.090	0.156	
26	anchor	SR	1.679	-0.631	0.281	
27	anchor	SR	0.968	0.165	0.230	
32	anchor	SR	0.778	0.957	0.393	
33	anchor	SR	0.737	0.546	0.283	
34	anchor	SR	0.762	0.295	0.245	
35	anchor	SR	1.334	-0.661	0.213	
36	anchor	SR	0.867	-0.425	0.281	
37	anchor	SR	0.558	-0.318	0.129	
38	anchor	SR	0.531	-0.734	0.065	
43	anchor	SR	1.628	-0.801	0.292	
44	anchor	SR	0.884	-0.893	0.197	
45	anchor	SR	1.352	-0.905	0.223	
46	anchor	SR	0.950	0.849	0.218	
47	anchor	SR	1.153	-0.555	0.273	
48	anchor	SR	1.247	-0.206	0.167	
51	anchor	SR	0.801	-0.795	0.142	
52	anchor	SR	0.733	-0.047	0.208	
53	anchor	SR	0.646	1.081	0.225	
54	anchor	SR	0.457	-0.014	0.178	
62	unique	SR	1.029	-1.501	0.200	
63	unique	SR	1.297	0.154	0.195	
65	unique	SR	1.595	-0.069	0.365	
67	unique	CR	1.310	-3.729	-1.553	0.853
68	unique	SR	0.776	-1.693	0.200	
70	unique	SR	0.776	-1.664	0.178	

Table B 13 (cont.)
Item Parameters for Reading Grade 10 Form A

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
71	unique	CR	1.210	-3.205	-1.184	1.022
72	unique	SR	0.894	-1.115	0.170	
77	unique	SR	0.928	-1.318	0.097	
79	unique	CR	1.053	-3.634	-1.463	2.703
80	unique	SR	0.389	0.362	0.141	
81	unique	SR	1.117	-0.269	0.238	
83	unique	CR	1.009	-2.321	-0.582	0.746
85	unique	SR	0.966	-0.940	0.157	
94	unique	SR	0.821	0.662	0.256	
95	unique	SR	1.362	0.109	0.209	
96	unique	SR	1.477	1.259	0.184	
97	unique	SR	0.624	0.115	0.115	
98	unique	SR	1.180	-0.187	0.232	

Table B 14
Item Parameters for Reading Grade 10 Form B

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
1	anchor	SR	0.705	-0.590	0.307	
2	anchor	SR	0.960	0.285	0.301	
3	anchor	SR	0.685	-1.335	0.178	
4	anchor	SR	0.873	-1.857	0.074	
5	anchor	SR	1.032	0.651	0.197	
6	anchor	SR	0.628	-1.215	0.178	
13	anchor	SR	1.123	-0.841	0.312	
14	anchor	SR	0.944	-0.555	0.119	
15	anchor	SR	0.647	0.345	0.211	
16	anchor	SR	0.446	1.566	0.237	
17	anchor	SR	1.585	-0.087	0.145	
22	anchor	SR	0.329	0.215	0.200	
23	anchor	SR	1.227	-0.783	0.143	
24	anchor	SR	0.674	-0.384	0.076	
25	anchor	SR	0.985	-0.090	0.156	
26	anchor	SR	1.679	-0.631	0.281	
27	anchor	SR	0.968	0.165	0.230	
32	anchor	SR	0.778	0.957	0.393	
33	anchor	SR	0.737	0.546	0.283	
34	anchor	SR	0.762	0.295	0.245	
35	anchor	SR	1.334	-0.661	0.213	
36	anchor	SR	0.867	-0.425	0.281	
37	anchor	SR	0.558	-0.318	0.129	
38	anchor	SR	0.531	-0.734	0.065	
43	anchor	SR	1.628	-0.801	0.292	
44	anchor	SR	0.884	-0.893	0.197	
45	anchor	SR	1.352	-0.905	0.223	
46	anchor	SR	0.950	0.849	0.218	
47	anchor	SR	1.153	-0.555	0.273	
48	anchor	SR	1.247	-0.206	0.167	
51	anchor	SR	0.801	-0.795	0.142	
52	anchor	SR	0.733	-0.047	0.208	
53	anchor	SR	0.646	1.081	0.225	
54	anchor	SR	0.457	-0.014	0.178	
61	unique	SR	0.636	-0.946	0.200	
62	unique	SR	0.487	-1.697	0.200	
63	unique	CR	0.956	-2.641	-0.141	1.469
66	unique	SR	1.002	-0.181	0.246	
68	unique	CR	1.304	-3.345	-0.551	1.348
69	unique	SR	0.485	-1.707	0.200	

Table B 14 (cont.)
Item Parameters for Reading Grade 10 Form B

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
70	unique	SR	1.018	0.821	0.274	
73	unique	SR	0.416	0.067	0.138	
75	unique	SR	0.931	-1.043	0.269	
78	unique	SR	1.170	-1.265	0.138	
79	unique	SR	0.898	-0.578	0.130	
80	unique	CR	1.080	-3.674	-2.001	1.277
81	unique	SR	0.702	1.540	0.272	
82	unique	SR	0.667	-0.006	0.162	
85	unique	SR	0.965	-1.000	0.158	
86	unique	SR	0.533	0.290	0.124	
87	unique	SR	0.684	-0.558	0.087	
88	unique	SR	0.594	-0.487	0.120	
89	unique	SR	1.156	-0.291	0.176	
92	unique	SR	1.064	0.410	0.256	
94	unique	SR	1.019	-0.851	0.184	

Table B 15
Item Parameters for Reading Grade 10 Form C

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
1	anchor	SR	0.705	-0.590	0.307	
2	anchor	SR	0.960	0.285	0.301	
3	anchor	SR	0.685	-1.335	0.178	
4	anchor	SR	0.873	-1.857	0.074	
5	anchor	SR	1.032	0.651	0.197	
6	anchor	SR	0.628	-1.215	0.178	
13	anchor	SR	1.123	-0.841	0.312	
14	anchor	SR	0.944	-0.555	0.119	
15	anchor	SR	0.647	0.345	0.211	
16	anchor	SR	0.446	1.566	0.237	
17	anchor	SR	1.585	-0.087	0.145	
22	anchor	SR	0.329	0.215	0.200	
23	anchor	SR	1.227	-0.783	0.143	
24	anchor	SR	0.674	-0.384	0.076	
25	anchor	SR	0.985	-0.090	0.156	
26	anchor	SR	1.679	-0.631	0.281	
27	anchor	SR	0.968	0.165	0.230	
32	anchor	SR	0.778	0.957	0.393	
33	anchor	SR	0.737	0.546	0.283	
34	anchor	SR	0.762	0.295	0.245	
35	anchor	SR	1.334	-0.661	0.213	
36	anchor	SR	0.867	-0.425	0.281	
37	anchor	SR	0.558	-0.318	0.129	
38	anchor	SR	0.531	-0.734	0.065	
43	anchor	SR	1.628	-0.801	0.292	
44	anchor	SR	0.884	-0.893	0.197	
45	anchor	SR	1.352	-0.905	0.223	
46	anchor	SR	0.950	0.849	0.218	
47	anchor	SR	1.153	-0.555	0.273	
48	anchor	SR	1.247	-0.206	0.167	
51	anchor	SR	0.801	-0.795	0.142	
52	anchor	SR	0.733	-0.047	0.208	
53	anchor	SR	0.646	1.081	0.225	
54	anchor	SR	0.457	-0.014	0.178	
62	unique	SR	0.582	-0.284	0.200	
63	unique	SR	1.345	0.286	0.242	
64	unique	CR	1.396	-4.411	-1.312	1.511
66	unique	SR	1.008	-1.713	0.200	
67	unique	SR	0.473	-0.650	0.200	
68	unique	SR	0.943	-1.366	0.122	

Table B 15 (cont.)
Item Parameters for Reading Grade 10 Form C

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
69	unique	SR	1.040	-0.834	0.123	
70	unique	CR	1.471	-3.856	-0.899	1.691
72	unique	SR	1.050	-0.454	0.175	
75	unique	SR	0.962	1.097	0.193	
77	unique	SR	0.866	-0.593	0.156	
78	unique	SR	1.121	-1.145	0.123	
80	unique	SR	1.374	-0.702	0.242	
81	unique	SR	1.402	-0.257	0.232	
85	unique	SR	1.680	1.033	0.203	
86	unique	SR	0.747	0.482	0.192	
89	unique	CR	1.342	-3.441	-0.644	2.232
92	unique	SR	1.041	-0.875	0.196	
93	unique	CR	1.343	-2.738	-1.004	1.780

Table B 16
Item Parameters for Reading Grade 10 Form D

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
1	anchor	SR	0.705	-0.590	0.307	
2	anchor	SR	0.960	0.285	0.301	
3	anchor	SR	0.685	-1.335	0.178	
4	anchor	SR	0.873	-1.857	0.074	
5	anchor	SR	1.032	0.651	0.197	
6	anchor	SR	0.628	-1.215	0.178	
13	anchor	SR	1.123	-0.841	0.312	
14	anchor	SR	0.944	-0.555	0.119	
15	anchor	SR	0.647	0.345	0.211	
16	anchor	SR	0.446	1.566	0.237	
17	anchor	SR	1.585	-0.087	0.145	
22	anchor	SR	0.329	0.215	0.200	
23	anchor	SR	1.227	-0.783	0.143	
24	anchor	SR	0.674	-0.384	0.076	
25	anchor	SR	0.985	-0.090	0.156	
26	anchor	SR	1.679	-0.631	0.281	
27	anchor	SR	0.968	0.165	0.230	
32	anchor	SR	0.778	0.957	0.393	
33	anchor	SR	0.737	0.546	0.283	
34	anchor	SR	0.762	0.295	0.245	
35	anchor	SR	1.334	-0.661	0.213	
36	anchor	SR	0.867	-0.425	0.281	
37	anchor	SR	0.558	-0.318	0.129	
38	anchor	SR	0.531	-0.734	0.065	
43	anchor	SR	1.628	-0.801	0.292	
44	anchor	SR	0.884	-0.893	0.197	
45	anchor	SR	1.352	-0.905	0.223	
46	anchor	SR	0.950	0.849	0.218	
47	anchor	SR	1.153	-0.555	0.273	
48	anchor	SR	1.247	-0.206	0.167	
51	anchor	SR	0.801	-0.795	0.142	
52	anchor	SR	0.733	-0.047	0.208	
53	anchor	SR	0.646	1.081	0.225	
54	anchor	SR	0.457	-0.014	0.178	
62	unique	SR	0.757	-1.444	0.158	
63	unique	CR	1.103	-4.253	-0.793	1.721
64	unique	SR	0.504	-1.594	0.200	
65	unique	SR	0.978	-2.107	0.200	
70	unique	SR	0.780	-0.376	0.280	
71	unique	SR	0.664	0.650	0.195	

Table B 16 (cont.)
Item Parameters for Reading Grade 10 Form D

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
72	unique	SR	0.481	1.261	0.178	
74	unique	CR	1.298	-3.594	-1.149	1.261
75	unique	SR	0.853	-0.185	0.224	
78	unique	SR	0.700	0.499	0.241	
79	unique	SR	0.789	0.184	0.204	
80	unique	CR	1.224	-3.405	-0.226	1.957
83	unique	SR	0.961	-0.524	0.212	
86	unique	SR	0.767	-0.661	0.166	
90	unique	SR	0.697	-0.768	0.125	
91	unique	SR	1.098	-0.646	0.235	
93	unique	SR	0.960	-1.059	0.146	
94	unique	SR	0.958	-0.895	0.159	
95	unique	CR	1.339	-3.732	-0.312	1.819

Table B 17
Item Parameters for Reading Grade 10 Form E

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
1	anchor	SR	0.705	-0.590	0.307	
2	anchor	SR	0.960	0.285	0.301	
3	anchor	SR	0.685	-1.335	0.178	
4	anchor	SR	0.873	-1.857	0.074	
5	anchor	SR	1.032	0.651	0.197	
6	anchor	SR	0.628	-1.215	0.178	
13	anchor	SR	1.123	-0.841	0.312	
14	anchor	SR	0.944	-0.555	0.119	
15	anchor	SR	0.647	0.345	0.211	
16	anchor	SR	0.446	1.566	0.237	
17	anchor	SR	1.585	-0.087	0.145	
22	anchor	SR	0.329	0.215	0.200	
23	anchor	SR	1.227	-0.783	0.143	
24	anchor	SR	0.674	-0.384	0.076	
25	anchor	SR	0.985	-0.090	0.156	
26	anchor	SR	1.679	-0.631	0.281	
27	anchor	SR	0.968	0.165	0.230	
32	anchor	SR	0.778	0.957	0.393	
33	anchor	SR	0.737	0.546	0.283	
34	anchor	SR	0.762	0.295	0.245	
35	anchor	SR	1.334	-0.661	0.213	
36	anchor	SR	0.867	-0.425	0.281	
37	anchor	SR	0.558	-0.318	0.129	
38	anchor	SR	0.531	-0.734	0.065	
43	anchor	SR	1.628	-0.801	0.292	
44	anchor	SR	0.884	-0.893	0.197	
45	anchor	SR	1.352	-0.905	0.223	
46	anchor	SR	0.950	0.849	0.218	
47	anchor	SR	1.153	-0.555	0.273	
48	anchor	SR	1.247	-0.206	0.167	
51	anchor	SR	0.801	-0.795	0.142	
52	anchor	SR	0.733	-0.047	0.208	
53	anchor	SR	0.646	1.081	0.225	
54	anchor	SR	0.457	-0.014	0.178	
63	unique	SR	1.024	0.493	0.199	
64	unique	SR	0.758	-0.857	0.193	
65	unique	CR	1.385	-3.967	-0.103	2.244
66	unique	SR	0.334	0.082	0.200	
67	unique	SR	1.101	-0.229	0.156	
68	unique	SR	1.259	-0.639	0.231	

Table B 17 (cont.)
Item Parameters for Reading Grade 10 Form E

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
69	unique	SR	0.374	0.031	0.200	
70	unique	CR	1.484	-3.033	0.056	2.574
71	unique	SR	0.559	0.694	0.161	
74	unique	SR	0.833	-0.036	0.262	
78	unique	SR	0.650	-0.603	0.121	
80	unique	SR	0.890	-0.949	0.200	
81	unique	SR	1.419	-1.373	0.110	
82	unique	SR	0.850	-0.359	0.175	
89	unique	CR	1.423	-3.806	-0.478	2.284
90	unique	SR	0.681	-0.431	0.182	
92	unique	SR	0.973	-0.240	0.187	
93	unique	SR	0.538	-0.280	0.136	
94	unique	CR	1.319	-3.748	-0.784	1.827

Table B 18
Item Parameters for Reading Grade 10 Form F

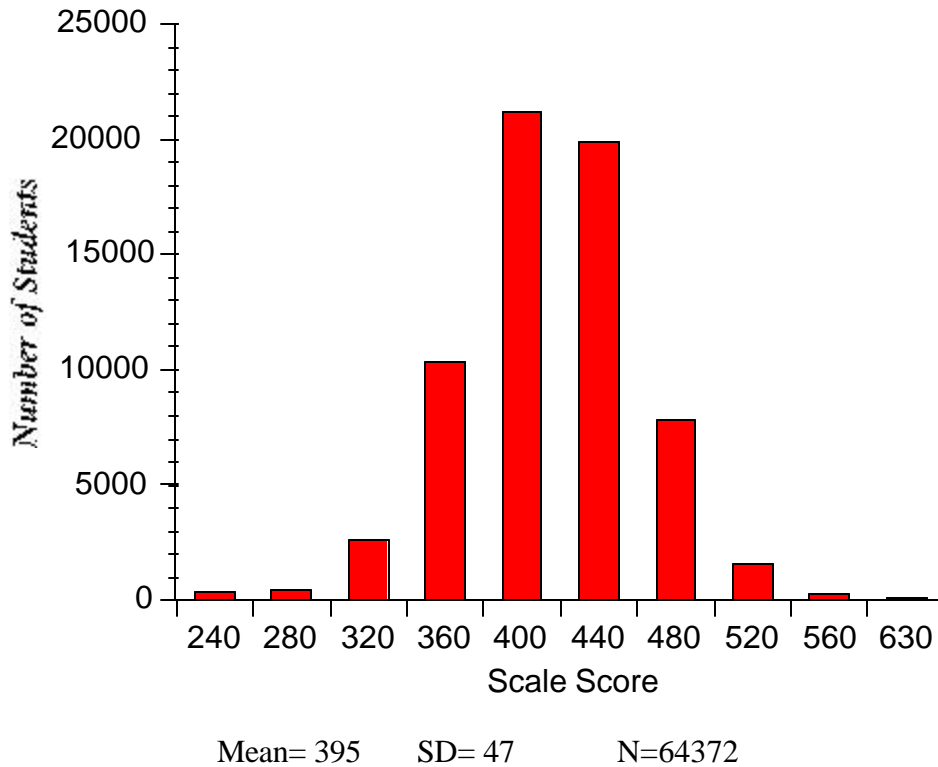
Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
1	anchor	SR	0.705	-0.590	0.307	
2	anchor	SR	0.960	0.285	0.301	
3	anchor	SR	0.685	-1.335	0.178	
4	anchor	SR	0.873	-1.857	0.074	
5	anchor	SR	1.032	0.651	0.197	
6	anchor	SR	0.628	-1.215	0.178	
13	anchor	SR	1.123	-0.841	0.312	
14	anchor	SR	0.944	-0.555	0.119	
15	anchor	SR	0.647	0.345	0.211	
16	anchor	SR	0.446	1.566	0.237	
17	anchor	SR	1.585	-0.087	0.145	
22	anchor	SR	0.329	0.215	0.200	
23	anchor	SR	1.227	-0.783	0.143	
24	anchor	SR	0.674	-0.384	0.076	
25	anchor	SR	0.985	-0.090	0.156	
26	anchor	SR	1.679	-0.631	0.281	
27	anchor	SR	0.968	0.165	0.230	
32	anchor	SR	0.778	0.957	0.393	
33	anchor	SR	0.737	0.546	0.283	
34	anchor	SR	0.762	0.295	0.245	
35	anchor	SR	1.334	-0.661	0.213	
36	anchor	SR	0.867	-0.425	0.281	
37	anchor	SR	0.558	-0.318	0.129	
38	anchor	SR	0.531	-0.734	0.065	
43	anchor	SR	1.628	-0.801	0.292	
44	anchor	SR	0.884	-0.893	0.197	
45	anchor	SR	1.352	-0.905	0.223	
46	anchor	SR	0.950	0.849	0.218	
47	anchor	SR	1.153	-0.555	0.273	
48	anchor	SR	1.247	-0.206	0.167	
51	anchor	SR	0.801	-0.795	0.142	
52	anchor	SR	0.733	-0.047	0.208	
53	anchor	SR	0.646	1.081	0.225	
54	anchor	SR	0.457	-0.014	0.178	
61	unique	SR	0.813	-0.541	0.200	
62	unique	SR	0.509	-1.163	0.200	
63	unique	SR	0.632	-1.259	0.159	
64	unique	SR	0.714	0.019	0.154	
66	unique	SR	1.332	-0.617	0.282	
67	unique	CR	1.091	-2.965	-0.608	1.557

Table B 18 (cont.)
Item Parameters for Reading Grade 10 Form F

Item #	Item Designation	Item Type	Item Parameters			
			a	b	c	d
69	unique	SR	0.840	0.652	0.139	
71	unique	SR	1.037	0.231	0.100	
72	unique	SR	0.935	-1.105	0.149	
74	unique	CR	1.325	-3.562	-0.117	1.799
76	unique	SR	0.645	-0.956	0.116	
77	unique	CR	1.243	-3.105	0.140	1.572
78	unique	SR	0.736	-1.113	0.200	
79	unique	SR	0.524	0.356	0.106	
84	unique	SR	0.855	-0.223	0.081	
85	unique	SR	1.225	-0.880	0.227	
86	unique	SR	1.162	-1.066	0.176	
89	unique	SR	1.154	0.063	0.179	
91	unique	CR	1.208	-3.342	-0.237	1.570

Appendix C. Figures of Scale Score Distributions

Figure C 1
Scale Score Distribution for Grade 3 Mathematics



In the X axis, 240 represents the range of scale score 200-240, 280 represents the range of scale score 241-280, 320 represents the range of scale score 281-320, 360 represents the range of scale score 321-360, 400 represents the range of scale score 361-400, 440 represents the range of scale score 401-440, 480 represents the range of scale score 441-480, 520 represents the range of scale score 481-520, 560 represents the range of scale score 521-560, and 630 represents the range of scale score 561-630.

Figure C 2
 Scale Score Distribution for Grade 3 by Gender

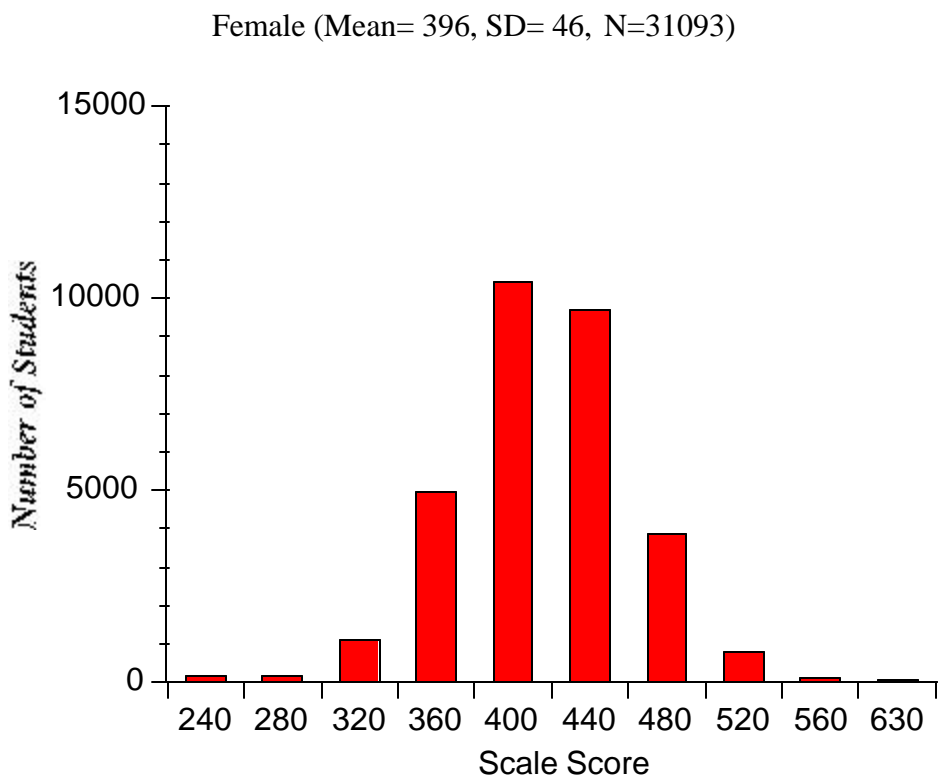
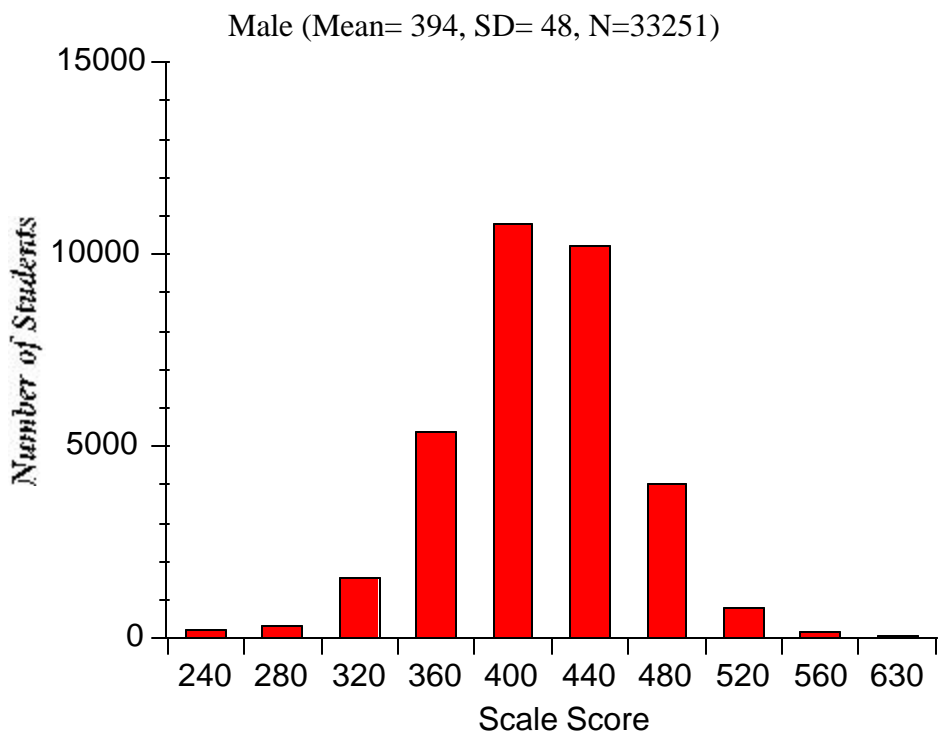


Figure C 3
Scale Score Distribution for Grade 3 by Ethnicity

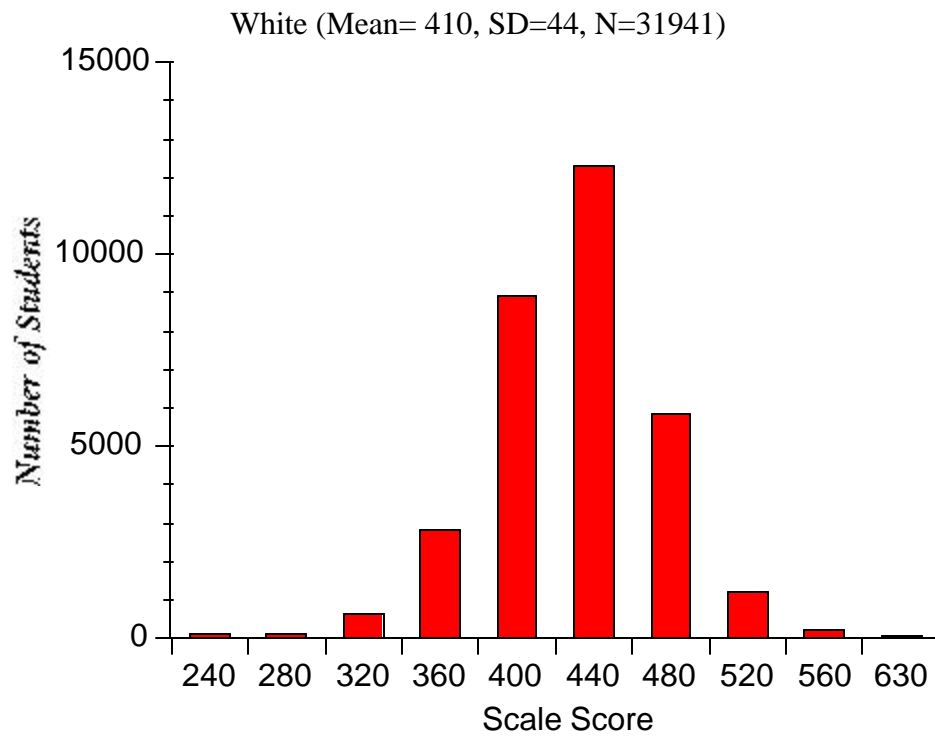
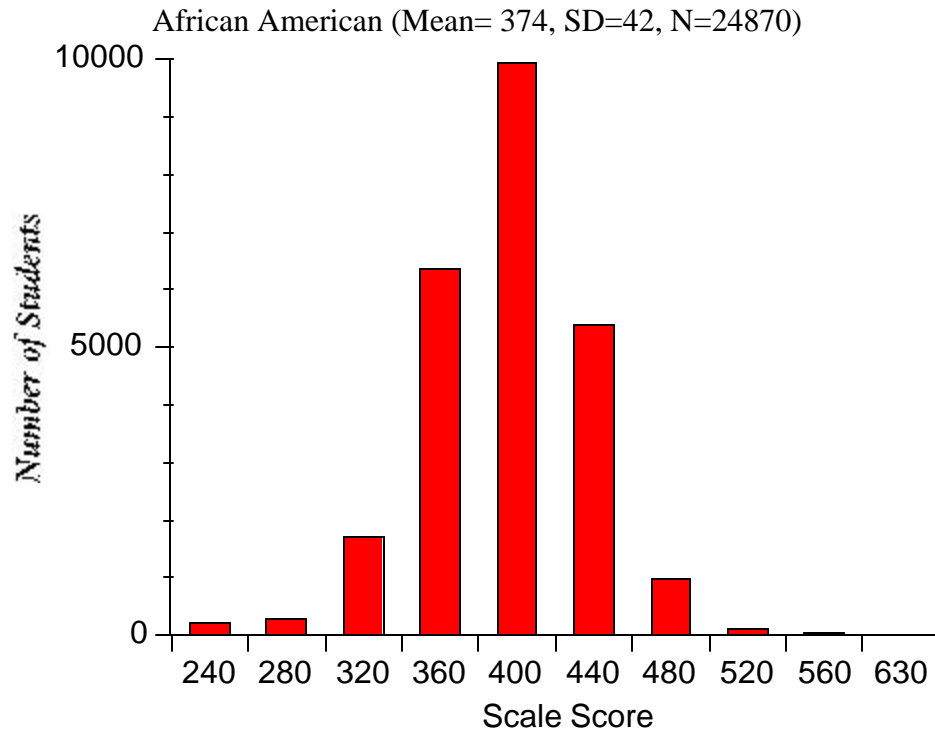
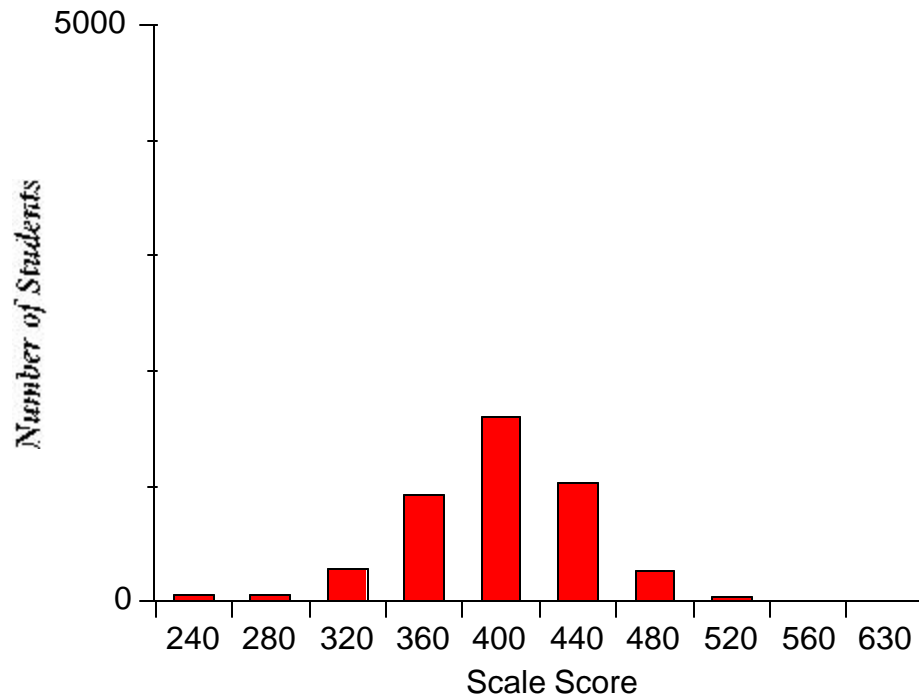
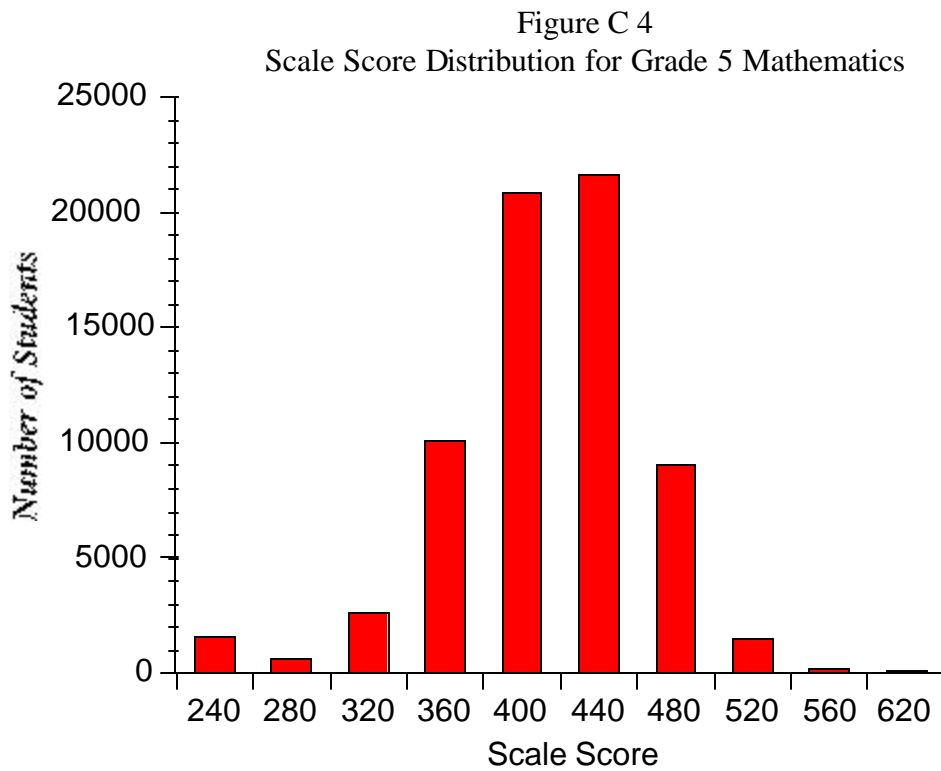


Figure C 3
Scale Score Distribution for Grade 3 by Ethnicity (cont.)

Hispanic (Mean= 380, SD=45, N=4185)





Mean= 393 SD=53 N=67616

In the X axis, 240 represents the range of scale score 200-240,
 280 represents the range of scale score 241-280,
 320 represents the range of scale score 281-320,
 360 represents the range of scale score 321-360,
 400 represents the range of scale score 361-400,
 440 represents the range of scale score 401-440,
 480 represents the range of scale score 441-480,
 520 represents the range of scale score 481-520,
 560 represents the range of scale score 521-560, and
 620 represents the range of scale score 561-620.

Figure C 5
Scale Score Distribution for Grade 5 Gender

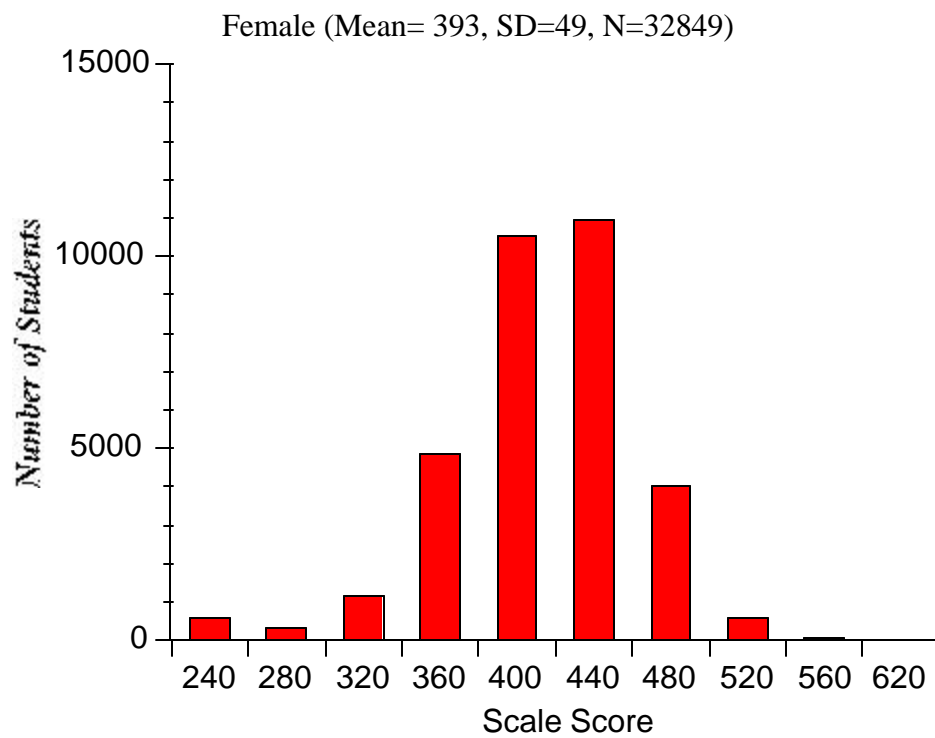
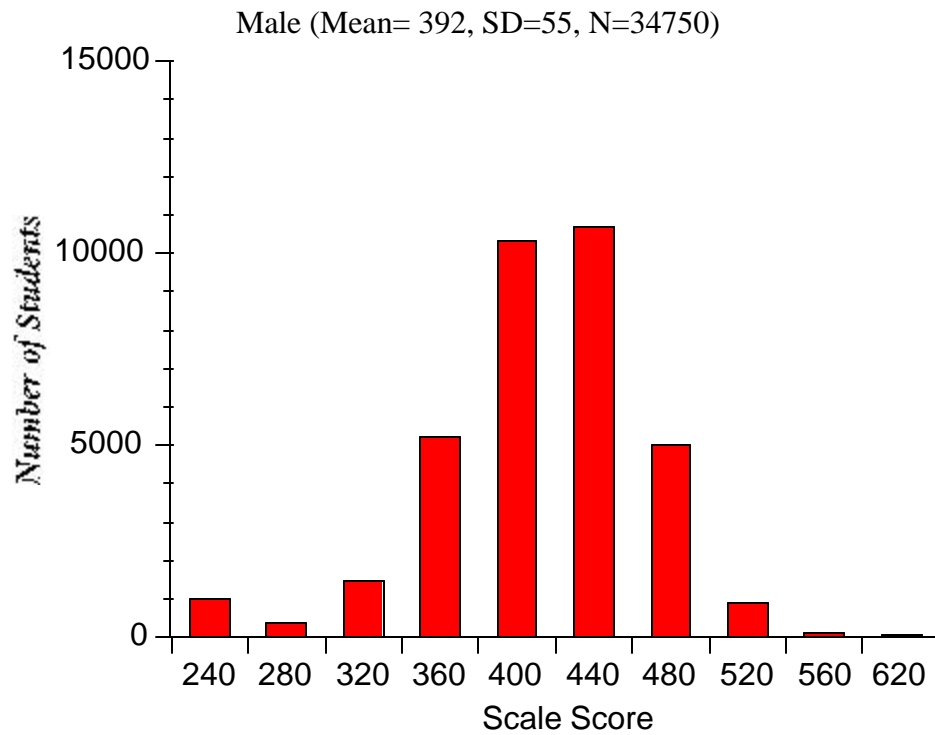
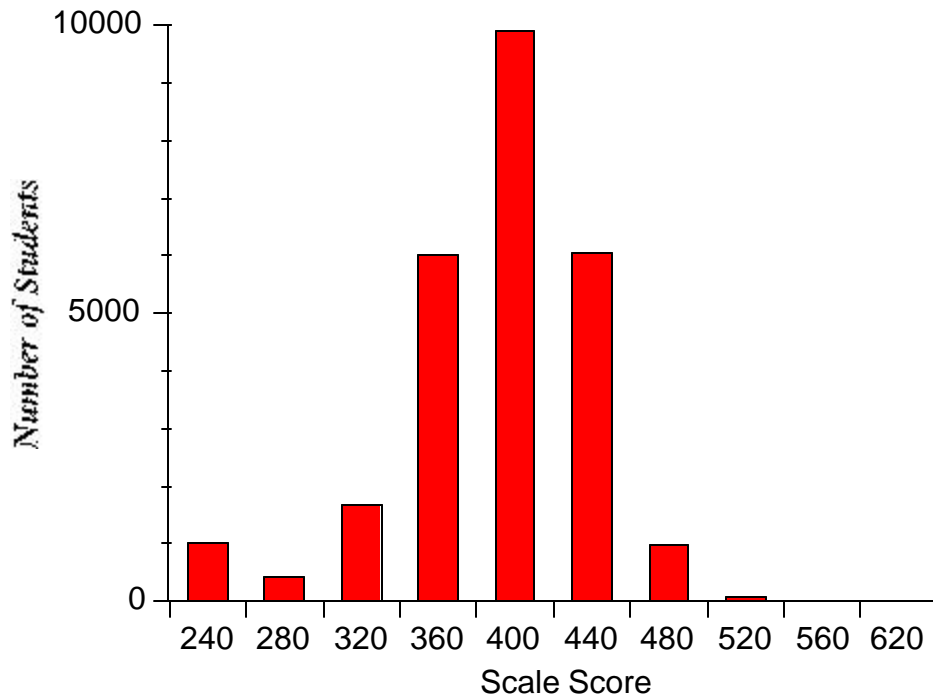


Figure C 6
 Scale Score Distribution for Grade 5 by Ethnicity
 African American (Mean= 370, SD=51, N=25909)



White (Mean= 409, SD=46, N=34395)

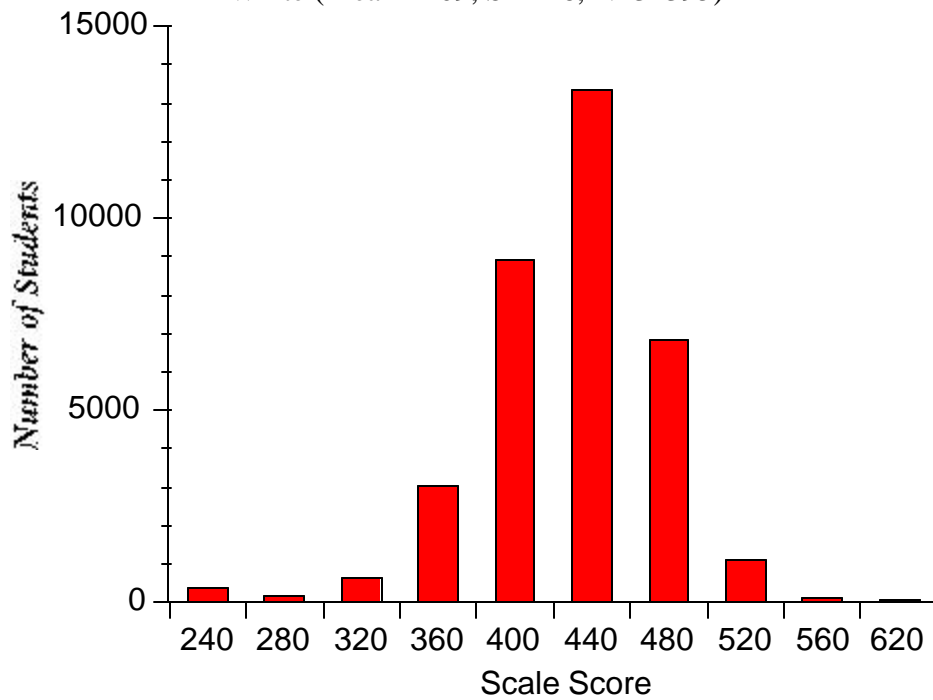


Figure C 6
Scale Score Distribution for Grade 5 by Ethnicity (cont.)

Hispanic (Mean= 377, SD=54, N=3977)

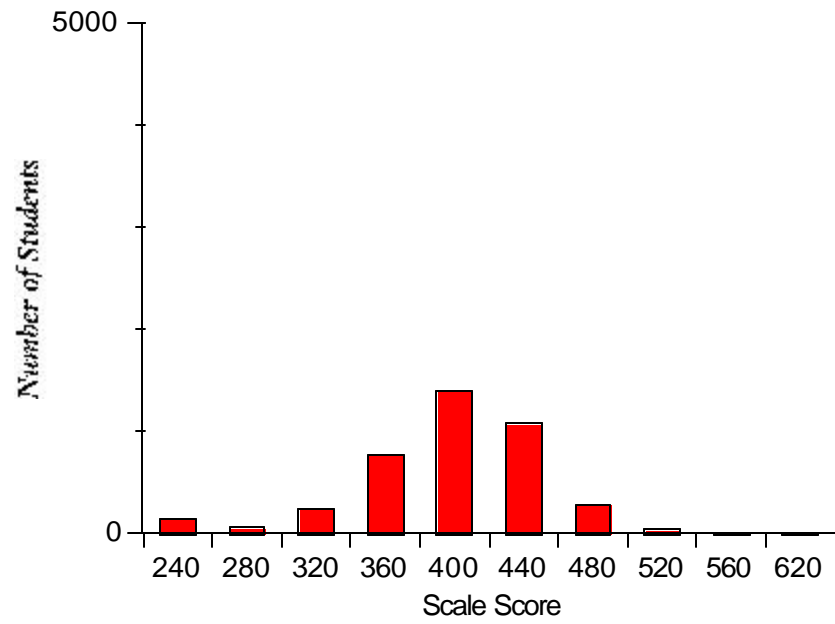
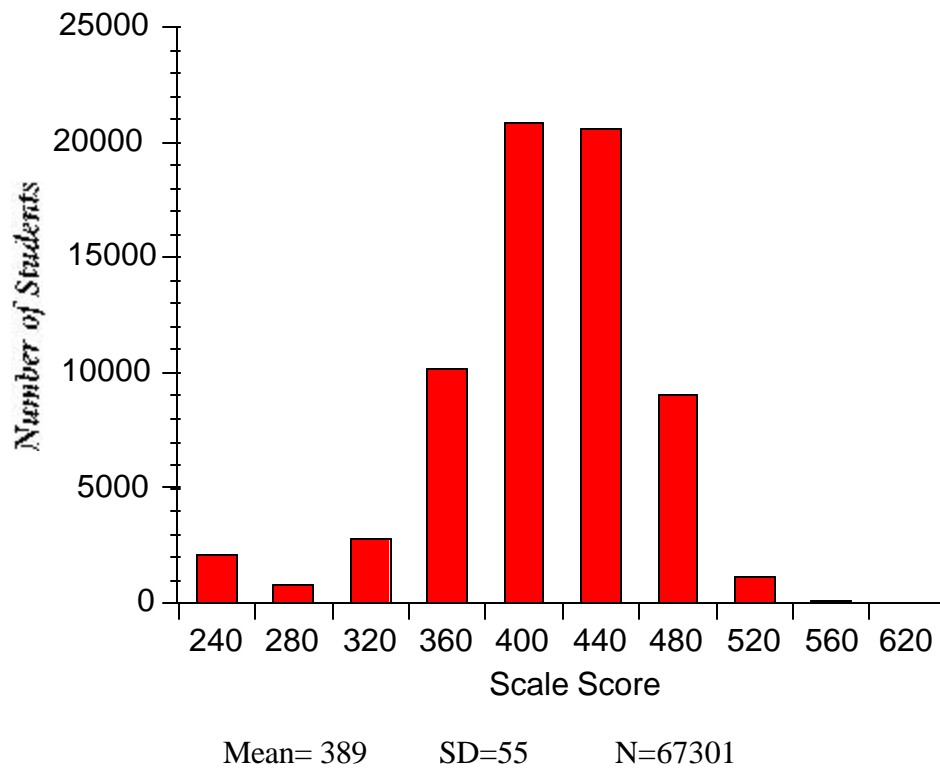


Figure C 7
Scale Score Distribution for Grade 8 Mathematics



In the X axis, 240 represents the range of scale score 200-240, 280 represents the range of scale score 241-280, 320 represents the range of scale score 281-320, 360 represents the range of scale score 321-360, 400 represents the range of scale score 361-400, 440 represents the range of scale score 401-440, 480 represents the range of scale score 441-480, 520 represents the range of scale score 481-520, 560 represents the range of scale score 521-560, and 620 represents the range of scale score 561-620.

Figure C 8
 Scale Score Distribution for Grade 8 by Gender

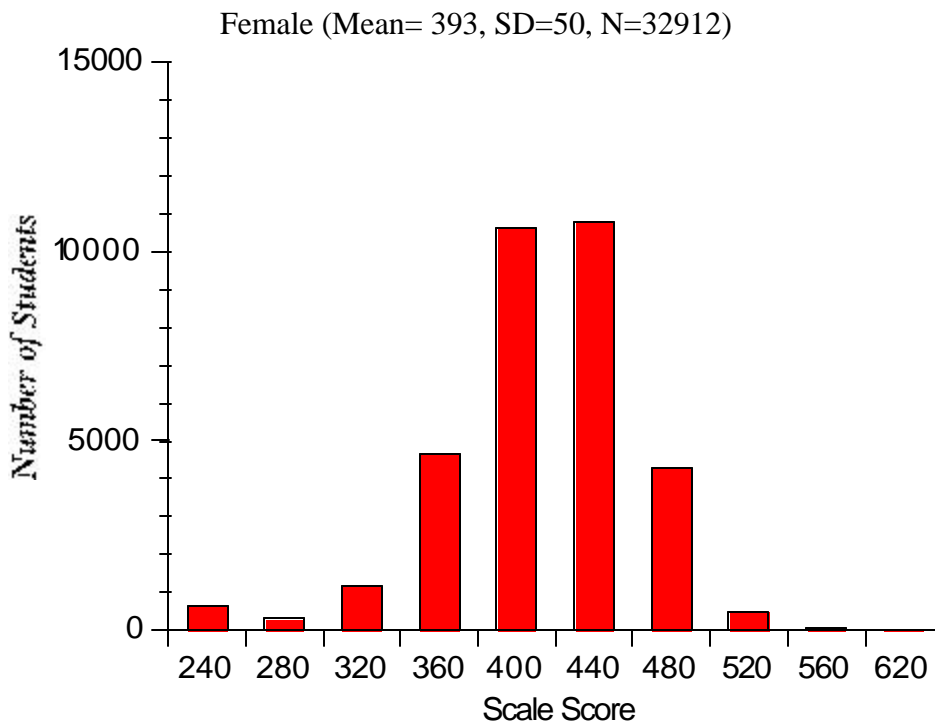
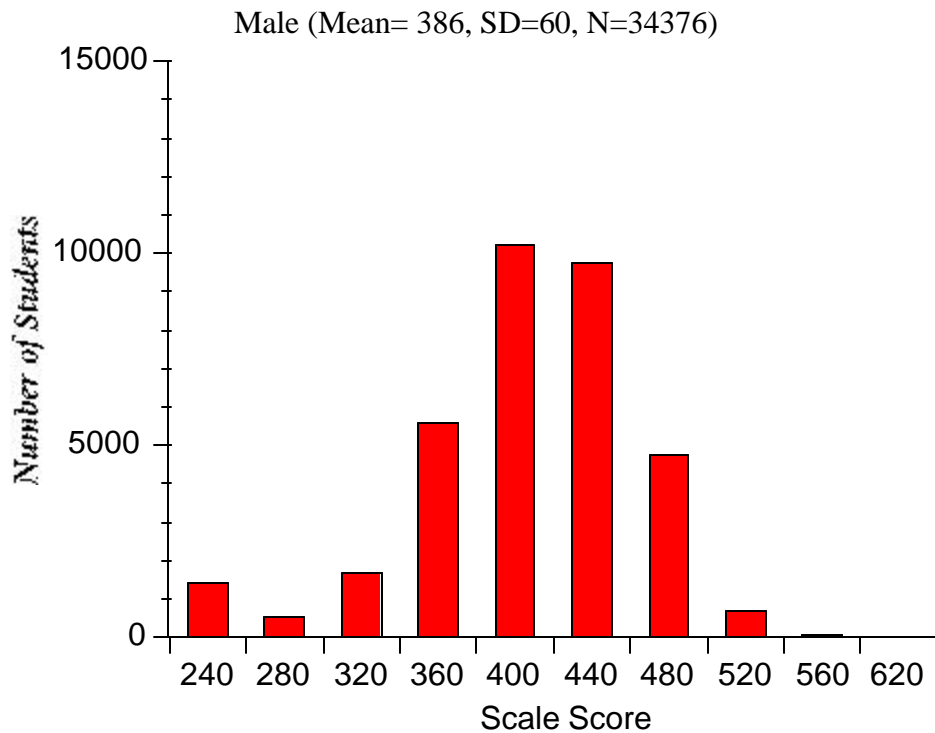


Figure C 9
Scale Score Distribution for Grade 8 by Ethnicity

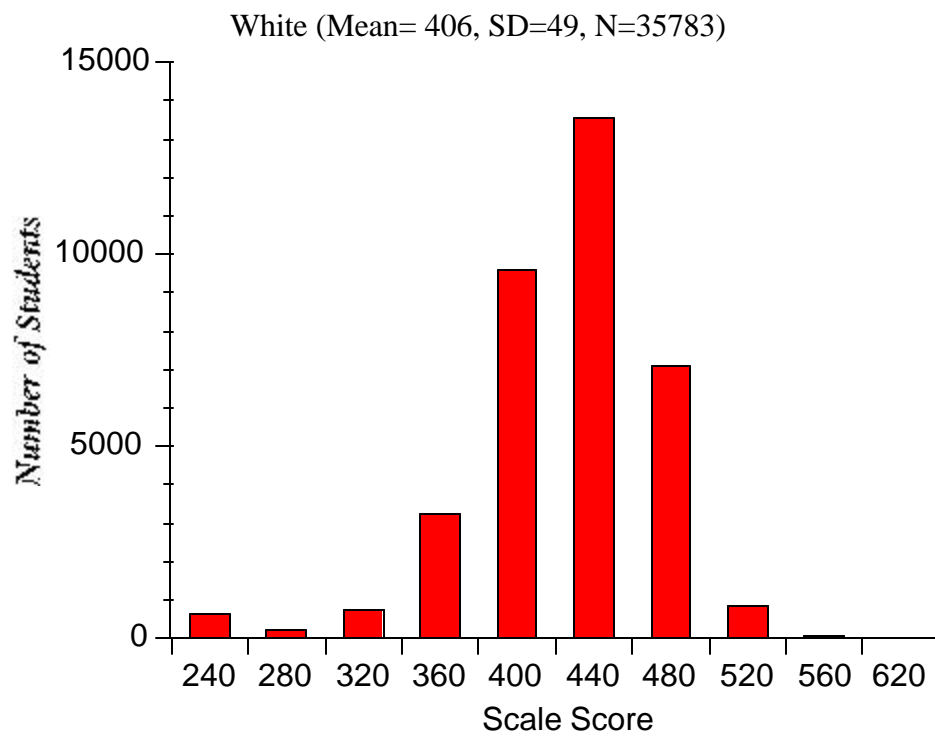
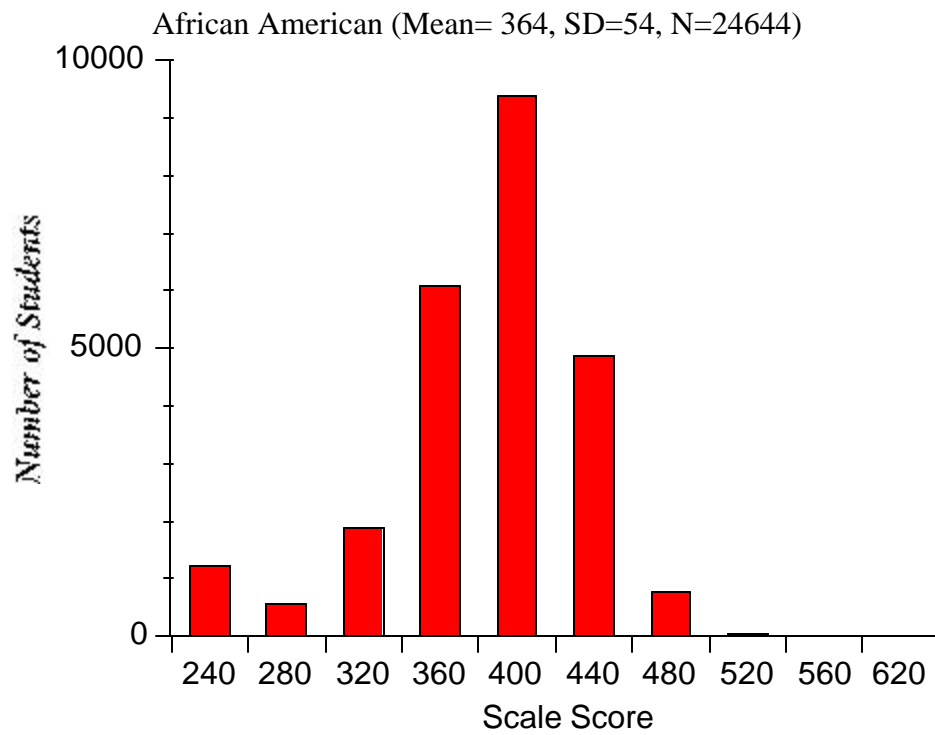


Figure C 9
Scale Score Distribution for Grade 8 by Ethnicity (cont.)

Hispanic (Mean= 374, SD=57, N=3559)

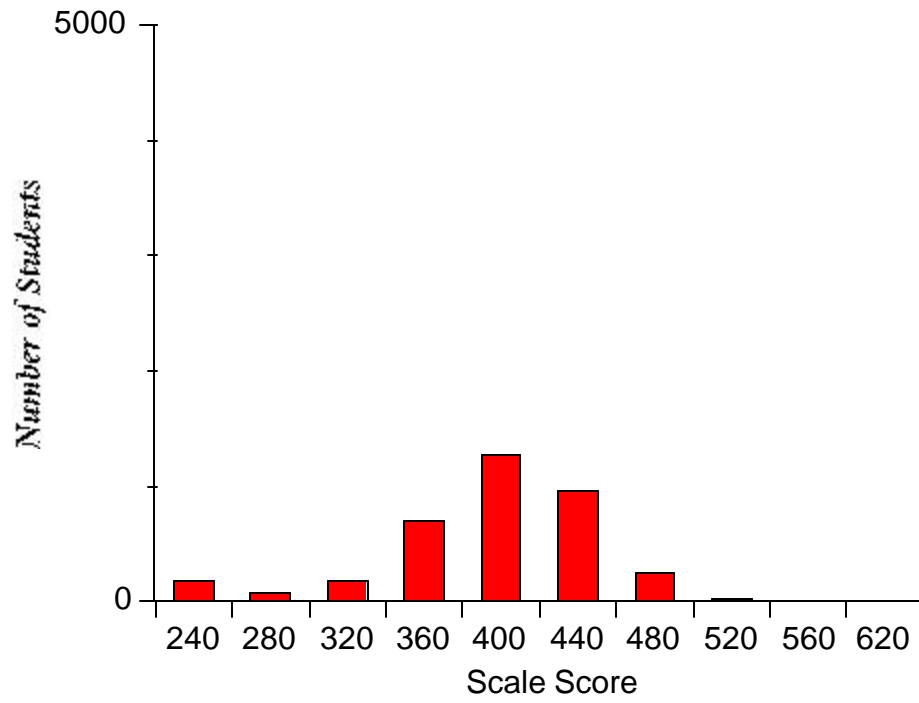
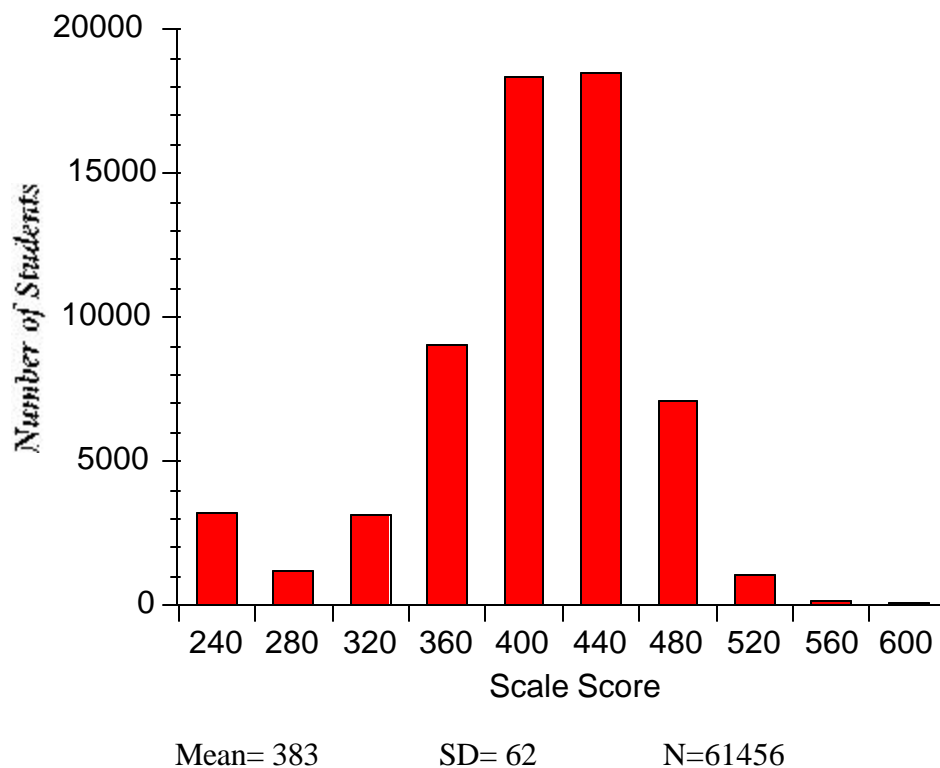


Figure C 10
Scale Score Distribution for Grade 10 Reading



In the X axis, 240 represents the range of scale score 200-240,
 280 represents the range of scale score 241-280,
 320 represents the range of scale score 281-320,
 360 represents the range of scale score 321-360,
 400 represents the range of scale score 361-400,
 440 represents the range of scale score 401-440,
 480 represents the range of scale score 441-480,
 520 represents the range of scale score 481-520,
 560 represents the range of scale score 521-560, and
 600 represents the range of scale score 561-600.

Figure C 11
Scale Score Distribution for Grade 10 Gender

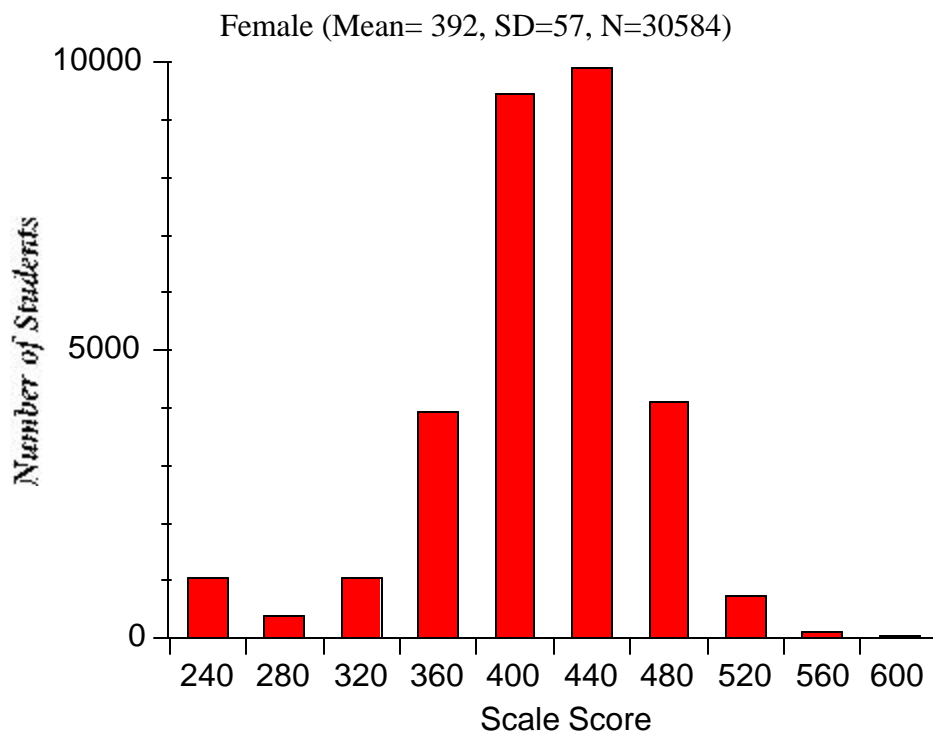
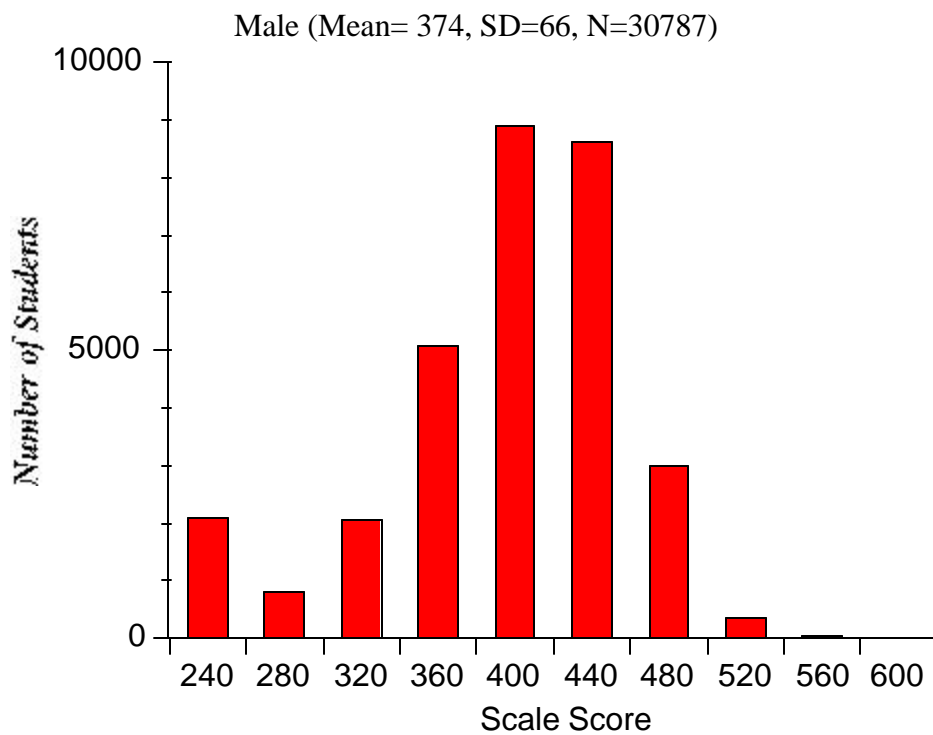


Figure C 12
Scale Score Distribution for Grade 10 by Ethnicity

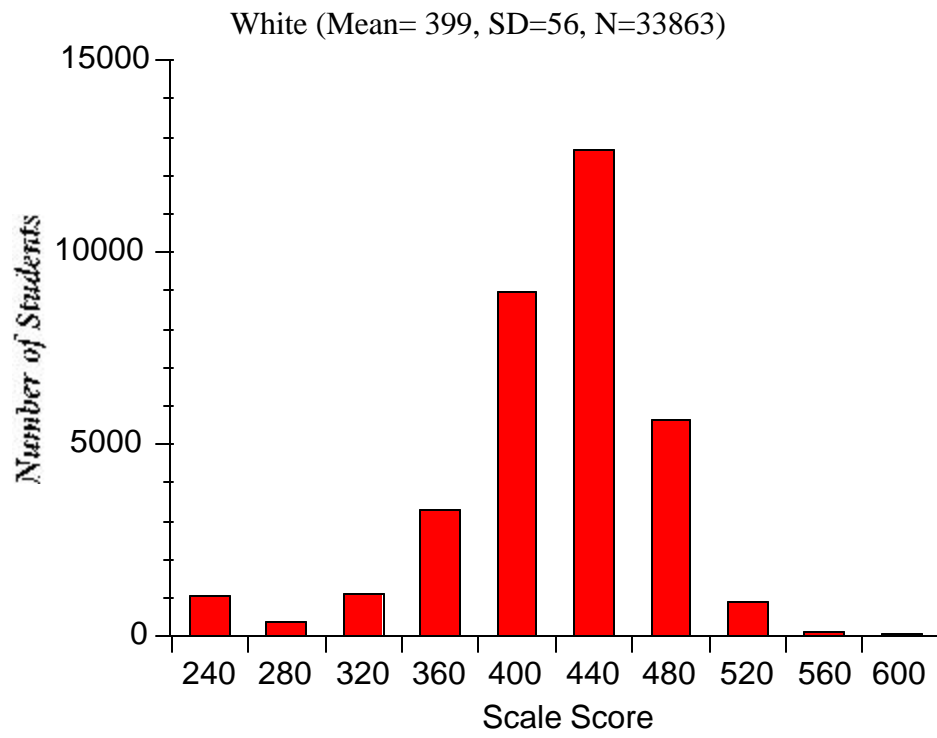
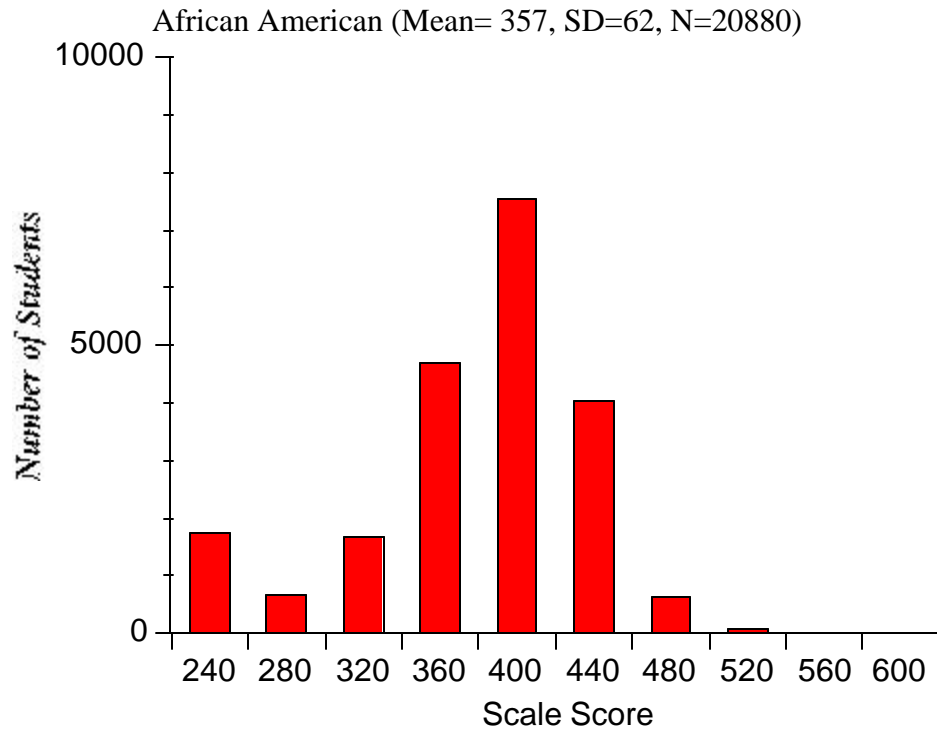


Figure C 12
Scale Score Distribution for Grade 10 by Ethnicity (cont.)

Hispanic (Mean= 357, SD=67, N=3111)

