

**Maryland High School Assessment and  
Modified High School Assessment  
2009 Technical Report**

**Algebra/Data Analysis  
Biology  
English  
Government**

**Educational Testing Service  
December 2009  
Revised, December 2010**

## **Foreword**

The technical information included in this report is intended for use by those who evaluate tests, interpret scores, or use test results in making educational decisions. It is assumed that the reader has some technical knowledge of test construction and measurement procedures, as stated in *Standards of Educational and Psychological Testing* (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999).

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# CHAPTER I: HIGH SCHOOL ASSESSMENTS

## Section 1. Introduction

The Maryland High School Assessments (MD HSAs) consist of end-of-course tests in Algebra/Data Analysis, Biology, English, and Government. The MD HSAs are referred to as “end-of-course” tests because students take each test as they complete the appropriate coursework. In addition, results from the Algebra/Data Analysis, Biology, and English administrations are used in the Maryland State Department of Education (MSDE) Adequate Yearly Progress (AYP) reports, required under the No Child Left Behind (NCLB) Act for the 2009 school year.

Students entering ninth grade in the 2005–2006 school year and in subsequent school years are required to earn satisfactory scores on all four MD HSAs in order to earn a Maryland High School Diploma.<sup>1</sup> Information on the interpretation of scores is provided to students, parents, schools, and other stakeholders via the MSDE website.

Historically, the MD HSAs have consisted of paper-and-pencil tests that contain selected-response (SR) items, which require students to choose between four short response options; brief constructed response (BCR) items, which require students to write a short response; and extended constructed response (ECR) items, which require students to write a longer response. In addition, Algebra/Data Analysis tests include items that require a student-produced response (SPR); students must grid in their responses on the answer document. The SR and SPR items are machine-scored; the BCR and ECR items are scored by raters.

The administration options and test design of the MD HSAs changed beginning with the May 2009 administration. As of May 2009, the MD HSAs are administered online as well as in paper-and-pencil format. Also, the BCR and ECR items that appeared in previous test administrations have been replaced by SR and SPR items. Consequently, the October, January, and April administrations were conducted in paper-and-pencil format only and included BCR and ECR items; the May and Summer (July/August) administrations were given both online and in paper-and-pencil format and contained only SR items and, in the case of Algebra/Data Analysis, SPR items. A study of the comparability of online and paper forms of the May 2009 MD HSAs was conducted and the resulting report is provided in Appendix 1C. All MD HSA items, regardless of test administration date, are based on content outlined in Maryland’s Core Learning Goals (CLGs).<sup>2</sup>

This report provides information about the October 2008 administration and the January, April, May, and Summer 2009 administrations. For the October 2008 administration, one form was administered. For the January 2009 administration, two forms were administered. One form was

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<sup>1</sup> More information on the testing requirement for graduation is available on the Maryland State Department of Education website at [http://mdk12.org/assessments/high\\_school/index.html](http://mdk12.org/assessments/high_school/index.html).

<sup>2</sup> The HSA Core Learning Goals documents can be found on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

used for the primary administration, and one form was used for the makeup administration. Administration of the MD HSAs in April occurred for the first time in 2009; one form was administered for this session. For the May 2009 administration, thirteen test forms were administered: eleven for the primary testing window and one for each of two makeup testing windows. For the Summer 2009 administration, two primary forms were administered: one for the first week of testing and one for the second week of testing.

Each test form consisted of operational and field test items. The operational items were used to produce student scores. Field test items were scored along with the operational items, but examinees' scores on these items were not included in the computation of their total test scores. Performance on the field test items was analyzed, and all flagged items were reviewed. Field test items that were approved by ETS content specialists and calibrated were then marked as available for use in the item bank. Items that were deemed unacceptable were marked as "Unavailable" and may be revised and field tested again in the future. With the exception of items selected for public release, the operational items that are returned to the item bank must remain unused for at least one year to minimize item exposure.

The item response model used to calibrate the items in the MD HSAs is the three-parameter logistic (3PL) model. This model is used to generate both total test scores and subscores. In the past, the total test scores were generated using item-pattern (IP) scoring, and the subscores were created using raw score (RS) to scale score (SS) conversion tables. Beginning with the May 2009 administration, subscores are calculated using IP scoring instead of RS to SS tables. This change was implemented to provide consistency in scoring between total test scores and subscores and to mitigate possible confusion due to the use of different scoring methods within the HSAs. Total test results in the scale score metric are reported to students. Subscores are not reported to students but are aggregated at the classroom level to provide teachers and administrators with additional information about student performance in each of the subscore categories.

Beginning with the 2004 administration, pre-equated item parameters typically have been used to generate student scores. Prior to 2004, students' scores were based on item parameters estimated after each the administration.<sup>3</sup> When pre-equated item parameters are used, the parameters are not estimated following an administration; instead, existing bank parameters are used to produce student scores. Using this approach, scores can be calculated and assigned to students immediately after their answer documents have been processed.

An exception to the practice of using pre-equated item parameters to generate student scores occurred for the May 2009 administration. Given the removal of BCR and ECR items, Maryland's technical advisory committee, the National Psychometrics Council (NPC), recommended that the operational item parameters should be estimated and equated using data collected in the May 2009 administration. Comparison of post-equated item parameters with pre-equated item parameters would enable MSDE and the NPC to assess whether the change in test design affected item parameters. MSDE and the NPC determined that differences between the two sets of parameters were negligible, and they decided to report scores based on the post-test calibration and equating of the May 2009 operational items. They also decided that in the future,

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<sup>3</sup>In the post-test equating, anchor items representative of the content and difficulty of the test forms were used to equate the test forms using a Stocking and Lord procedure (CTB/McGraw-Hill, December 2003).

student scores would continue to be generated using the pre-equated item parameters residing in the item bank.

All technical support and analyses were carried out in accordance with both the *ETS Standards for Quality and Fairness* (2002) and the *Standards for Educational and Psychological Testing*, issued jointly by the American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999).

The MD HSA chapter of this technical report consists of six other sections and three appendices. Section 2 describes the procedures used for test construction, and administration. Section 3 discusses the validity of the MD HSAs. Section 4 delineates the scoring procedures and score types. Section 5 describes the results of analyses of test reliability and decision consistency and decision accuracy. Section 6 provides summary statistics and descriptive information about student characteristics. Section 7 gives the results of the analysis of the field test data, including classical item analysis, differential item functioning, and item calibration and scaling. Appendix 1A provides classical item statistics for each operational test item by form administered. Appendix 1B provides classical item statistics for each field test item administered. Appendix 1C presents the design, analyses, results and conclusions of a study conducted to examine the comparability of the online and paper forms of the May 2009 MD HSAs.

## Section 2. Test Construction and Administration

### Test Development

#### *Planning*

Planning for the test development process began with the creation of item development plans for each content area. ETS content leaders collaborated with their content counterparts at MSDE to create these plans. The item bank was reviewed to determine how well the available item pool matched the test form requirements set forth in the test form blueprint as defined by the Core Learning Goals and the 2008–2009 form construction templates provided by MSDE. Areas that contained low item counts were given priority when determining which indicators were to be addressed by the item writers. After these areas with critical need were defined and addressed, any remaining items to be developed (as determined by the requirements set forth in the RFP) were distributed among the indicators in a fashion that would best ensure sufficient numbers of items for use in the construction of forms for future administrations.

#### *Test Specifications and Design*

MSDE predetermined the basic test design and provided it to ETS in the form of the content-specific “Test Specifications—Test Form Matrix” document. This basic test design document provided information based on specified expectations and the distribution of the number of items by item type for each reporting category. How the specific items were placed throughout the forms was left to the collaborative efforts of ETS and MSDE content specialists. Construction of the forms was based on test blueprints approved by MSDE. Blueprints for each content area are presented in Tables 2.3 to 2.6.

#### *Item Types*

As noted in Section 1, four item types have been used in the MD HSA tests. Tables 2.1 and 2.2 show how these item types and associated points were distributed by content area. These item types include the following:

- Selected response (SR)—questions in multiple-choice format with four answer options; each SR item is worth one point.
- Student-produced response (SPR)—an item type used in Algebra only, for which the student works the problem and records the answer in an answer grid; each SPR item has a maximum score of 1.
- Brief constructed response (BCR)—writing prompts for which the written response is no longer than a page (26 lines); each BCR item has a maximum score of 3.
- Extended constructed response (ECR)—writing prompts for which the written response is no longer than two pages (52 lines); each ECR has a maximum score of 4.

Beginning with the May 2009 test forms, BCR and ECR items are no longer included on MD HSA forms. These constructed response (CR) items were replaced on a point-by-point basis with SR items and, in the case of Algebra, SPR items.

**Table 2.1** Number of Operational Items and Points by Item Type for each MD HSA Content Area, October, January, and April Administrations

Content Area	Operational Items by Item Type					Points by Item Type				
	SR	SPR	BCR	ECR	Total	SR	SPR	BCR	ECR	Total
Algebra	26	6	3	3	38	26	6	9	12	53
Biology	48	-	7	-	55	48	-	28	-	76
English	46	-	2	2	50	46	-	6	8	60
Government	50	-	7	1	58	50	-	28	4	82

**Table 2.2** Number of Operational Items and Points by Item Type for Each MD HSA Content Area After Removal of CRs, May and Summer Administrations

Content Area	Operational Items by Item Type			Points by Item Type		
	SR	SPR	Total	SR	SPR	Total
Algebra	43	10	53	43	10	53
Biology	76	-	76	76	-	76
English	60	-	60	60	-	60
Government	82	-	82	82	-	82

### *Item Writing*

Item writers were employed to develop high-quality test items that were aligned with the Core Learning Goals. Nearly all the item writers were Maryland educators. Only a small portion of the total number of items written were developed by ETS content specialists. Item writers were selected on the basis of their depth of content knowledge and familiarity with the MD HSA program. Many were experienced MD HSA item writers.

Item writers were trained on general item writing techniques as well as writing guidelines that are specific to the MD HSA program. Approximately one month after the initial item writer training, a follow-up training session was provided. The session was designed to evaluate how well the item writers' writing skills had developed to that point, to facilitate peer review of items, and to provide constructive feedback to guide the rest of their writing assignment.

Upon completion of their writing assignment, item writers submitted their items to ETS. Items that were accepted proceeded to the item review and revision process.



### *Item Review and Revision*

All items underwent a series of editorial reviews in accordance with the following procedures:

- Items were edited according to standard rules developed in conjunction with MSDE.
- Items were reviewed for accuracy, organization, comprehension, style, usage, consistency, and fairness/sensitivity.
- Item content was reviewed to establish whether the item measured the intended Goal-Expectation-Indicator-Assessment Limit, with the Goal being the broadest category and Assessment Limit being the narrowest parameter of content being assessed. Assessment Limit is defined as the maximum domain from which test questions will be developed.
- Copyright and/or trademark permissions were verified for any materials requiring permissions, for both field test and operational material.
- Internal reviews were conducted and historical records were established for all version changes.

After ETS performed the required internal reviews, items were submitted to MSDE for review. If the MSDE content specialist requested an original version of the item as submitted by the item writer, a copy was provided. Any associated stimulus material, graphic, and/or art was provided as well as information regarding the Goal-Expectation-Indicator-Assessment Limit that each question addressed.

MSDE content specialists performed a review of the items and provided feedback to ETS content specialists. The edits were incorporated into the items. MSDE and ETS content specialists then met to conduct a side-by-side review of the items. Any final edits to the items were made. Finally, the items were prepared for review by the Content and Bias/Sensitivity Review Committees.

The Content and Bias/Sensitivity Review Committees are diverse groups of Maryland educators who reviewed each item to ensure that its content (a) accurately reflected what was taught in Maryland schools; (b) correctly matched the intended CLG indicator; and (c) did not unfairly favor or disadvantage an individual or group.

Upon completion of this final round of reviews, MSDE and ETS content specialists conducted another side-by-side meeting to evaluate the reviews and to reconcile the results of the various groups. The ETS content specialists then made the requested edits to the items and/or revisions to the accompanying graphics. The items that survived this process were eligible for placement in the field test sections of the test forms.

### *Testing Accommodations*

A number of alternate test formats are available to MD HSA examinees, including large-print, Braille, online audio, and Kurzweil versions of the MD HSA developed for each content area. All four alternate test formats are available at each administration. Data from these alternate formats are included in the psychometric analyses.

## Test Specifications

All 2009 test forms were constructed using items from the Maryland item bank. The pool of items available for use in the construction of the 2009 forms included all items that had been administered, calibrated, and linked to the operational scale. For Algebra, Biology, and Government, the MD HSA operational scale was defined in 2003 and included items administered in 2002 and 2003. For English, the scale was redefined in 2005 when the English test was updated to become an end-of-course assessment for English 2. Items flagged for poor fit and items flagged for substantial differential item functioning (DIF) against one of the focal groups were excluded from the item pool. (See Section 7 for a more detailed account of these analyses and flagging criteria.)

Each test form was constructed to meet specific test blueprints. Tables 2.3 through 2.6 indicate the distribution of items within each reporting category by item type and the number of score points associated with each item type. The October, January, and April forms for Algebra, Biology, and Government consisted of two sessions administered within a single sitting; the forms for English consisted of three sessions administered within a single sitting. In the May and Summer administrations, all content area tests consisted of three sessions administered within a single setting. Sessions were separated by a short break.

Rubrics for items can be found at the following locations:

[http://www.mdk12.org/assessments/high\\_school/look\\_like/algebra/rubric.html](http://www.mdk12.org/assessments/high_school/look_like/algebra/rubric.html)  
[http://www.mdk12.org/assessments/high\\_school/look\\_like/biology/rubric.html](http://www.mdk12.org/assessments/high_school/look_like/biology/rubric.html)  
[http://www.mdk12.org/assessments/high\\_school/look\\_like/english/rubric.html](http://www.mdk12.org/assessments/high_school/look_like/english/rubric.html)  
[http://www.mdk12.org/assessments/high\\_school/look\\_like/government/rubric.html](http://www.mdk12.org/assessments/high_school/look_like/government/rubric.html)

**Table 2.3 MD HSA Algebra Blueprint**

Reporting Category	Number of Items						Total Points per Category
	October, January, and April				May and Summer		
	SR (1 pt)	SPR (1 pt)	BCR (3 pts)	ECR (4 pts)	SR (1 pt)	SPR (1 pt)	
Expectation 1.1 Analyzing Pattern and Functions	8	1	0	1	11	2	13
Expectation 1.2 Modeling Real-World Situations	10	3	0	1	13	4	17
Expectation 3.1 Collecting, Organizing and Analyzing Data	4	2	2	0	8	4	12
Expectation 3.2 Using Data to Make Predictions	4	0	1	1	11	0	11
<b>Total</b>	<b>26</b>	<b>6</b>	<b>3</b>	<b>3</b>	<b>43</b>	<b>10</b>	<b>53</b>

*Note:* Information on the referenced expectations can be found in the Maryland Core Learning Goals for Algebra, available on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

**Table 2.4** MD HSA Biology Blueprint

Reporting Category	Number of Items				Total Points per Category
	October, January, and April			May and Summer	
	SR (1 pt)	BCR (4 pts)	ECR (4 pts)	SR Only (1 pt)	
Goal 1 Skills and Processes of Biology	8	2	0	16	16
Expectation 3.1 Structure and Function of Biological Molecules	8	1	0	12	12
Expectation 3.2 Structure and Function of Cells and Organisms	9	1	0	13	13
Expectation 3.3 Inheritance of Traits	9	1	0	13	13
Expectation 3.4 Mechanism of Evolutionary Change	5	1	0	9	9
Expectation 3.5 Interdependence of Organisms in the Biosphere	9	1	0	13	13
<b>Total</b>	<b>48</b>	<b>7</b>	<b>0</b>	<b>76</b>	<b>76</b>

*Note:* Information on the referenced goal and expectations can be found in the Maryland Core Learning Goals for Biology, available on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

**Table 2.5 MD HSA English Blueprint**

Reporting Category	Number of Items				Total Points per Category
	October, January, and April			May and Summer	
	SR (1 pt)	BCR (3 pts)	ECR (4 pts)	SR Only (1 pt)	
1: Reading and Literature: Comprehension and Interpretation (RC)	13	1	0	16	16
Includes indicators 1.1.1, 1.1.2, 1.1.3, 1.2.1, 1.3.3, 3.2.2					
2: Reading and Literature: Making Connections and Evaluation (RE)	11	1	0	14	14
Includes indicators 1.1.4, 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.3.5, 4.1.1*, 4.2.1					
3: Writing: Composing (WC)	8	0	2	16	16
Includes indicators 2.1.1*, 2.1.4*, 2.2.1, 2.2.2, 2.2.3, 2.2.5, 2.3.1, 2.3.3, 4.3.1					
4: Writing: Language Usage and Conventions (WL)	14	0	0	14	14
Includes indicators 3.1.3, 3.1.4, 3.1.6, 3.1.8, 3.3.1, 3.3.2					
<b>Total</b>	<b>46</b>	<b>2</b>	<b>2</b>	<b>60</b>	<b>60</b>

*Note:* Information on the referenced indicators can be found in the Maryland Core Learning Goals for English, available on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

\*This indicator not included in the May and Summer administrations.

**Table 2.6 MD HSA Government Blueprint**

Reporting Category	Number of Items				Total Points per Category
	October, January, and April			May and Summer	
	SR (1 pt)	BCR (4 pts)	ECR <sup>a</sup> (4 pts)	SR Only (1 pt)	
Expectation 1.1 U.S. Government Structure, Functions and Principles	13	2	1 (alt w/E2)	23	23
Expectation 1.2 Protecting Rights and Maintaining Order	11	2	1 (alt w/E1)	21	21
Goal 2 Systems of Government and U.S. Foreign Policy	8	1	0	12	12
Goal 3 Impact of Geography on Governmental Policy	7	1	0	11	11
Goal 4 Economic Principles, Institutions and Processes	11	1	0	15	15
<b>Total</b>	<b>50</b>	<b>7</b>	<b>1</b>	<b>82</b>	<b>82</b>

*Note:* Information on the referenced expectations and goals can be found in the Maryland Core Learning Goals for Government, available on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

<sup>a</sup> The ECR item on the Government assessment is aligned to and reported as either Expectation 1 or Expectation 2. Forms are developed to alternate between the two expectations across an assessment year.

### Item Selection and Form Design

To conserve the item pool, each test form consisted of a common set of operational items shared across forms within an administration as well as a unique set of items. Within a given administration (i.e., October, January, April, May, Summer), approximately 60 percent of the operational items in each form were common across the test sections. The remaining items in the forms consisted of combinations of items that varied across forms. The guidelines used to construct the forms are provided in Tables 2.7 to 2.11. The exact composition of the forms varied slightly based on available items in the pool.

**Table 2.7** Form Construction Specifications for the MD HSA October 2008 Administration

Primary Week Form R
Operational items—Unique items from the pool—100%
Field Test Section—Reuse of prior year field test set

**Table 2.8** Form Construction Specifications for the MD HSA January 2009 Administration

Primary Week Form A	Makeup 1 Form B
Common set—60%	Common set—60%
Unique items from the pool—40%	Unique items from the pool—40%
Field Test Section—Unique items	Field Test Section—Reuse of field test set

**Table 2.9** Form Construction Specifications for the MD HSA April 2009 Administration

Form S
Operational items—Reuse of prior year intact form
Field Test Section—Reuse of prior year field test set

**Table 2.10** Form Construction Specifications for the MD HSA May 2009 Administration

Primary Week Forms C–N	Makeup 1 Form X	Makeup 2 Form Y
Common Set—60%	Common Set—60%	Common Set—60%
Unique Items from the pool—40%	Half of items from primary week’s 40% unique items—20%	Other half of items from primary week’s 40% unique items—20%
	Unique items from the pool—20%	Unique items from the pool—20%
Field Test Section—unique sets of items for Forms C–N	Field Test Section—Reuse of one or a combination of the field test sets used in forms C–N, with a preference for form C; however, the actual selection of field test items was determined by the constraints imposed by the operational items	Field Test Section—Reuse of one or a combination of the field test sets used in forms C–N, with a preference of using the same set used for form X; however, the actual selection of field test items was determined by the constraints imposed by the operational items

**Table 2.11** Form Construction Specifications for the MD HSA Summer 2009 Administration

Primary Week 1 Form P	Primary Week 2 Form Q
Common Set—60%	Common Set—60%
Unique items from the pool—40%	Unique items from the pool—40%
Field Test Section— Reuse of prior year field test set	Field Test Section— Reuse of prior year field test set

In addition to the operational items, embedded field test items were included with each version of the test form, resulting in multiple versions of a test form containing different sets of field test items. The percentage of field test items per form varied by content area and administration, as shown in Table 2.12.

**Table 2.12** Number of Operational (OP) and Field Test (FT) Items by MD HSA Administration and Content Area

Content Area	October 2008, January 2009, and April 2009			May 2009 and Summer 2009		
	OP Items	FT Items	% FT Items	OP Items	FT Items	% FT Items
Algebra	38	10	21%	53	16	23%
Biology	55	16	23%	76	23	23%
English*	50	15–21	23–30%	60	31	34%
Government	58	6	9%	82	25	23%

\* In the English test forms, the number of field test items differed slightly across administrations because the item sets varied in size.

The items being field tested were a combination of newly written items and/or previously administered items that had been revised due to content concerns or problematic item statistics. Items with problematic statistics were ones that were judged to be acceptable from a content perspective but had one or more of the following characteristics: p-values less than 0.10; item-total correlations of less than 0.15; collapsed score levels for constructed response items (i.e., very few responses in the top score levels); very high omit rates; or SR items with a positive point-biserial correlation for one or more distractors. For administrations in which there was more than one primary form (January and May), the forms were spiraled at the student level. Spiraling at the student level means that multiple forms of the test were packaged in order (e.g., D, E, F, etc.) and distributed to students according to this order. Spiraling at the student level helps ensure that all forms are randomly distributed throughout the state.

Forms were constructed using the test construction software associated with the customer item bank. The goal was to match the test characteristic curves (TCCs) and the conditional standard error of measurement curves (CSEMs) with the “target” form defined as the base form used to set the operational scale. For Algebra, Biology, and Government, the base form was developed in

2003; for English the base form was developed in 2005. The TCCs and CSEMs were graphically displayed using item parameters associated with the operational items.

The following general steps were completed during the test construction process:

1. For each administration, all forms were constructed simultaneously in order to provide the best opportunity to construct parallel forms.
2. Items that matched the test blueprint were selected to match the target TCCs and CSEMs.
3. Test developers were careful to ensure that the item selections met all content specifications, including matching items to the test blueprint, distribution of keys, and avoidance of clueing<sup>4</sup> or clanging.<sup>5</sup>
4. After the operational items were selected for the test forms, the field test sets were constructed. Field test sets consisted of SR items in all content areas. While the field test sets were not constructed to meet any psychometric criteria, they were constructed to meet content criteria. For Algebra, Biology, and Government, the field test sets were estimated to be able to be completed by students in approximately 30 minutes for October, January, and April administrations and 35 minutes for May and Summer administrations. Due to the additional time required to read the passages and stimuli for English, the field test sets were estimated to be able to be completed by students in approximately 40 minutes for October, January, and April administrations and 50 minutes for May and Summer administrations. The field test items were embedded in the test according to a variety of content and template criteria, including, but not limited to, coverage of the reporting categories and assessment limits, cognitive balance, key balance/distribution, and clueing/clanging within the field test set and among the surrounding operational items.

Figures 2.1 to 2.8 show the plots of the TCCs and CSEMs for the target form and forms developed for each content area. It is important to note that the TCCs and CSEMs shown in the plots are based on pre-equated item parameters and therefore are theoretical curves calculated prior to administration of the tests. In general, the TCCs and CSEMs were similar to the target curves. The TCC plots indicate that all forms for each content area were within or very close to the acceptable range of the target curve for the full range of scale score values. Where forms varied in difficulty, differences between forms were typically less than 5 percent of the total raw score across the score range, especially in the range of the cut-scores. Where forms had differences slightly greater than 5 percent, these larger differences were typically seen at the very low end of the scale score range and at the high end of the scale. As expected, the CSEM plots indicate that the CSEMs for each content area were lowest in the middle range of scale scores, where the majority of student scores are located. (Please refer to figures 6.1 to 6.4 for histograms of student performance.)

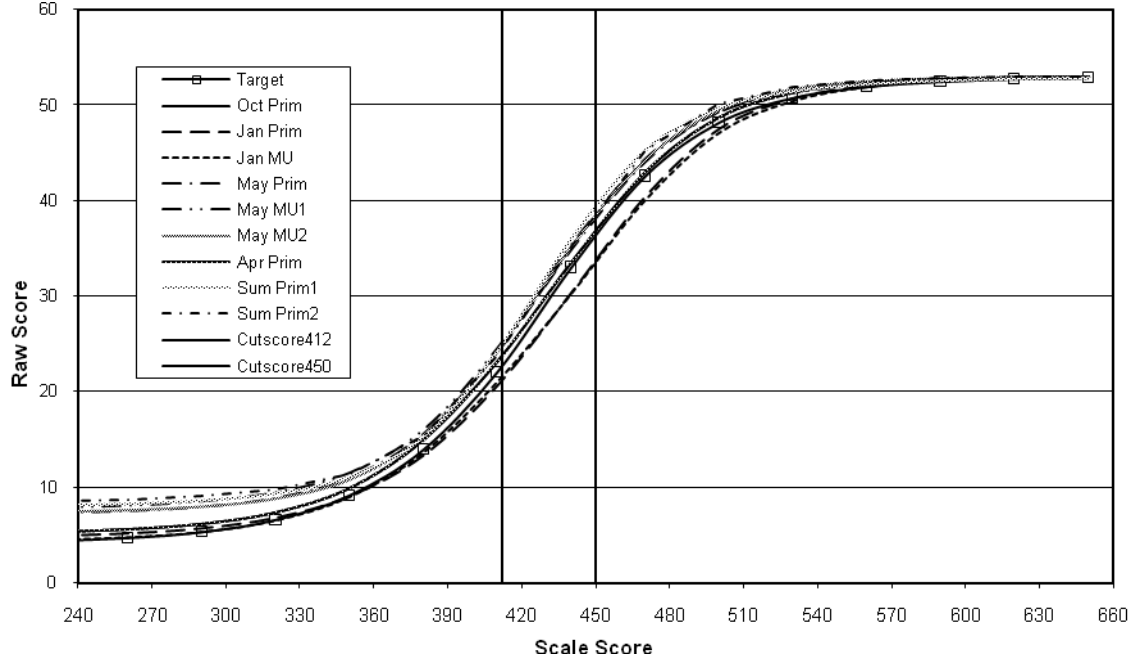
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<sup>4</sup> Clueing refers to information within a passage, stimulus, item, graphic, or other test component that allows respondents to select/construct the correct answer to one or more items in an assessment without the knowledge and/or skill targeted by the item.

<sup>5</sup> Clanging occurs when an identical or resembling word(s) appears in both the item stem and one or more item distractors. Also, if two or more items that are near each other share common key words, even if the item content does not clue, the items are said to clang because the interpretation of the word in one item can affect the interpretation of another item.

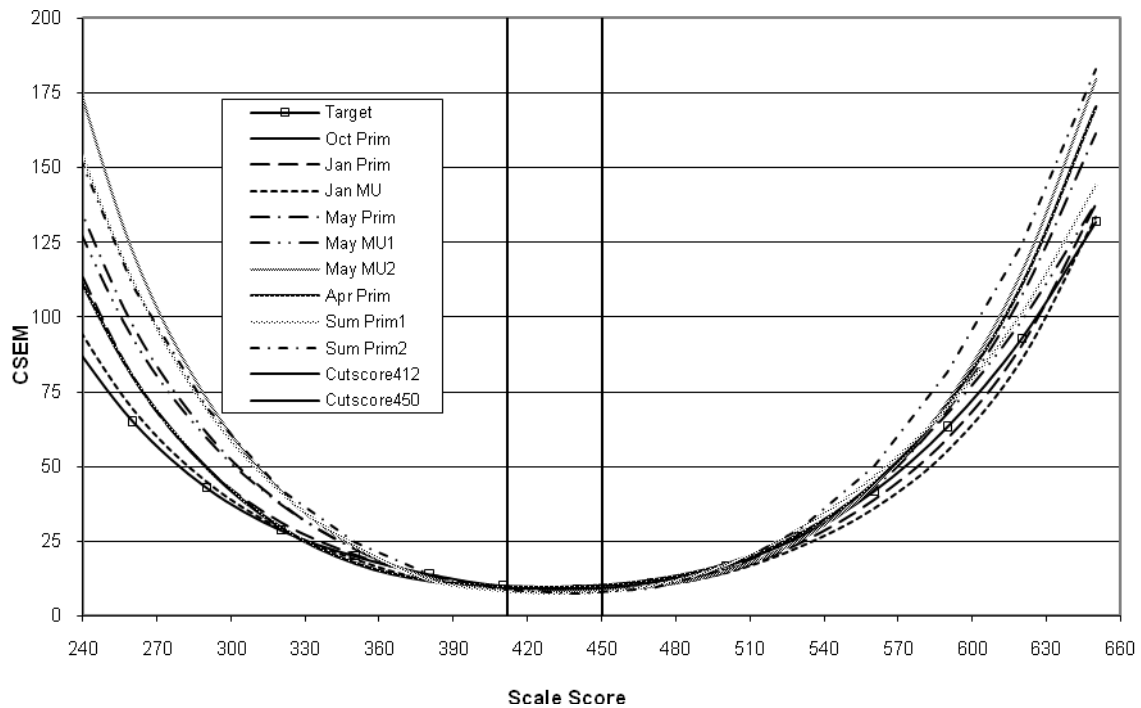


**Figure 2.1** Test Characteristic Curves for the MD HSA 2009 Algebra Forms



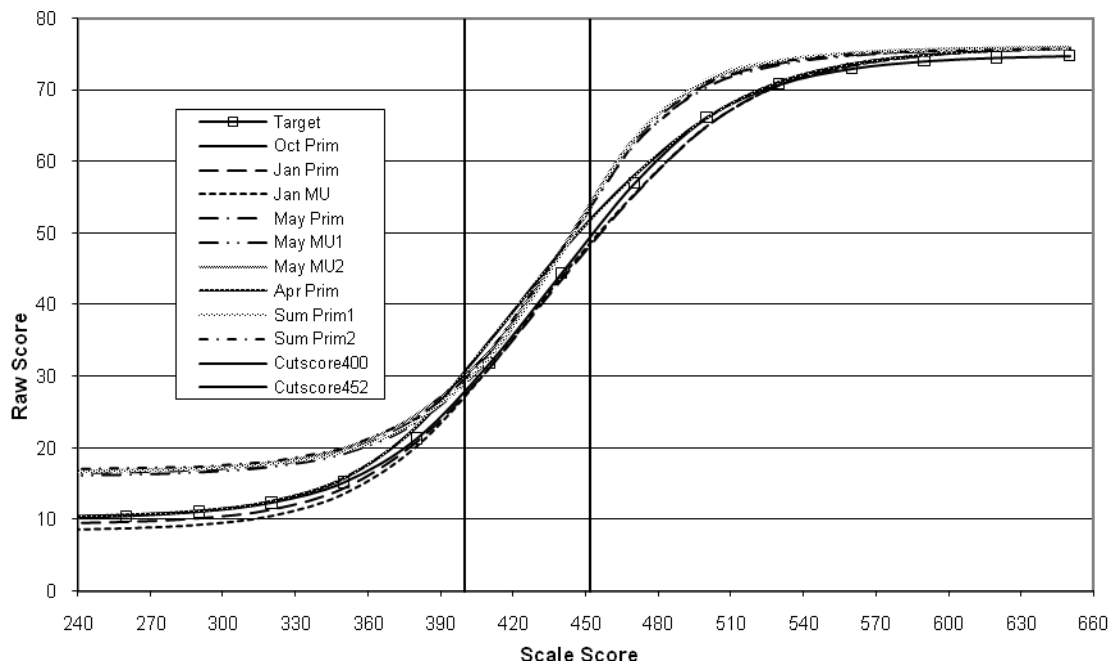
*Note:* Maximum possible raw score is 53.

**Figure 2.2** Conditional Standard Error of Measurement for the MD HSA 2009 Algebra Forms



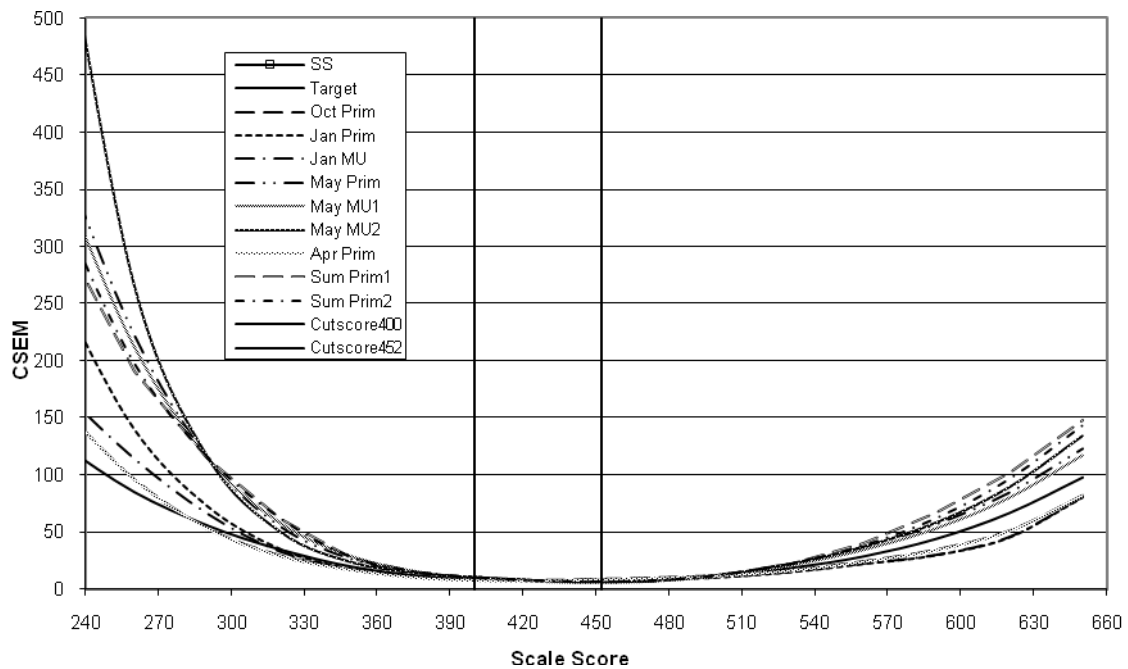
*Note:* Observed standard deviations for Algebra ranged from 27.1 to 38.1.

**Figure 2.3** Test Characteristic Curves for the MD HSA 2009 Biology Forms



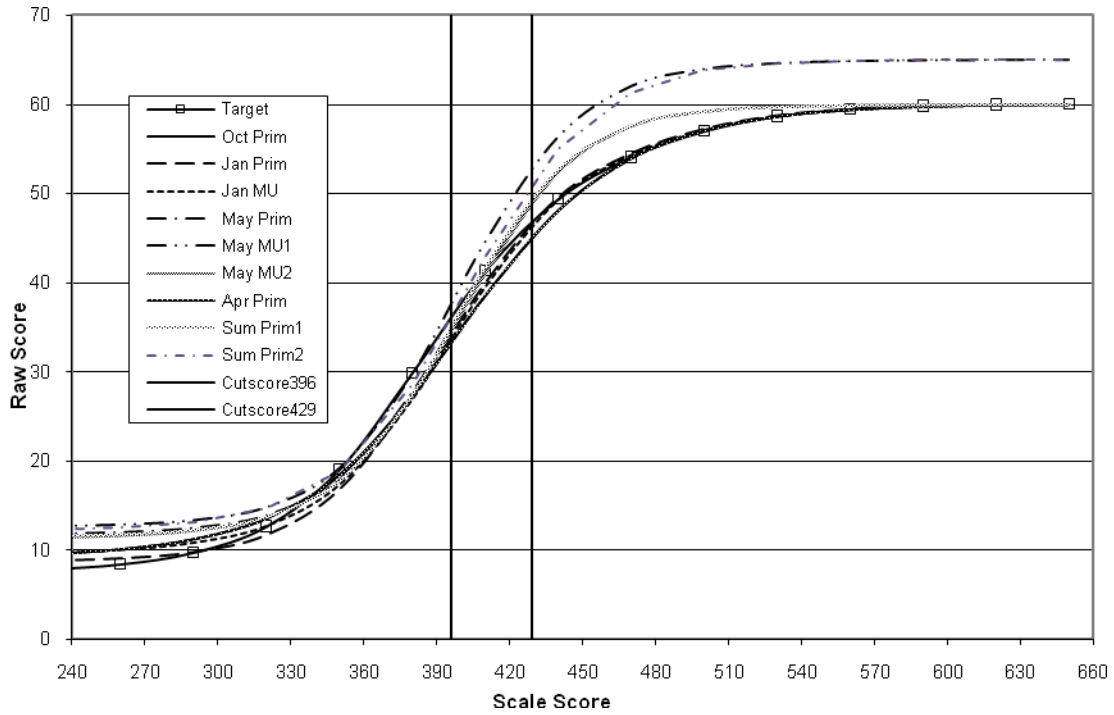
Note: Maximum possible raw score is 76.

**Figure 2.4** Conditional Standard Error Measurement for the MD HSA 2009 Biology Form



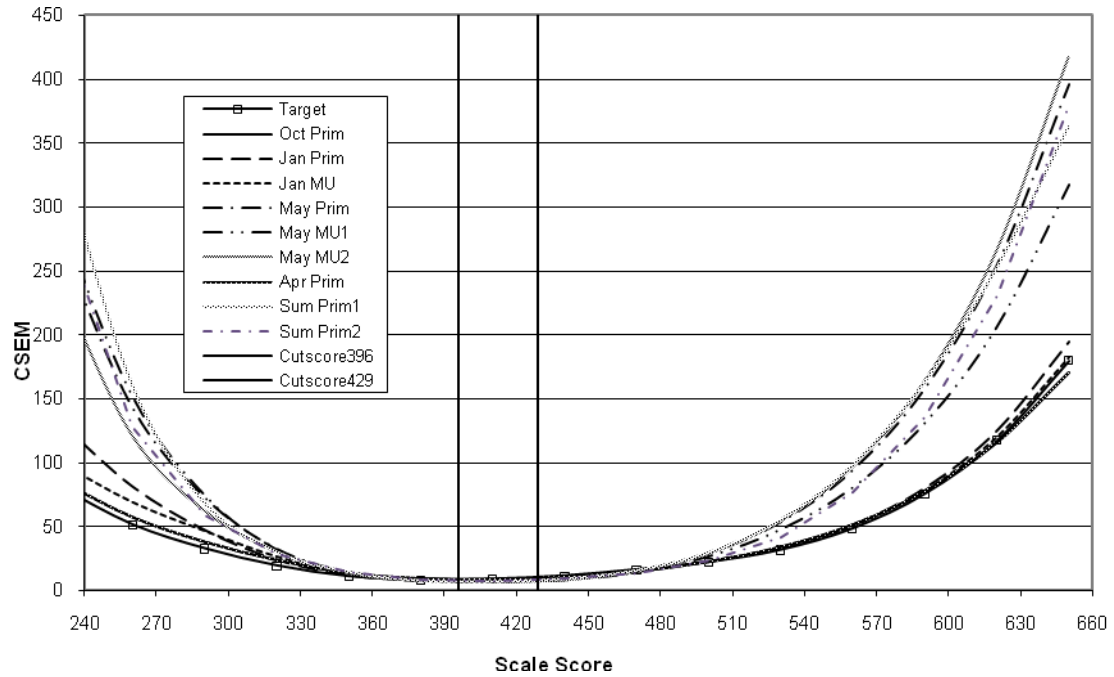
Note: Observed standard deviations for Biology ranged from 30.0 to 41.9.

**Figure 2.5** Test Characteristic Curves for the MD HSA 2009 English Forms



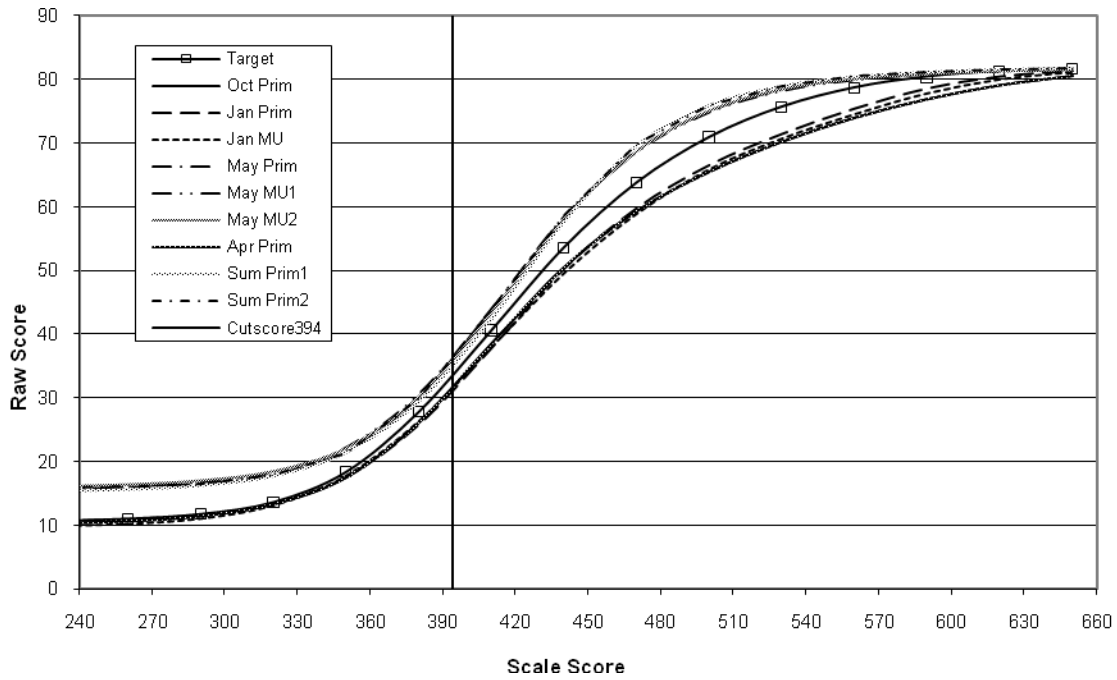
Note: Maximum possible raw score is 60.

**Figure 2.6** Conditional Standard Error of Measurement for the MD HSA 2009 English Forms



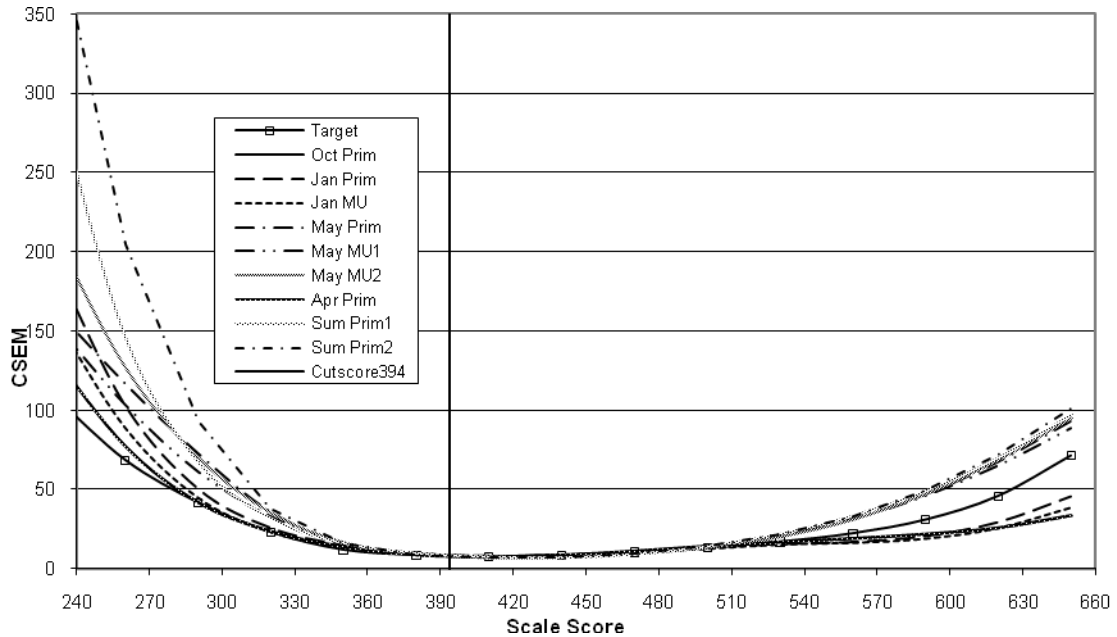
Note: Observed standard deviations for English ranged from 25.6 to 37.0.

**Figure 2.7** Test Characteristic Curves for the MD HSA 2009 Government Forms



Note: Maximum possible raw score is 82.

**Figure 2.8** Conditional Standard Error of Measurement for the MD HSA 2009 Government Forms



Note: Observed standard deviations for Government ranged from 23.9 to 40.9.

## Test Administration

All MD HSA tests administered in October 2008, January 2009, and April 2009 were paper-and-pencil tests, except in the case of the Kurzweil form, which had an audio portion. In May 2009 the MD HSA online version was introduced. For May 2009 and Summer 2009, both paper-and-pencil and online versions of the MD HSA were available. A modality comparability study based on the May 2009 MD HSA data was completed in November 2009, and is included as Appendix C of this report.

For all administrations, paper-and-pencil primary forms were given during the first week of testing. For the January and May administrations, Makeup Form 1 was offered during the second week. For the May administration only, Makeup Form 2 was administered in the third week of testing. For the online versions in May and Summer 2009, all forms were spiraled equally throughout the testing window. In May the eleven primary and two makeup forms were spiraled over a three-week timeframe. In Summer the two primary forms were spiraled over the two-week timeframe.

All forms administered without extended time accommodations had timing limits indicated in Tables 2.13 and 2.14.

**Table 2.13** Test Timing Schedule in Minutes by Content Area for the MD HSA October 2008 and January and April 2009 Administrations

Content Area	Session One	Break	Session Two	Break	Session Three
Algebra	75	5–15	75	NA	NA
Biology	80	5–15	70	NA	NA
English	60	5	60	5	50
Government	85	5–15	70	NA	NA

**Table 2.14** Test Timing Schedule in Minutes by Content Area for the MD HSA May and Summer 2009 Administrations

Content Area	Session One	Break	Session Two	Break	Session Three
Algebra	50	5	50	5	50
Biology	45	5	45	5	45
English	50	5	50	5	50
Government	45	5	45	5	45

## **Section 3. Validity**

Validity is one of the most important attributes of assessment quality and is a fundamental consideration when tests are developed and evaluated (AERA, APA, & NCME, 1999; Messick, 1989). Validity refers to the degree to which logical, empirical, and judgmental evidence supports each proposed interpretation or use of a set of scores. Validity is not based on a single study or type of study but is an ongoing process of gathering evidence to support the interpretation or use of the resulting test scores. The process begins with the test design and continues throughout the entire assessment process, including content specifications, item development, psychometric quality, and inferences made from the test results.

Students' scores on an MD HSA are inferred to reflect students' level of knowledge and skills in a content area. The scores are used to classify students in terms of their level of proficiency using cut-scores established by the state.

### **Evidence Based on Analyses of Test Content**

The MD HSAs are referred to as end-of-course tests because students take each test as they complete the appropriate coursework. Consequently items are developed to measure the knowledge and skills expected of students following completion of coursework. As discussed in Section 2, the development of test content for each MD HSA is overseen by a content expert who has a depth of knowledge and teaching experience related to the course in which the MD HSA is to be administered. Appropriate content leads who have similar qualifications review the test development work of these individuals.

Evidence based on analyses of test content includes logical analyses that determine the degree to which the items in a test represent the content domain that the test is intended to measure (AERA, APA, & NCME, 1999, p. 11). The test development process for the MD HSAs provides numerous opportunities for the MSDE to review test content and make changes to ensure that the items measure the knowledge and skills of Maryland students according to course standards. Every item that is created is referenced to a particular instructional standard (i.e., goal, expectation, or indicator). During the internal ETS development process, the specific reference is confirmed or changed to reflect changes to the item. When the item is sent to a committee of Maryland educators for a content review, the members of the committee make independent judgments about the match of the item content to the standard it is intended to measure and evaluate the appropriateness for the age of students being tested. These judgments are tabulated and reviewed by the content experts, who use the information to decide which items will advance to the field test stage of development.

### **Evidence Based on Analyses of Internal Test Structure**

Analyses of the internal structure of a test typically involve studies of the relationship among test items and/or test components in the interest of establishing the degree to which the items or components appear to reflect the construct on which a test interpretation is based (AERA, APA & NCME, 1999, p. 13). The term construct is used here to refer to the characteristic that a test is

intended to measure; in the case of the MD HSAs, the characteristic of interest is the knowledge and skills defined by the test blueprint for each content area.

These test blueprints are derived from Maryland's Core Learning Goals for each course. The test blueprints are presented in Section 2 (see Tables 2.3 to 2.6); the CLGs can be found on the MSDE website at [http://www.mdk12.org/assessments/high\\_school/index\\_a.html](http://www.mdk12.org/assessments/high_school/index_a.html).

### *Confirmatory Factor Analyses*

ETS conducted confirmatory factor analyses (CFAs) for the MD HSAs in the interest of investigating whether performance on the items in each test reflects a single underlying characteristic or a set of distinct characteristics defined by the reporting categories for each content area. The findings from the analyses also could be used to establish whether the unidimensional model-based IRT used to calibrate the MD HSA items was appropriate.

Confirmatory factor analyses were conducted using test data from the primary forms of the May 2009 administration. The May administration was chosen for analysis because it is the largest and most representative administration of the MD HSAs; this was also the first administration that did not include the administration of BCR and ECR items. The May administration consisted of eleven primary forms; data from operational items were combined across forms within the content areas of Algebra, Biology, English, and Government.

*Mplus* (Muthén & Muthén, 2007) was used to calculate matrices consisting of tetrachoric correlations between the items included in each analysis. *Mplus* was also used to fit specified factor models to the data. For each CFA, two models initially were fit to the data: a one-factor model and a multifactor model, where the factors were defined by the items in each reporting category. For example, in MD HSA Biology, a six-factor model specified constructs that measured (1) Skills and Processes of Biology, (2) Structure and Function of Biological Molecules, (3) Structure and Function of Cells and Organisms, (4) Inheritance of Traits, (5) Mechanism of Evolutionary Change, and (6) Interdependence of Organisms in the Biosphere. Four-factor models were specified for Algebra and English, and a five-factor model was specified for Government. The subscores within each content area were not assumed to be independent; consequently the covariance matrices of the latent factors were estimated. Listwise deletion of cases was employed for all analyses.

Parameter estimation was accomplished using a weighted least-square method with mean and variance adjustment (Muthén, DuToit, & Spisic, 1997). This method leads to a consistent estimator of the model parameters and provides standard errors that are robust under model misspecification. For nominal data, weighted least squares estimation offers an alternative to full-information maximum likelihood techniques. The latter becomes computationally too demanding for models with more than a few dimensions. Model fit can be assessed through the use of a scaled chi-square statistic. However, the degrees of freedom for the reference distribution of this statistic cannot be computed in the standard way. The correct degrees of freedom are in part determined by the data, and hence different degrees of freedom may be obtained when applying the same model to different data (Muthén, 1998–2004, pp. 19–20).

Model-data fit was examined using the scaled chi-square ( $\chi^2$ ) test of model fit in combination with supplemental fit indices. The Tucker-Lewis Index (TLI) compares the chi-square for the hypothesized model with that of the null or “independence” model, in which all correlations or covariances are zero. TLI values range from zero to 1.0, and values greater than 0.94 signify good fit (Hu & Bentler, 1999). The comparative fit index (CFI) and root mean square error of approximation (RMSEA) index both are based on noncentrality parameters. The CFI compares the covariance matrix predicted by the model with the observed covariance matrix, and the covariance matrix of the null model with the observed covariance matrix. A CFI value greater than 0.90 indicates acceptable model fit (Hu & Bentler, 1999). The RMSEA assesses the error in the hypothesized model predictions; values less than or equal to 0.06 indicate good fit (Hu & Bentler, 1999). The weighted root mean square residual (WRMR) is a relatively new fit index that is believed to be better suited to data that include categorical variables; good model fit is indicated by values less than 0.90 (Finney & DiStefano, 2006).

To evaluate model fit, the one-factor and multifactor fit statistics may be compared. In general, if fit statistics are adequate for the one-factor model and improvement in fit statistics is small for the multifactor model, the results suggest that the data are essentially unidimensional.

In the analysis, the input tetrachoric correlation matrix was used to estimate the factor loadings between the indicators (items) and the latent factors (subscores). Also estimated were the correlations between the latent factors, the assumption being that the subscores are related. The collection of estimated correlations between the latent factors is referred to as the psi matrix.

The multifactor models for Biology and English resulted in the estimation of nonpositive definite psi matrices. This finding is due to linear dependencies between two or more latent factors as well as correlations of 1.0 or greater between some of the latent variables within each content area. The occurrence of nonpositive definite psi matrices serves as an indication that the specified factor structure does not adequately fit the data.

Table 3.1 shows the results of the analyses. None of the  $\chi^2$  results indicated good fit, given the criterion of  $p > .05$ ; this was expected because the sample sizes were very large. The WRMR did not indicate adequate fit for one-factor or multifactor models for any of the content areas. The remaining fit statistics indicated that the one-factor solutions generally fit the data well in all content areas. These findings provide evidence that the tests for each content area measure a single dimension.

In an effort to overcome the issue of nonpositive definite psi matrices for the Biology and English multifactor models, a second set of analyses was conducted; the results are presented in Table 3.1. For the second set of analyses, the number of factors was reduced for each of the two content areas until the psi matrix was found to be positive definite. For each content area, the two most highly correlated subscores were combined to create a single factor. Subscores 4 and 5 were combined for Biology, while subscores 1 and 2 were combined for English. Combining subscores for these content areas resulted in positive definite psi matrices; however, improvement was not noted in the fit indices. (See Tables 2.4 and 2.5 for descriptions of Biology and English subscores, respectively.)



**Table 3.1** MD HSA 2009 Confirmatory Factor Analyses Fit Statistics

Content	Admin	Forms	# of Factors	# of Items	<i>n</i>	df	$\chi^2$ *	TLI	CFI	RMSEA	WRMR
Algebra	May	C-H, J-N	1	53	57,807	1,179	51,609	<b>0.98</b>	<b>0.94</b>	<b>0.027</b>	5.365
		C-H, J-N	4	53	57,807	1,175	48,963	<b>0.99</b>	<b>0.94</b>	<b>0.027</b>	5.221
Biology	May	C-H, J-N	1	76	55,469	2,466	55,121	<b>0.99</b>	<b>0.94</b>	<b>0.020</b>	4.021
		C-H, J-N	6**	76	55,469	2,455	52,685	<b>0.99</b>	<b>0.94</b>	<b>0.019</b>	3.928
		C-H, J-N	Reduced to 5	76	55,469	2,459	52,760	<b>0.99</b>	<b>0.94</b>	<b>0.019</b>	3.931
English	May	C-H, J-N	1	60	55,557	1,548	36,535	<b>0.99</b>	<b>0.95</b>	<b>0.020</b>	4.062
		C-H, J-N	4**	60	55,557	1,544	33,840	<b>0.99</b>	<b>0.95</b>	<b>0.019</b>	3.907
		C-H, J-N	Reduced to 3	60	55,557	1,546	33,863	<b>0.99</b>	<b>0.95</b>	<b>0.019</b>	3.909
Government	May	C-H, J-N	1	82	55,040	2,754	64,538	<b>0.99</b>	<b>0.95</b>	<b>0.020</b>	4.060
		C-H, J-N	5	82	55,040	2,746	63,981	<b>0.99</b>	<b>0.95</b>	<b>0.020</b>	4.042

*Note:* Table entries that meet or exceed the criterion are in bold.

\*  $p < .0005$ .

\*\* Indicates the multifactor CFA psi covariance matrix was not positive definite, signifying that at least one latent variable was a linear combination of the other latent variables representing subscores.

### Speededness

If more than 5 percent of students omitted an SR or SPR item, or more than 15 percent of students omitted a CR item, the item was flagged as having a high omit rate. Table 3.2 shows omit rates for each content area by administration and item type. Relatively few SR items were flagged for omit rate. Most of the items flagged for high omit rate were SPR and CR items, which tend to have higher omit rates in general because students have to generate a response rather than choose one from the available answer choices. The tendency for SPR and CR items to have higher omit rates is consistent with findings from previous test years.

**Table 3.2** Number of MD HSA Operational Items Flagged for High Omit Rate

Content	October			January			April			May		Summer	
	Item Types			Item Types			Item Types			Item Types		Item Types	
	SR	SPR	CR	SR	SPR	CR	SR	SPR	CR	SR	SPR	SR	SPR
Algebra	2	5	2	0	7	4	2	6	6	0	6	0	10
Biology	0	--	3	0	--	2	0	--	6	0	--	0	--
English	0	--	0	0	--	0	0	--	2	0	--	0	--
Government	0	--	2	0	--	3	0	--	6	0	--	0	--

The percentage of students who respond to the last items in a test can be used to assess the degree to which a test is speeded. When speededness occurs, a test is measuring not only students' knowledge and skills as defined by the construct of interest but also the speed at which the knowledge and skills are demonstrated, which is a second construct. In tests of achievement, it is desirable to find that speededness is not present in a test, which provides evidence that student scores on the test reflect only the intended construct. Evidence of speededness is provided by the finding that the omit rates at the end of a test are notably higher than those observed elsewhere in the test.

Appendix 1.A presents the percentage of students who omitted items on the MD HSA operational forms. Across all content areas and administrations, the percentage of students who did not respond to the last ten items of a test was less than 5 percent. The only exception was for Algebra SPR items, which, when placed within the last ten items of a test form, had omit rates ranging from 5.2 percent to 14.0 percent. The higher omission rates for the SPR items are typical for this item type because students are required to solve a problem and then record the answer in an answer grid, rather than choose from among four answer choices presented by SR items. For all item types the percentage of students who omitted items located within the last ten items of an MD HSA test form was not greater omit rates throughout the test.

In addition to the factor analyses and the information regarding speededness presented here and the validation documentation gathered and maintained by MSDE, other information in support of the uses and interpretations of MD HSA scores appears in the following sections:

- Section 4 provides detailed information concerning the scores that were reported for the MD HSAs and the cut-scores for each content area.

- Section 5 provides information concerning the test characteristics based on classical test theory for the administrations of the MD HSAs.
- Section 6 presents information regarding student characteristics for the administrations of the MD HSAs.
- Section 7 includes documentation regarding the field test analyses. Descriptions of classical item analyses, differential item functioning, item response theory calibration, and scaling are included. In addition, summary tables of item p-value and item-total correlation distributions are provided.

## Section 4. Scoring Procedures

### Scale Scores

The MD HSA reporting scale ranges from 240 to 650. For Algebra, Biology, and Government, the scale was established in 2003 and defined so that the scale scores had a mean of 400 and a standard deviation 40. In 2005 a scale for English was established that had the same range, mean, and standard deviation.

These scores represent ability estimates obtained using Item Response Theory (IRT). (See IRT Calibration and Scaling in Section 7 for details about the three-parameter logistic model used for the MD HSAs.)

Students' total test scores are scale scores derived using the three-parameter logistic (3PL) model and item-pattern (IP) scoring procedures. In the October, January, and April administrations, students' subscores were based on raw score to scale score (RS–SS) conversion tables.<sup>6</sup> Since May 2009, students' subscores have been based on IP scoring.

When the 3PL model is used, the likelihood equation can have multiple maxima. Therefore, a numerical method was developed to find the scale score at the global maximum in the likelihood function. The RS–SS scoring tables were obtained by taking the inverse of the test characteristic curve (TCC) for items contributing to each subscore (Yen, 1984).

### Conditional Standard Errors of Measurement

Corresponding conditional standard errors of measurement (CSEM) were produced for both types of scoring and were equal to the inverse of the square root of the test information function.

$$\text{CSEM}(\hat{\theta}) = \frac{1}{\sqrt{I(\hat{\theta})}},$$

where  $\text{CSEM}(\hat{\theta})$  refers to the conditional standard error of measurement and  $I(\hat{\theta})$  refers to the test information function for  $\hat{\theta}$ .

The test information function is the sum of corresponding information functions of the test items when optimal item weights are used. Item information functions depend on the item difficulty, discrimination, and conditional item score variance. Thus, while polytomous items often have lower discriminations than selected response items (Fitzpatrick et al., 1996), they may convey more information because they have more score points.

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<sup>6</sup> For operational scoring, omitted responses on the MD HSA are assigned the lowest score—SR/SPR items are treated as incorrect and CR items are assigned an item score of 0.

## Lowest and Highest Obtainable Test Scores

The maximum likelihood procedure under the 3PL model cannot produce reasonable scale score estimates for students with perfect scores or scores below the level expected by guessing. While maximum likelihood estimates are usually available for students with extreme scores other than zero or perfect, occasionally these estimates have very large CSEMs, and differences between these extreme values have little meaning. Therefore, scores were established for these students based on a rational procedure (refer to Appendix 3.C of the 2004 Technical Report). These values were called the lowest obtainable scale score (LOSS) and the highest obtainable scale score (HOSS). The same LOSS and HOSS values were used for RS-SS tables and for IP scoring. Starting with the summer 2005 administration, MSDE decided that the LOSS and HOSS values would be 240 and 650, respectively, for all content areas.

## Cut-Scores

MSDE established the cut-scores associated with each of the performance levels in the content areas other than English in 2003.<sup>7</sup> The English cut-scores were established during the standard-setting meeting held in October 2005. One cut-score was established for Biology and one was established for Government. Because Algebra and English results are used as the high school mathematics and English/language arts components of the Maryland accountability plan under NCLB, two cut-scores were established for these content areas. To comply with NCLB requirements for secondary science, an Advanced cut score for Biology was established in 2008. These values are given in Table 4.1.

**Table 4.1** MD HSA Cut-Scores by Content Area

Content Area	Cut-Score	
	Proficient	Advanced
Algebra	412	450
Biology	400	452
English	396	429
Government	394	

Beginning with the class of 2009, students must obtain either a passing score on all four MD HSAs or an overall combined score of 1602. Passing status is achieved when a student's score meets or exceeds the Proficient cut score, as listed in Table 4.1. Students graduating prior to 2009 were not required to pass the MD HSAs but were required to take the tests.

<sup>7</sup> Technical documentation on the standard-setting method used to establish the MD HSA cut-scores is available on the Maryland State Department of Education website at <http://www.marylandpublicschools.org/msde/divisions/planningresultstest/maryland+standard+setting+technical+reports.htm>.

## Year-to-Year Scale Maintenance

The MD HSAs for Algebra, Biology, and Government have been pre-equated since 2004; English has been pre-equated since 2005. In the pre-equated design, a pool of IRT-calibrated items expressed on the reporting scale exists for test form construction. The item parameter estimates for new forms are obtained from the bank and are used to build test forms that are parallel across administrations. Student scores are produced with the new form bank-obtained item parameters, thereby linking scores from one administration to the other.

To increase the item pool, the MD HSA embeds field test items in the operational test forms. The field test data for the January and May administration are calibrated with the operational items at that time. The calibrations are linked to the reporting scale using all operational non-CR items as anchors and the Stocking and Lord procedure (Stocking & Lord, 1983). Having all operational non-CR items serve as linking items ensures that the linking set is both objectively scored and large enough to provide stable and reliable results. Item bank parameters are established at the time of the field test and are not updated following each administration.

To ensure that items behave the same way across administrations, construction of new forms follows guidelines defined by Kolen and Brennan (1995). These guidelines are:

1. Items should appear in the same contexts and positions as when the item parameters were established. Operational items are placed as close as possible to the same position they were in when parameters were established and within the same third of the total test form.
2. Operational items should appear in similar positions on the test. It may be problematic if an item is positioned in very different locations on the two forms, such as at the beginning of the test on one form and at the end of the test on another form. Operational items that appear in more than one form occupy consistent positions across forms; MSDE must approve any deviations.
3. The text is exactly the same in the old and new forms. Minor editorial changes and rearranging answer choices are discouraged; otherwise the items may function differently. All requests for minor editorial changes must undergo psychometric review to evaluate the implications for the response process.

### Post-Test Calibration and Equating of the May 2009 Test Forms

As mentioned in the previous section, student scores on the MD HSAs typically have been generated using pre-equated item parameters. In May 2009 MSDE's National Psychometric Council (NPC) advised that the item parameters used for scoring be estimated and equated using the May 2009 data. Given the replacement of the CR items in the MD HSA forms and the implementation of online testing, the NPC wanted to make sure that the item parameters and scores being reported were based on current data rather than the parameters in the item bank.

Accordingly the May 2009 operational items were calibrated using the 3PL model and the *PARSCALE* module of ETS's proprietary software, *GENASY*S. Field test items were excluded from item calibration so that the parameters obtained were not influenced by field test item performance.

The number of students used to calibrate most test forms was large. The exceptions to this rule occurred for the Makeup Form Y in Biology, English, and Government, where the number of test takers was just under 1,000. As a consequence, in the first round of calibrations and equatings, the  $c$ -parameters for the items unique to these makeup forms were fixed to their reference values, at the NPC's suggestion (J. Bagsby, personal communication, April 21, 2009). For Biology, English, and Government, this meant that the  $c$ -parameters were fixed for fifteen, thirteen, and sixteen unique items, respectively.

All equatings between the post-test item calibrations and the pre-equated parameters for the operational items were carried out using the Stocking and Lord procedure as implemented within the *GENASYS* software. The pre-equated item parameters (parameters from the item bank) for the May 2009 operational items served as the reference parameters.

Evaluation of the equating results included comparing the reference parameters and post-test equated parameters in terms of means, standard deviations, correlations, item and test characteristic functions, and standard error curves. Scaled score results for May 2009 were also compared with historical trends.

Study of the first round of equating results indicated an excellent alignment of the reference and post-test parameters in Biology and very good alignment in Algebra, English, and Government. Within each content area, TCCs based on the reference and post-test equated parameters were very similar. Across the four content areas, the correlations between the reference and transformed  $b$ -parameters ranged from 0.86 to 0.96, and the correlations between the  $a$ -parameters ranged from 0.86 to 0.93. Finally, the correlations between  $c$ -parameters ranged from 0.64 to 0.74.

Further inspection of the results indicated that there were small, systematic differences between the reference and estimated  $c$ -parameters for the Biology, English, and Government items, which suggested that their equatings could be improved by fixing the  $c$ -parameters for all operational items to their reference values. This procedure was carried out, and final equated item parameters were delivered to Pearson for all content areas.

Based on a review of the May 2009 post-test equating and score results, the National Psychometric Council decided that

- scores based on the post-equated item parameters were approved for reporting May 2009 results for all content areas.
- the reference parameters for the May 2009 operational items will continue to be used as the statistics of record.
- field test items from the May 2009 administration will be scaled using reference parameters, following usual procedures.

## Section 5. Test Characteristics

Provided in this section is a discussion of the results of analyses of test reliability and decision consistency and accuracy for all MD HSA test forms administered.

### Reliability

The general concept of reliability concerns the precision of a test score. Of interest is quantifying the degree to which a score will vary from an average result obtained over many testing occasions due to random factors (Haertel, 2006). A variety of theories and methods can be used to estimate reliability.

Classical test theory defines reliability as the proportion of total score variance that is true-score variance. Several different ways of estimating this proportion exist. One estimate of reliability that is commonly used is Cronbach's alpha (Cronbach, 1951), an internal consistency measure. It is derived from analysis of the consistency of performance over items within a test and provides a lower-bound estimate of a test's reliability. Cronbach's alpha can be expressed as

$$\alpha = \frac{n}{n-1} \left[ 1 - \frac{\sum_{i=1}^n \sigma_i^2}{\sigma_x^2} \right],$$

where  $n$  is the number of items,  $\sigma_i^2$  is the variance of scores on the  $i$ -th item, and  $\sigma_x^2$  is the variance of the total score (sum of scores on the individual items).

The October, January, and April administrations of the MD HSAs contained mixed item types (dichotomous and polytomous items); consequently it was more appropriate to report stratified alpha (Feldt & Brennan, 1989). Stratified alpha is a weighted average of Cronbach's alpha for item sets with different maximum score points or "strata." For the MD HSAs, strata are defined by item type and, where applicable, by score points within item type. The Biology, English, and Government tests for the above-mentioned administrations had three strata: one stratum comprised the SR items, one comprised the 3-point CR items, and the third comprised the 4-point CR items. For the Algebra tests in these administrations, a fourth stratum comprised the SPR items.

The formula for calculating the stratified alpha is

$$\text{strata } \rho = 1 - \frac{\sum \sigma_{x_j}^2 (1 - \alpha_j)}{\sigma_x^2},$$

where  $\sigma_{x_j}^2$  is the variance for stratum  $j$  of the test,  $\sigma_x^2$  is the total variance of the test, and  $\alpha_j$  is the Cronbach's alpha for stratum  $j$  of the test. The CR items were removed from the MD HSAs beginning with the May 2009 administration; therefore it was appropriate to report non-stratified Cronbach's alpha for the May and Summer forms.



The results for the reliability analyses of the total test score are presented with the summary statistics in Tables 6.9 to 6.28. The tables show that the overall reliability of the MD HSAs administered during the January, April, and May sessions ranged from 0.81 to 0.94 for the primary forms, and from 0.85 to 0.94 for the makeup forms. The overall reliability results for the October forms ranged from 0.79 to 0.85. Table 6.5 shows that the variability of the October scores was less than that observed for the other administrations. This restriction in range could explain the lower values for October compared with other administrations. The overall reliability results for the Summer forms ranged from 0.75 to 0.89, except in the case of Form P for Biology, which had a reliability coefficient of 0.68. The average scores of Biology Form P were lower than the average scores of Form Q across all demographic groups. The reduced reliability of Biology Form P appears to be due to more students scoring at or near the LOSS. For example, at least 5 percent of African American students and White students attained the minimum scale score of 240.

### **Decision Accuracy and Decision Consistency**

The accuracy of decisions based on specified cut scores was assessed for Reliability of Classification using the computer program *RELCLASS*, which is ETS proprietary software. *RELCLASS* provides two statistics that describe the reliability of classifications based on test scores (Livingston & Lewis, 1995). Specifically, information from an administration of one form is used to estimate the following:

Decision accuracy, or the extent to which examinees are classified in the same way as they would be on the basis of the average of all possible forms of a test. Decision accuracy answers the question: How does the actual classification of test takers, based on their single-form scores, agree with the classification that would be made on the basis of their true scores, if their true scores were somehow known?

Decision consistency, or the extent to which examinees are classified in the same way as they would be on the basis of a single form of a test other than the one for which data are available. Decision consistency answers the question: What is the agreement between the classifications based on two non-overlapping, equally difficult forms of the test?

*RELCLASS* estimates decision accuracy using an estimated joint distribution of reported performance-level classifications on the current form of the exam and the performance-level classifications based on an all-forms average (true score). *RELCLASS* estimates decision consistency using an estimated joint distribution of reported performance-level classifications on the current form of the exam and performance-level classifications on the alternate (parallel) form. In each case, the proportion of performance-level classifications with exact agreement is the sum of the entries in the diagonal of the contingency table representing the joint distribution.

The results are provided in Tables 5.1 to 5.20 by content area for the October, January, April, May, and Summer forms. The tables show that decision accuracy values, which describe the agreement between classifications based on an observable variable (scores on one form of a test) and classifications based on an unobservable variable (the test takers' true scores), ranged from

0.81 to 0.95 across all performance levels and from 0.84 to 0.93 for the Proficient and Above classifications in Algebra, Biology, and English. Decision consistency values, which describe the agreement between classifications based on two variables (scores on the form students have taken and a parallel form of the same test that is not administered to the students), ranged from 0.75 to 0.93 across all performance levels and from 0.78 to 0.89 for the Proficient and Above classifications in Algebra, Biology, and English.

Note that in all cases the decision accuracy indices are somewhat larger than the decision consistency indices. This is due to differences in the estimation procedures. The estimation procedure for decision accuracy includes a random component on one of the two variables, whereas in estimating decision consistency each variable includes a random component (Livingston & Lewis, 1995).

**Table 5.1** Decision Accuracy and Consistency: MD HSA Algebra October 2008 Form

	Placement Scores	Advanced	Proficient	Basic	Category Total*
Decision Accuracy	450–650	0.01	0.00	0.00	0.01
	412–449	0.00	0.13	0.05	0.19
	240–411	0.01	0.06	0.73	0.80
	Estimated Proportion Correctly Classified*: Total = 0.87, Proficient & Above = 0.87				
Decision Consistency	450–650	0.01	0.00	0.00	0.01
	412–449	0.01	0.11	0.06	0.19
	240–411	0.01	0.10	0.69	0.80
	Estimated Proportion Consistently Classified*: Total = 0.81, Proficient & Above = 0.83				

\*Inconsistencies between cell entries and totals are due to rounding.

**Table 5.2** Decision Accuracy and Consistency: MD HSA Algebra January 2009 Forms

	Placement Scores	Advanced	Proficient	Basic	Category Total*
<b>January Primary</b>					
Decision Accuracy	450–650	0.03	0.01	0.00	0.04
	412–449	0.01	0.17	0.05	0.23
	240–411	0.01	0.06	0.67	0.74
	Estimated Proportion Correctly Classified: Total*: = 0.87, Proficient & Above = 0.89				
Decision Consistency	450–650	0.03	0.01	0.00	0.04
	412–449	0.02	0.14	0.06	0.23
	240–411	0.01	0.08	0.65	0.74
	Estimated Proportion Consistently Classified*: Total 0.82; Proficient & Above =0.85				
<b>January Form B</b>					
Decision Accuracy	450–650	0.01	0.00	0.00	0.01
	412–449	0.01	0.12	0.04	0.17
	240–411	0.01	0.05	0.76	0.82
	Estimated Proportion Correctly Classified*: Total = 0.89, Proficient & Above = 0.90				
Decision Consistency	450–650	0.01	0.00	0.00	0.01
	412–449	0.02	0.10	0.05	0.17
	240–411	0.01	0.08	0.73	0.82
	Estimated Proportion Consistently Classified*: Total = 0.84, Proficient & Above = 0.86				

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.3** Decision Accuracy and Consistency: MD HSA Algebra April 2009 Form

	Placement	Advanced	Proficient	Basic	Category
	Scores				Total*
Decision Accuracy	450–650	0.00	0.00	0.00	0.00
	412–449	0.00	0.07	0.02	0.10
	240–411	0.02	0.06	0.82	0.90
	Estimated Proportion Correctly Classified*: Total = 0.90, Proficient & Above = 0.90				
Decision Consistency	450–650	0.00	0.00	0.00	0.00
	412–449	0.01	0.05	0.03	0.10
	240–411	0.02	0.09	0.79	0.90
	Estimated Proportion Consistently Classified*: Total = 0.85, Proficient & Above = 0.86				

\*Inconsistencies between cell entries and totals are due to rounding.

**Table 5.4** Decision Accuracy and Consistency: MD HSA Algebra May 2009 Forms

	Placement	Advanced	Proficient	Basic	Category
	Scores				Total*
<b>May Primary</b>					
Decision Accuracy	450–650	0.23	0.05	0.00	0.28
	412–449	0.04	0.28	0.06	0.38
	240–411	0.00	0.02	0.33	0.35
	Estimated Proportion Correctly Classified*: Total = 0.83, Proficient & Above = 0.93				
Decision Consistency	450–650	0.22	0.06	0.00	0.28
	412–449	0.06	0.24	0.08	0.38
	240–411	0.00	0.03	0.31	0.35
	Estimated Proportion Consistently Classified*: Total = 0.77, Proficient & Above = 0.88				
<b>May Form X</b>					
Decision Accuracy	450–650	0.14	0.03	0.00	0.17
	412–449	0.04	0.21	0.07	0.31
	240–411	0.00	0.03	0.49	0.51
	Estimated Proportion Correctly Classified*: Total = 0.84, Proficient & Above = 0.91				
Decision Consistency	450–650	0.14	0.04	0.00	0.17
	412–449	0.05	0.18	0.08	0.31
	240–411	0.00	0.04	0.47	0.51
	Estimated Proportion Consistently Classified*: Total = 0.79, Proficient & Above = 0.87				
<b>May Form Y</b>					
Decision Accuracy	450–650	0.21	0.04	0.00	0.26
	412–449	0.04	0.24	0.06	0.34
	240–411	0.00	0.01	0.39	0.40
	Estimated Proportion Correctly Classified*: Total = 0.84, Proficient & Above = 0.92				
Decision Consistency	450–650	0.21	0.05	0.00	0.26
	412–449	0.05	0.21	0.08	0.34
	240–411	0.00	0.03	0.37	0.40
	Estimated Proportion Consistently Classified*: Total = 0.78, Proficient & Above = 0.89				

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.5** Decision Accuracy and Consistency: MD HSA Algebra Summer 2009 Forms

	Placement Scores	Advanced	Proficient	Basic	Category Total*
<b>Summer Form P</b>					
	450–650	0.02	0.00	0.00	0.02
Decision	412–449	0.01	0.13	0.05	0.19
Accuracy	240–411	0.01	0.06	0.71	0.79
	Estimated Proportion Correctly Classified*: Total = 0.86, Proficient & Above = 0.88				
	450–650	0.02	0.00	0.00	0.02
Decision	412–449	0.03	0.10	0.06	0.19
Consistency	240–411	0.01	0.09	0.68	0.79
	Estimated Proportion Consistently Classified*: Total = 0.80 , Proficient & Above = 0.83				
<b>Summer Form Q</b>					
	450–650	0.02	0.00	0.00	0.02
Decision	412–449	0.02	0.14	0.04	0.19
Accuracy	240–411	0.01	0.06	0.72	0.79
	Estimated Proportion Correctly Classified*: Total = 0.88, Proficient & Above = 0.89				
	450–650	0.02	0.00	0.00	0.02
Decision	412–449	0.03	0.11	0.05	0.19
Consistency	240–411	0.01	0.08	0.69	0.79
	Estimated Proportion Consistently Classified*: Total = 0.83 , Proficient & Above = 0.85				

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.6** Decision Accuracy and Consistency: MD HSA Biology October 2008 Form

	Placement Scores	Advanced	Proficient	Basic	Category Total*
	452–650	0.00	0.00	0.00	0.00
Decision	400–451	0.00	0.12	0.03	0.15
Accuracy	240–399	0.00	0.06	0.79	0.85
	Estimated Proportion Consistently Classified*: Total = 0.90 , Proficient & Above = 0.90				
	452–650	0.00	0.00	0.00	0.00
Decision	400–451	0.00	0.11	0.04	0.15
Consistency	240–399	0.00	0.10	0.75	0.85
	Estimated Proportion Consistently Classified*: Total = 0.86 , Proficient & Above = 0.86				

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.7** Decision Accuracy and Consistency: MD HSA Biology January 2009 Forms

	Placement Scores	Advanced	Proficient	Basic	Category Total*
<b>January Primary</b>					
	452–650	0.07	0.04	0.00	0.11
Decision	400–451	0.00	0.35	0.00	0.35
Accuracy	240–399	0.02	0.07	0.46	0.54
	Estimated Proportion Correctly Classified*: Total = 0.87, Proficient & Above = 0.91				
	452–650	0.07	0.04	0.01	0.11
Decision	400–451	0.00	0.33	0.02	0.35
Consistency	240–399	0.02	0.08	0.44	0.54
	Estimated Proportion Consistently Classified*: Total = 0.84, Proficient & Above = 0.88				
<b>January Form B</b>					
	452–650	0.02	0.01	0.00	0.03
Decision	400–451	0.00	0.22	0.02	0.24
Accuracy	240–399	0.01	0.06	0.66	0.73
	Estimated Proportion Correctly Classified*: Total = 0.90, Proficient & Above = 0.91				
	452–650	0.02	0.01	0.00	0.03
Decision	400–451	0.00	0.20	0.04	0.24
Consistency	240–399	0.01	0.08	0.64	0.73
	Estimated Proportion Consistently Classified*: Total = 0.86, Proficient & Above = 0.87				

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.8** Decision Accuracy and Consistency: MD HSA Biology April 2009 Form

	Placement Scores	Advanced	Proficient	Basic	Category Total*
	452–650	0.00	0.00	0.00	0.00
Decision	400–451	0.00	0.11	0.01	0.12
Accuracy	240–399	0.01	0.06	0.80	0.88
	Estimated Proportion Correctly Classified*: Total = 0.91, Proficient & Above = 0.92				
	452–650	0.00	0.00	0.00	0.00
Decision	400–451	0.00	0.10	0.02	0.12
Consistency	240–399	0.01	0.09	0.78	0.88
	Estimated Proportion Consistently Classified*: Total = 0.88, Proficient & Above = 0.88				

\*Inconsistencies between cell entries and totals are due to rounding.

**Table 5.9** Decision Accuracy and Consistency: MD HSA Biology May 2009 Forms

	Placement Scores	Advanced	Proficient	Basic	Category Total*
<b>May Primary</b>					
	452–650	0.16	0.03	0.00	0.19
Decision	400–451	0.05	0.42	0.07	0.54
Accuracy	240–399	0.00	0.01	0.27	0.27
	Estimated Proportion Correctly Classified*: Total = 0.84, Proficient & Above = 0.92				
	452–650	0.15	0.04	0.00	0.19
Decision	400–451	0.07	0.38	0.09	0.54
Consistency	240–399	0.00	0.02	0.25	0.27
	Estimated Proportion Consistently Classified*: Total = 0.79, Proficient & Above = 0.89				
<b>May Form X</b>					
	452–650	0.11	0.01	0.00	0.12
Decision	400–451	0.05	0.30	0.09	0.45
Accuracy	240–399	0.00	0.01	0.43	0.43
	Estimated Proportion Correctly Classified*: Total = 0.84, Proficient & Above = 0.90				
	452–650	0.10	0.02	0.00	0.12
Decision	400–451	0.07	0.27	0.11	0.45
Consistency	240–399	0.00	0.02	0.41	0.43
	Estimated Proportion Consistently Classified*: Total = 0.78, Proficient & Above = 0.87				
<b>May Form Y</b>					
	452–650	0.15	0.03	0.00	0.18
Decision	400–451	0.04	0.39	0.07	0.51
Accuracy	240–399	0.00	0.01	0.31	0.31
	Estimated Proportion Correctly Classified*: Total = 0.85, Proficient & Above = 0.92				
	452–650	0.14	0.04	0.00	0.18
Decision	400–451	0.06	0.35	0.09	0.51
Consistency	240–399	0.00	0.02	0.29	0.31
	Estimated Proportion Consistently Classified*: Total = 0.79, Proficient & Above = 0.89				

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.10** Decision Accuracy and Consistency: MD HSA Biology Summer 2009 Forms

	Placement Scores	Advanced	Proficient	Basic	Category Total*
<b>Summer Form P</b>					
	452–650	0.00	0.01	0.00	0.01
Decision	400–451	0.01	0.13	0.08	0.23
Accuracy	240–399	0.01	0.08	0.68	0.76
Estimated Proportion Correctly Classified*: Total = 0.81, Proficient & Above = 0.84					
	452–650	0.01	0.00	0.00	0.01
Decision	400–451	0.03	0.11	0.09	0.23
Consistency	240–399	0.02	0.12	0.63	0.76
Estimated Proportion Consistently Classified*: Total = 0.75, Proficient & Above = 0.78					
<b>Summer Form Q</b>					
	452–650	0.01	0.00	0.00	0.01
Decision	400–451	0.02	0.16	0.05	0.23
Accuracy	240–399	0.01	0.06	0.69	0.76
Estimated Proportion Correctly Classified*: Total = 0.87, Proficient & Above = 0.88					
	452–650	0.01	0.00	0.00	0.01
Decision	400–451	0.03	0.14	0.06	0.23
Consistency	240–399	0.01	0.09	0.66	0.76
Estimated Proportion Consistently Classified*: Total = 0.81, Proficient & Above = 0.84					

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.11** Decision Accuracy and Consistency: MD HSA English October 2008 Form

	Placement Scores	Advanced	Proficient	Basic	Category Total*
	429–650	0.01	0.00	0.00	0.01
Decision	396–428	0.00	0.15	0.05	0.20
Accuracy	240–395	0.01	0.06	0.72	0.79
Estimated Proportion Correctly Classified*: Total = 0.88, Proficient & Above = 0.88					
	429–650	0.01	0.00	0.00	0.01
Decision	396–428	0.01	0.13	0.06	0.20
Consistency	240–395	0.01	0.09	0.69	0.79
Estimated Proportion Consistently Classified*: Total = 0.82, Proficient & Above = 0.84					

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.12** Decision Accuracy and Consistency: MD HSA English January 2009 Forms

	Placement Scores	Advanced	Proficient	Basic	Category Total*
<b>January Primary</b>					
	429–650	0.08	0.03	0.00	0.11
Decision	396–428	0.01	0.25	0.02	0.27
Accuracy	240–395	0.02	0.07	0.53	0.62
Estimated Proportion Correctly Classified*: Total = 0.86, Proficient & Above = 0.89					
	429–650	0.07	0.03	0.00	0.11
Decision	396–428	0.02	0.21	0.04	0.27
Consistency	240–395	0.02	0.09	0.52	0.62
Estimated Proportion Consistently Classified*: Total = 0.80, Proficient & Above = 0.86					
<b>January Form B</b>					
	429–650	0.02	0.01	0.00	0.03
Decision	396–428	0.01	0.13	0.03	0.16
Accuracy	240–395	0.01	0.05	0.74	0.81
Estimated Proportion Correctly Classified*: Total = 0.90 , Proficient & Above = 0.91					
	429–650	0.02	0.01	0.00	0.03
Decision	396–428	0.01	0.11	0.04	0.16
Consistency	240–395	0.01	0.08	0.72	0.81
Estimated Proportion Consistently Classified*: Total = 0.85, Proficient & Above = 0.87					

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.13** Decision Accuracy and Consistency: MD HSA English April 2009 Form

	Placement Scores	Advanced	Proficient	Basic	Category Total*
	429–650	0.01	0.00	0.00	0.01
Decision	396–428	0.01	0.12	0.04	0.17
Accuracy	240–395	0.01	0.05	0.76	0.82
Estimated Proportion Correctly Classified*: Total = 0.88, Proficient & Above = 0.90					
	429–650	0.01	0.00	0.00	0.01
Decision	396–428	0.02	0.10	0.05	0.17
Consistency	240–395	0.01	0.08	0.73	0.82
Estimated Proportion Consistently Classified*: Total = 0.84, Proficient & Above = 0.86					

\*Inconsistencies between cell entries and totals are due to rounding.



**Table 5.14** Decision Accuracy and Consistency: MD HSA English May 2009 Forms

	Placement Scores	Advanced	Proficient	Basic	Category Total*
<b>May Primary</b>					
	429–650	0.24	0.02	0.00	0.27
Decision	396–428	0.07	0.31	0.05	0.42
Accuracy	240–395	0.00	0.04	0.28	0.31
Estimated Proportion Correctly Classified*: Total = 0.83, Proficient & Above = 0.92					
	429–650	0.23	0.04	0.00	0.27
Decision	396–428	0.09	0.27	0.06	0.42
Consistency	240–395	0.00	0.05	0.27	0.31
Estimated Proportion Consistently Classified*: Total = 0.76 , Proficient & Above = 0.89					
<b>May Form X</b>					
	429–650	0.14	0.02	0.00	0.16
Decision	396–428	0.05	0.24	0.07	0.36
Accuracy	240–395	0.00	0.02	0.46	0.48
Estimated Proportion Correctly Classified*: Total = 0.84, Proficient & Above = 0.90					
	429–650	0.13	0.03	0.00	0.16
Decision	396–428	0.06	0.20	0.09	0.36
Consistency	240–395	0.00	0.04	0.44	0.48
Estimated Proportion Consistently Classified*: Total = 0.78 , Proficient & Above = 0.87					
<b>May Form Y</b>					
	429–650	0.23	0.02	0.00	0.25
Decision	396–428	0.06	0.26	0.05	0.37
Accuracy	240–395	0.00	0.04	0.35	0.39
Estimated Proportion Correctly Classified*: Total =0.84, Proficient & Above = 0.92					
	429–650	0.21	0.03	0.00	0.25
Decision	396–428	0.08	0.23	0.06	0.37
Consistency	240–395	0.00	0.05	0.34	0.39
Estimated Proportion Consistently Classified*: Total = 0.78 , Proficient & Above = 0.89					

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.15** Decision Accuracy and Consistency: MD HSA English Summer 2009 Forms

	Placement Scores	Advanced	Proficient	Basic	Category Total*
<b>Summer Form P</b>					
	429–650	0.02	0.01	0.00	0.02
Decision	396–428	0.01	0.15	0.05	0.22
Accuracy	240–395	0.01	0.06	0.69	0.76
	Estimated Proportion Correctly Classified*: Total = 0.86, Proficient & Above = 0.88				
	429–650	0.02	0.01	0.00	0.02
Decision	396–428	0.02	0.13	0.07	0.22
Consistency	240–395	0.01	0.09	0.66	0.76
	Estimated Proportion Consistently Classified*: Total = 0.80, Proficient & Above = 0.83				
<b>Summer Form Q</b>					
	429–650	0.02	0.00	0.00	0.02
Decision	396–428	0.01	0.16	0.04	0.22
Accuracy	240–395	0.01	0.06	0.69	0.76
	Estimated Proportion Correctly Classified*: Total = 0.88 , Proficient & Above = 0.89				
	429–650	0.02	0.00	0.00	0.02
Decision	396–428	0.02	0.14	0.06	0.22
Consistency	240–395	0.01	0.08	0.67	0.76
	Estimated Proportion Consistently Classified*: Total = 0.83 , Proficient & Above* = 0.86				

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.16** Decision Accuracy and Consistency: MD HSA Government October 2008 Form

	Placement Scores	Proficient	Basic	Category Total*
	394–650	0.17	0.03	0.20
Decision	240–393	0.07	0.74	0.80
Accuracy	Estimated Proportion Correctly Classified*: Total = 0.91			
	394–650	0.16	0.04	0.20
Decision	240–393	0.09	0.71	0.80
Consistency	Estimated Proportion Consistently Classified*: Total = 0.87			

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.17** Decision Accuracy and Consistency: MD HSA Government January 2009 Forms

	Placement Scores	Proficient	Basic	Category Total*
<b>January Primary</b>				
Decision Accuracy	394–650	0.48	0.01	0.50
	240–393	0.06	0.44	0.50
Estimated Proportion Correctly Classified*: Total = 0.92				
Decision Consistency	394–650	0.47	0.03	0.50
	240–393	0.07	0.43	0.50
Estimated Proportion Consistently Classified*: Total = 0.90				
<b>January Form B</b>				
Decision Accuracy	394–650	0.29	0.01	0.30
	240–393	0.08	0.62	0.70
Estimated Proportion Correctly Classified*: Total = 0.91				
Decision Consistency	394–650	0.28	0.02	0.30
	240–393	0.10	0.60	0.70
Estimated Proportion Consistently Classified*: Total = 0.88				

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.18** Decision Accuracy and Consistency: MD HSA Government April 2009 Form

	Placement Scores	Proficient	Basic	Category Total*
Decision Accuracy	394–650	0.26	0.00	0.26
	240–393	0.11	0.63	0.74
Estimated Proportion Correctly Classified*: Total = 0.89				
Decision Consistency	394–650	0.26	0.00	0.26
	240–393	0.11	0.63	0.74
Estimated Proportion Consistently Classified*: Total = 0.89				

\*Inconsistencies between cell entries and totals are due to rounding.

**Table 5.19** Decision Accuracy and Consistency: MD HSA Government May 2009 Forms

	Placement Scores	Proficient	Basic	Category Total*
<b>May Primary</b>				
Decision Accuracy	394–650	0.70	0.03	0.73
	240–393	0.03	0.24	0.27
	Estimated Proportion Correctly Classified*: Total = 0.95			
Decision Consistency	394–650	0.69	0.04	0.73
	240–393	0.04	0.23	0.27
	Estimated Proportion Consistently Classified*: Total = 0.93			
<b>May Form X</b>				
Decision Accuracy	394–650	0.53	0.01	0.54
	240–393	0.06	0.40	0.46
	Estimated Proportion Correctly Classified*: Total = 0.93			
Decision Consistency	394–650	0.51	0.03	0.54
	240–393	0.07	0.39	0.46
	Estimated Proportion Consistently Classified*: Total = 0.90			
<b>May Form Y</b>				
Decision Accuracy	394–650	0.63	0.02	0.65
	240–393	0.05	0.31	0.35
	Estimated Proportion Correctly Classified*: Total = 0.94			
Decision Consistency	394–650	0.62	0.03	0.65
	240–393	0.05	0.30	0.35
	Estimated Proportion Consistently Classified*: Total = 0.92			

\* Inconsistencies between cell entries and totals are due to rounding.

**Table 5.20** Decision Accuracy and Consistency: MD HSA Government Summer 2009 Forms

	Placement Scores	Proficient	Basic	Category Total*
<b>Summer Form P</b>				
Decision Accuracy	394–650	0.22	0.07	0.29
	240–393	0.07	0.64	0.71
	Estimated Proportion Correctly Classified*: Total = 0.86			
Decision Consistency	394–650	0.20	0.08	0.29
	240–393	0.11	0.60	0.71
	Estimated Proportion Consistently Classified*: Total = 0.80			
<b>Summer Form Q</b>				
Decision Accuracy	394–650	0.25	0.04	0.29
	240–393	0.06	0.66	0.71
	Estimated Proportion Correctly Classified*: Total = 0.91			
Decision Consistency	394–650	0.24	0.05	0.29
	240–393	0.08	0.64	0.71
	Estimated Proportion Consistently Classified*: Total = 0.87			

\* Inconsistencies between cell entries and totals are due to rounding.

## Section 6. Student Characteristics

### Summary Statistics

The mean scale scores by content area for the 2009 administrations are presented in Table 6.1. Scores for all content areas were higher on average for the May administration compared with the October, January, April, and Summer administrations.

**Table 6.1** MD HSA Mean Scale Scores by Administration

Content Area	October			January			April			May			Summer		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Algebra	11,542	389.8	31.4	16,429	392.1	35.0	1,292	373.5	40.8	78,941	423.7	42.3	1,685	386.2	39.0
Biology	8,673	378.8	25.6	15,043	399.8	39.1	1,690	369.4	36.1	57,991	417.6	43.0	1,019	373.9	45.0
English	10,549	378.7	25.0	15,989	388.1	32.5	1,641	370.4	32.9	57,638	408.2	34.6	1,415	378.1	30.1
Government	8,764	373.9	29.8	17,884	396.8	38.1	1,624	376.2	44.8	57,529	415.6	40.4	1,075	376.4	36.9

The results presented in Tables 6.2 to 6.3 are based on the combined results for students who took the tests in October 2008 and January, April, May, and Summer 2009. The mean scale scores are presented for the years 2003 to 2009 by content area in Table 6.2. Table 6.3 presents the passing rates for these years.

**Table 6.2** MD HSA Mean Scale Scores over Test Years

Content Area	2003	2004	2005	2006	2007	2008	2009
Algebra	408.3	411.9	409.5	421.5	421.2	420.5	414.3
Biology	400.8	406.2	404.7	415.0	414.5	414.7	409.0
English	--	--	--	393.0	412.0	404.3	399.7
Government	403.5	406.5	409.3	418.5	417.1	417.1	406.3

Note: The current English test was not administered prior to 2006.

**Table 6.3** MD HSA Percentage Passing Rates (Proficient + Advanced) over Test Years

Content Area	2003	2004	2005	2006	2007	2008	2009
Algebra	53.1	59.3	54.5	66.6	63.3	62.0	53.3
Biology	54.3	62.0	58.4	67.8	70.1	68.4	60.0
English	--	--	--	60.1	70.6	61.0	55.3
Government	39.8	54.6	67.1	74.1	73.3	71.5	61.1

Note: The current English test was not administered prior to 2006.

The Algebra and English tests are used for the high school mathematics and English/language arts components of the MSDE Adequate Yearly Progress report as required under the NCLB Act. Beginning with the January 2008 administration, Biology has been used for the NCLB science component. Table 6.4 presents the percentage of Algebra, Biology, and English students classified as Basic, Proficient, and Advanced in 2009.

**Table 6.4** MD HSA Performance Classification Rates in 2009 for Algebra, Biology, and English

Content Area	Basic	Proficient	Advanced
Algebra	46.7	32.8	20.5
Biology	40.0	45.0	15.0
English	44.7	35.8	19.6

Summary statistics for all students and for subgroups based on gender, special education programs, ethnicity, and English language fluency are presented in Tables 6.5 through 6.24. The tables include the number of students tested for whom valid scores were available, mean scale scores, and standard deviations of scale scores. In addition, raw score reliabilities are provided for the overall group of examinees and for subgroups. Figures 6.1 through 6.4 show the distributions of total scale scores for each content area for the May 2009 administration.

**Table 6.5** Summary Statistics for MD HSA Algebra: October 2008 Form

	Primary Form R				
	Mean	SD	N	%	Alpha
Overall	389.8	31.4	11,542	100.0	0.79
Gender					
Male	387.0	33.8	5,577	48.3	0.80
Female	392.7	28.0	5,687	49.3	0.77
Missing	384.8	39.3	278	2.4	0.83
Special Education					
Yes	379.2	35.8	1,038	9.0	0.80
No	390.8	30.8	10,302	89.3	0.79
Exited	398.9	22.7	56	0.5	0.79
Exited and placed in 504a	*	*	15	0.1	*
504	390.2	23.7	131	1.1	0.76
Ethnicity					
American Indian	386.6	40.7	60	0.5	0.82
Asian/Pacific Islander	398.4	34.8	219	1.9	0.88
African American	388.3	31.2	7,429	64.4	0.78
White	394.3	30.8	2,362	20.5	0.79
Hispanic	389.4	28.3	1,034	9.0	0.78
Missing	387.8	38.1	438	3.8	0.83
Limited English Proficient					
Yes	386.8	29.3	487	4.2	0.80
No	389.9	31.5	10,968	95.0	0.79
Exited	395.6	19.3	87	0.8	0.70

\* Statistics not reported for sample size less than 50 (N<50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.6** Summary Statistics for MD HSA Algebra: January 2009 Forms

	Primary Form A					Makeup Form B				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	392.7	34.9	15,287	100.0	0.87	384.0	35.7	1,142	100.0	0.85
Gender										
Male	391.4	37.4	7,585	49.6	0.87	382.0	38.1	602	52.7	0.86
Female	394.2	32.0	7,427	48.6	0.86	386.6	32.1	524	45.9	0.84
Missing	387.1	35.4	275	1.8	0.84	*	*	16	1.4	*
Special Education										
Yes	382.1	36.3	1,529	10.0	0.84	373.2	39.3	105	9.2	0.85
No	393.9	34.4	13,405	87.7	0.87	385.1	35.1	1,007	88.2	0.85
Exited	389.8	37.5	72	0.5	0.86	*	*	10	0.9	*
Exited and placed in 504	*	*	11	0.1	*	*	*	0	0.0	*
504	394.3	37.7	270	1.8	0.88	*	*	20	1.8	*
Ethnicity										
American Indian	382.2	41.1	77	0.5	0.88	*	*	6	0.5	*
Asian/Pacific Islander	403.1	31.6	316	2.1	0.87	*	*	15	1.3	*
African American	384.4	32.4	9,010	58.9	0.80	378.1	35.6	699	61.2	0.83
White	410.6	35.1	4,181	27.4	0.90	395.8	34.1	315	27.6	0.87
Hispanic	391.0	27.4	1,233	8.1	0.80	387.9	31.3	66	5.8	0.78
Missing	390.6	36.9	470	3.1	0.86	*	*	41	3.6	*
Limited English Proficient										
Yes	388.4	27.4	581	3.8	0.80	*	*	13	1.1	*
No	392.8	35.2	14,595	95.5	0.87	383.9	35.8	1,128	98.8	0.85
Exited	398.9	27.6	111	0.7	0.83	*	*	1	0.1	*

\* Statistics not reported for sample size less than 50 (N<50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.



**Table 6.7** Summary Statistics for MD HSA Algebra: April 2009 Form

	Primary Form S				
	Mean	SD	N	%	Alpha
Overall	373.5	40.8	1,292	100.0	0.81
Gender					
Male	367.4	45.2	636	49.2	0.83
Female	380.1	34.3	629	48.7	0.78
Missing	*	*	27	2.1	*
Special Education					
Yes	359.0	49.0	112	8.7	0.83
No	374.8	39.9	1,162	89.9	0.81
Exited	*	*	5	0.4	*
Exited and placed in 504	*	*	7	0.5	*
504	*	*	6	0.5	*
Ethnicity					
American Indian	*	*	7	0.5	*
Asian/Pacific Islander	*	*	32	2.5	*
African American	371.6	41.2	976	75.5	0.80
White	380.4	38.6	101	7.8	0.83
Hispanic	384.3	34.7	136	10.5	0.78
Missing	*	*	40	3.1	*
Limited English Proficient					
Yes	383.3	25.5	59	4.6	0.73
No	372.8	41.5	1,211	93.7	0.81
Exited	*	*	22	1.7	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.8** Summary Statistics for MD HSA Algebra: May 2009 Forms

	Primary Forms C–H, J–N					Makeup 1 Form X					Makeup 2 Form Y				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	423.7	42.3	78,941	100.0	0.92	406.7	47.4	4,496	100.0	0.92	417.8	48.0	1,619	100.0	0.93
Gender															
Male	423.2	44.8	39,589	50.2	0.93	404.8	49.4	2,242	49.9	0.92	418.8	49.5	785	48.5	0.94
Female	424.5	39.4	39,002	49.4	0.92	409.4	44.7	2,179	48.5	0.92	417.4	46.1	820	50.6	0.93
Missing	391.8	47.3	350	0.4	0.90	385.9	55.9	75	1.7	0.91	*	*	14	0.9	*
Special Education															
Yes	395.2	48.4	5,091	6.4	0.91	379.9	51.7	284	6.3	0.90	384.5	50.0	70	4.3	0.91
No	425.9	41.0	71,965	91.2	0.92	408.5	46.6	4,128	91.8	0.92	419.7	47.0	1,522	94.0	0.93
Exited	424.7	41.9	397	0.5	0.92	*	*	13	0.3	*	*	*	4	0.2	*
Exited and placed in 504	418.9	38.0	337	0.4	0.91	*	*	16	0.4	*	*	*	6	0.4	*
504	416.6	43.7	1,151	1.5	0.92	403.5	42.8	55	1.2	0.91	*	*	17	1.1	*
Ethnicity															
American Indian	420.2	43.0	309	0.4	0.92	*	*	28	0.6	*	*	*	8	0.5	*
Asian/Pacific Islander	451.7	35.5	4,129	5.2	0.91	437.6	45.8	173	3.8	0.94	449.8	35.8	84	5.2	0.93
African American	406.2	39.7	35,415	44.9	0.89	395.6	43.8	2,453	54.6	0.89	401.3	45.5	817	50.5	0.91
White	443.5	34.9	30,802	39.0	0.90	431.5	43.2	1,263	28.1	0.93	442.2	40.3	545	33.7	0.92
Hispanic	411.8	41.6	7,809	9.9	0.90	392.8	43.5	442	9.8	0.88	404.7	46.7	141	8.7	0.92
Missing	396.4	43.1	477	0.6	0.89	387.6	52.6	137	3.0	0.91	*	*	24	1.5	*
Limited English Proficient															
Yes	395.9	45.5	2,845	3.6	0.90	380.5	48.7	96	2.1	0.88	*	*	43	2.7	*
No	424.8	41.8	75,158	95.2	0.92	407.4	47.2	4,364	97.1	0.92	418.7	47.8	1,564	96.6	0.93
Exited	422.7	40.0	938	1.2	0.91	*	*	36	0.8	*	*	*	12	0.7	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.9** Summary Statistics for MD HSA Algebra: Summer 2009 Forms

	Primary 1 Form P					Primary 2 Form Q				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	384.4	38.9	1,103	100.0	0.81	389.6	39.1	582	100.0	0.86
Gender										
Male	384.0	41.0	612	55.5	0.82	391.2	40.0	313	53.8	0.86
Female	385.4	36.3	470	42.6	0.81	388.1	38.0	255	43.8	0.86
Missing	*	*	21	1.9	*	*	*	14	2.4	*
Special Education										
Yes	371.7	44.8	100	9.1	0.81	*	*	28	4.8	*
No	385.7	38.2	983	89.1	0.81	389.5	39.6	548	94.2	0.86
Exited	*	*	3	0.3	*	*	*	0	0.0	*
Exited and placed in 504	*	*	1	0.1	*	*	*	0	0.0	*
504	*	*	16	1.5	*	*	*	6	1.0	*
Ethnicity										
American Indian	*	*	9	0.8	*	*	*	12	2.1	*
Asian/Pacific Islander	*	*	27	2.4	*	*	*	24	4.1	*
African American	379.6	38.5	721	65.4	0.76	384.7	36.4	367	63.1	0.79
White	395.8	38.0	215	19.5	0.86	403.0	32.9	110	18.9	0.87
Hispanic	389.8	36.1	88	8.0	0.78	*	*	20	3.4	*
Missing	*	*	43	3.9	*	*	*	49	8.4	*
Limited English Proficient										
Yes	*	*	25	2.3	*	*	*	6	1.0	*
No	384.7	38.6	1,072	97.2	0.81	389.4	39.2	574	98.6	0.86
Exited	*	*	6	0.5	*	*	*	2	0.3	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.10** Summary Statistics for MD HSA Biology: October 2008 Form

	Primary Form R				
	Mean	SD	N	%	Alpha
Overall	378.8	25.6	8,673	100.0	0.80
Gender					
Male	377.1	29.4	4,096	47.2	0.83
Female	380.4	20.9	4,380	50.5	0.77
Missing	376.3	31.6	197	2.3	0.88
Special Education					
Yes	372.3	26.5	779	9.0	0.79
No	379.5	25.4	7,753	89.4	0.80
Exited	*	*	33	0.4	*
Exited and placed in 504	*	*	7	0.1	*
504	371.9	25.5	101	1.2	0.80
Ethnicity					
American Indian	*	*	29	0.3	*
Asian/Pacific Islander	383.3	24.5	211	2.4	0.84
African American	377.1	24.9	5,704	65.8	0.77
White	382.4	27.6	1,653	19.1	0.83
Hispanic	382.2	24.1	768	8.9	0.82
Missing	378.3	29.5	308	3.6	0.86
Limited English Proficient					
Yes	381.2	25.5	347	4.0	0.83
No	378.6	25.6	8,256	95.2	0.80
Exited	381.9	24.7	70	0.8	0.76

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.11** Summary Statistics for MD HSA Biology: January 2009 Forms

	Primary Form A					Makeup Form B				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	401.1	39.1	13,906	100.0	0.94	383.5	36.0	1,137	100.0	0.91
Gender										
Male	400.6	41.0	6,886	49.5	0.95	382.5	40.0	541	47.6	0.93
Female	402.2	36.9	6,874	49.4	0.94	384.7	31.7	585	51.5	0.90
Missing	374.6	37.5	146	1.0	0.85	*	*	11	1.0	*
Special Education										
Yes	382.6	35.6	1,070	7.7	0.91	380.3	37.5	128	11.3	0.91
No	402.9	39.0	12,471	89.7	0.94	384.2	34.8	970	85.3	0.91
Exited	394.3	31.4	107	0.8	0.91	*	*	3	0.3	*
Exited and placed in 504	*	*	10	0.1	*	*	*	0	0.0	*
504	397.8	38.7	248	1.8	0.94	*	*	36	3.2	*
Ethnicity										
American Indian	395.5	43.1	62	0.4	0.94	*	*	4	0.4	*
Asian/Pacific Islander	411.4	41.2	354	2.5	0.96	*	*	13	1.1	*
African American	381.0	30.4	6,519	46.9	0.86	374.2	30.7	568	50.0	0.83
White	425.7	34.5	5,824	41.9	0.94	393.4	39.2	455	40.0	0.94
Hispanic	389.9	31.0	911	6.6	0.90	384.5	34.4	59	5.2	0.91
Missing	381.2	35.3	236	1.7	0.87	*	*	38	3.3	*
Limited English Proficient										
Yes	381.8	27.6	364	2.6	0.86	*	*	23	2.0	*
No	401.7	39.3	13,434	96.6	0.94	383.4	36.1	1,110	97.6	0.91
Exited	392.9	33.5	108	0.8	0.92	*	*	4	0.4	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.12** Summary Statistics for MD HSA Biology: April 2009 Form

	Primary Form S				
	Mean	SD	N	%	Alpha
Overall	369.4	36.1	1,690	100.0	0.86
Gender					
Male	366.8	39.0	809	47.9	0.86
Female	371.7	33.2	865	51.2	0.85
Missing	*	*	16	0.9	*
Special Education					
Yes	357.5	44.5	130	7.7	0.87
No	370.3	35.3	1,536	90.9	0.86
Exited	*	*	6	0.4	*
Exited and placed in 504	*	*	7	0.4	*
504	*	*	11	0.7	*
Ethnicity					
American Indian	*	*	6	0.4	*
Asian/Pacific Islander	*	*	47	2.8	*
African American	365.6	35.7	1,259	74.5	0.83
White	382.7	38.0	157	9.3	0.91
Hispanic	381.8	28.2	192	11.4	0.85
Missing	*	*	29	1.7	*
Limited English Proficient					
Yes	383.3	27.9	108	6.4	0.87
No	368.3	36.7	1,553	91.9	0.85
Exited	*	*	29	1.7	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.13** Summary Statistics for MD HSA Biology: May 2009 Forms

	Primary Forms C–H, J–N					Makeup 1 Form X					Makeup 2 Form Y				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	417.6	43.0	57,991	100.0	0.93	399.0	52.8	2,607	100.0	0.92	413.5	44.3	1,121	100.0	0.93
Gender															
Male	419.2	44.5	28,658	49.4	0.93	399.8	54.2	1,346	51.6	0.92	413.8	43.1	553	49.3	0.93
Female	416.2	41.4	29,199	50.4	0.92	398.5	51.4	1,221	46.8	0.92	413.3	45.4	558	49.8	0.93
Missing	394.5	58.8	134	0.2	0.94	*	*	40	1.5	*	*	*	10	0.9	*
Special Education															
Yes	389.5	51.3	3,483	6.0	0.90	371.4	60.0	177	6.8	0.88	*	*	42	3.7	*
No	419.6	41.7	53,293	91.9	0.93	401.5	51.5	2,364	90.7	0.92	415.5	42.5	1,065	95.0	0.93
Exited	406.9	48.0	206	0.4	0.92	*	*	6	0.2	*	*	*	2	0.2	*
Exited and placed in 504	411.0	42.0	263	0.5	0.91	*	*	15	0.6	*	*	*	3	0.3	*
504	413.0	44.2	746	1.3	0.92	*	*	45	1.7	*	*	*	9	0.8	*
Ethnicity															
American Indian	420.2	42.8	222	0.4	0.93	*	*	12	0.5	*	*	*	9	0.8	*
Asian/Pacific Islander	442.4	35.3	3,498	6.0	0.93	428.8	55.1	114	4.4	0.95	446.1	31.8	75	6.7	0.92
African American	399.3	43.7	23,577	40.7	0.89	384.0	50.5	1,258	48.3	0.87	394.0	45.4	461	41.1	0.89
White	432.9	34.6	25,707	44.3	0.92	419.6	45.8	959	36.8	0.93	427.4	36.2	511	45.6	0.92
Hispanic	408.2	44.4	4,729	8.2	0.91	385.2	54.9	200	7.7	0.88	408.1	42.3	51	4.5	0.91
Missing	402.4	57.6	258	0.4	0.95	373.8	55.8	64	2.5	0.84	*	*	14	1.2	*
Limited English Proficient															
Yes	388.7	51.8	1,228	2.1	0.89	*	*	31	1.2	*	*	*	11	1.0	*
No	418.3	42.6	56,256	97.0	0.93	399.5	52.6	2,563	98.3	0.92	413.6	44.3	1,110	99.0	0.93
Exited	410.1	43.2	507	0.9	0.91	*	*	13	0.5	*	*	*	0	0.0	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.14** Summary Statistics for MD HSA Biology: Summer 2009 Forms

	Primary 1 Form P					Primary 2 Form Q				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	371.4	42.4	683	100.0	0.68	379.1	49.4	336	100.0	0.85
Gender										
Male	370.0	44.6	342	50.1	0.68	376.6	47.2	181	53.9	0.82
Female	371.2	39.3	333	48.8	0.55	381.9	52.3	152	45.2	0.87
Missing	*	*	8	1.2	*	*	*	3	0.9	*
Special Education										
Yes	362.3	52.7	68	10.0	0.74	*	*	22	6.5	*
No	372.7	40.5	601	88.0	0.67	380.0	48.4	314	93.5	0.85
Exited	*	*	3	0.4	*	*	*	0	0.0	*
Exited and placed in 504	*	*	0	0.0	*	*	*	0	0.0	*
504	*	*	11	1.6	*	*	*	0	0.0	*
Ethnicity										
American Indian	*	*	4	0.6	*	*	*	5	1.5	*
Asian/Pacific Islander	*	*	9	1.3	*	*	*	11	3.3	*
African American	367.6	40.4	451	66.0	0.51	372.6	50.2	224	66.7	0.80
White	376.5	47.2	155	22.7	0.78	392.4	42.1	65	19.3	0.89
Hispanic	*	*	44	6.4	*	*	*	15	4.5	*
Missing	*	*	20	2.9	*	*	*	16	4.8	*
Limited English Proficient										
Yes	*	*	4	0.6	*	*	*	5	1.5	*
No	371.4	42.3	676	99.0	0.68	379.1	49.6	330	98.2	0.85
Exited	*	*	3	0.4	*	*	*	1	0.3	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.



**Table 6.15** Summary Statistics for MD HSA English: October 2008 Form

	Primary Form R				
	Mean	SD	N	%	Alpha
Overall	378.7	25.0	10,549	100.0	0.81
Gender					
Male	375.4	27.2	5,639	53.5	0.82
Female	382.6	21.2	4,628	43.9	0.78
Missing	377.6	28.6	282	2.7	0.85
Special Education					
Yes	368.3	27.5	1,017	9.6	0.80
No	379.9	24.4	9,351	88.6	0.80
Exited	379.9	17.5	54	0.5	0.68
Exited and placed in 504	*	*	11	0.1	*
504	372.7	29.1	116	1.1	0.83
Ethnicity					
American Indian	*	*	43	0.4	*
Asian/Pacific Islander	385.8	24.3	295	2.8	0.81
African American	377.9	24.0	6,358	60.3	0.79
White	379.2	27.1	2,339	22.2	0.83
Hispanic	380.3	23.7	998	9.5	0.80
Missing	378.4	28.3	516	4.9	0.84
Limited English Proficient					
Yes	380.5	23.5	443	4.2	0.83
No	378.4	25.0	9,964	94.5	0.80
Exited	391.6	23.1	142	1.3	0.85

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.16** Summary Statistics for MD HSA English: January 2009 Forms

	Primary Form A					Makeup Form B				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	389.3	32.2	14,848	100.0	0.91	373.0	32.4	1,141	100.0	0.88
Gender										
Male	384.1	32.8	7,911	53.3	0.91	367.8	35.6	606	53.1	0.87
Female	395.7	30.5	6,723	45.3	0.91	379.0	27.2	506	44.3	0.87
Missing	380.3	27.9	214	1.4	0.89	*	*	29	2.5	*
Special Education										
Yes	371.0	28.8	1,285	8.7	0.86	356.1	40.8	78	6.8	0.85
No	391.3	31.9	13,217	89.0	0.92	374.4	31.5	1,038	91.0	0.87
Exited	377.4	30.7	87	0.6	0.89	*	*	3	0.3	*
Exited and placed in 504	*	*	10	0.1	*	*	*	1	0.1	*
504	383.5	31.9	249	1.7	0.91	*	*	21	1.8	*
Ethnicity										
American Indian	380.1	34.7	73	0.5	0.90	*	*	6	0.5	*
Asian/Pacific Islander	393.9	34.2	408	2.7	0.92	*	*	16	1.4	*
African American	377.3	25.7	6,901	46.5	0.85	369.1	29.6	635	55.7	0.82
White	404.6	33.7	6,015	40.5	0.93	380.0	37.0	356	31.2	0.92
Hispanic	382.5	24.4	1,136	7.7	0.86	369.1	32.1	69	6.0	0.86
Missing	380.6	29.2	315	2.1	0.89	376.6	26.7	59	5.2	0.87
Limited English Proficient										
Yes	377.7	22.6	429	2.9	0.84	*	*	18	1.6	*
No	389.6	32.4	14,230	95.8	0.92	373.0	32.5	1,117	97.9	0.87
Exited	393.7	29.3	189	1.3	0.86	*	*	6	0.5	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.17** Summary Statistics for MD HSA English: April 2009 Form

	Primary Forms S				
	Mean	SD	N	%	Alpha
Overall	370.4	32.9	1,641	100.0	0.85
Gender					
Male	365.6	35.3	849	51.7	0.86
Female	375.7	29.2	750	45.7	0.83
Missing	*	*	42	2.6	*
Special Education					
Yes	357.6	38.3	125	7.6	0.86
No	371.5	32.2	1,493	91.0	0.85
Exited	*	*	4	0.2	*
Exited and placed in 504	*	*	6	0.4	*
504	*	*	13	0.8	*
Ethnicity					
American Indian	*	*	8	0.5	*
Asian/Pacific Islander	381.9	31.8	72	4.4	0.86
African American	367.2	33.5	1,114	67.9	0.84
White	371.9	31.9	163	9.9	0.86
Hispanic	380.3	27.0	235	14.3	0.83
Missing	*	*	49	3.0	*
Limited English Proficient					
Yes	381.4	25.2	176	10.7	0.83
No	368.6	33.5	1,421	86.6	0.85
Exited	*	*	44	2.7	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.18** Summary Statistics for MD HSA English: May 2009 Forms

	Primary Forms D–H, J–N					Makeup 1 Form X					Makeup 2 Form Y				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	408.2	34.6	57,638	100.0	0.92	393.6	40.5	3,005	100.0	0.92	403.2	39.8	1,076	100.0	0.93
Gender															
Male	403.8	36.0	28,805	50.0	0.92	387.4	42.1	1,550	51.6	0.90	396.3	41.1	554	51.5	0.90
Female	412.8	32.5	28,488	49.4	0.92	401.0	37.2	1,393	46.4	0.89	411.2	36.9	509	47.3	0.90
Missing	389.5	35.9	345	0.6	0.89	383.0	44.1	62	2.1	0.87	*	*	13	1.2	*
Special Education															
Yes	380.3	36.8	3,622	6.3	0.89	370.0	47.8	216	7.2	0.87	*	*	38	3.5	*
No	410.3	33.5	52,837	91.7	0.92	395.8	39.2	2,722	90.6	0.90	405.2	38.5	1,021	94.9	0.90
Exited	393.6	34.7	185	0.3	0.89	*	*	8	0.3	*	*	*	4	0.4	*
Exited and placed in 504	402.5	37.0	267	0.5	0.92	*	*	8	0.3	*	*	*	3	0.3	*
504	400.9	38.6	727	1.3	0.91	383.4	42.2	51	1.7	0.89	*	*	10	0.9	*
Ethnicity															
American Indian	407.1	32.9	227	0.4	0.91	*	*	19	0.6	*	*	*	9	0.8	*
Asian/Pacific Islander	421.9	32.6	3,371	5.8	0.91	416.2	34.0	150	5.0	0.90	426.8	40.7	64	5.9	0.89
African American	395.4	31.9	23,222	40.3	0.90	383.4	37.2	1,425	47.4	0.87	386.6	34.4	441	41.0	0.85
White	420.0	32.4	25,915	45.0	0.91	407.2	41.5	1,080	35.9	0.91	417.2	38.2	491	45.6	0.90
Hispanic	397.5	33.4	4,476	7.8	0.91	384.6	35.9	237	7.9	0.89	393.9	32.4	54	5.0	0.89
Missing	388.7	36.4	427	0.7	0.89	381.7	39.8	94	3.1	0.86	*	*	17	1.6	*
Limited English Proficient															
Yes	371.2	34.2	1,042	1.8	0.85	372.2	33.9	70	2.3	0.89	*	*	12	1.1	*
No	409.0	34.3	56,065	97.3	0.92	394.1	40.6	2,921	97.2	0.90	403.7	39.8	1,060	98.5	0.90
Exited	395.4	27.1	531	0.9	0.87	*	*	14	0.5	*	*	*	4	0.4	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.19** Summary Statistics for MD HSA English: Summer 2009 Forms

	Primary 1 Form P					Primary 2 Form Q				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	376.4	28.6	952	100.0	0.83	381.6	32.9	463	100.0	0.87
Gender										
Male	372.6	30.3	532	55.9	0.82	381.1	34.6	292	63.1	0.89
Female	381.7	23.7	375	39.4	0.82	383.0	29.1	167	36.1	0.84
Missing	*	*	45	4.7	*	*	*	4	0.9	*
Special Education										
Yes	367.6	36.0	82	8.6	0.84	*	*	24	5.2	*
No	377.2	27.7	861	90.4	0.82	382.9	32.0	435	94.0	0.87
Exited	*	*	0	0.0	*	*	*	0	0.0	*
Exited and placed in 504	*	*	0	0.0	*	*	*	0	0.0	*
504	*	*	9	0.9	*	*	*	4	0.9	*
Ethnicity										
American Indian	*	*	4	0.4	*	*	*	1	0.2	*
Asian/Pacific Islander	*	*	14	1.5	*	*	*	15	3.2	*
African American	374.3	27.8	613	64.4	0.80	380.1	31.7	286	61.8	0.86
White	379.4	30.3	181	19.0	0.88	384.7	36.1	103	22.2	0.89
Hispanic	379.1	30.8	77	8.1	0.82	*	*	29	6.3	*
Missing	381.9	26.8	63	6.6	0.80	*	*	29	6.3	*
Limited English Proficient										
Yes	*	*	13	1.4	*	*	*	7	1.5	*
No	376.6	28.3	933	98.0	0.83	381.6	33.1	455	98.3	0.87
Exited	*	*	6	0.6	*	*	*	1	0.2	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.20** Summary Statistics for MD HSA Government: October 2008 Form

	Primary Form R				
	Mean	SD	N	%	Alpha
Overall	373.9	29.8	8,764	100.0	0.85
Gender					
Male	372.7	32.7	4,361	49.8	0.87
Female	374.8	26.3	4,211	48.0	0.83
Missing	378.2	33.0	192	2.2	0.90
Special Education					
Yes	362.3	32.0	936	10.7	0.83
No	375.5	29.1	7,671	87.5	0.86
Exited	*	*	35	0.4	*
Exited and placed in 504	*	*	10	0.1	*
504	363.1	33.3	112	1.3	0.82
Ethnicity					
American Indian	*	*	43	0.5	*
Asian/Pacific Islander	378.1	30.4	192	2.2	0.87
African American	372.3	28.8	5,310	60.6	0.84
White	376.5	32.0	2,100	24.0	0.88
Hispanic	374.7	27.5	788	9.0	0.84
Missing	378.7	32.3	331	3.8	0.90
Limited English Proficient					
Yes	371.2	30.1	332	3.8	0.84
No	373.9	29.8	8,371	95.5	0.85
Exited	379.0	27.8	61	0.7	0.88

\* Statistics not reported for sample size less than 50 (N <50 ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.21** Summary Statistics for MD HSA Government: January 2009 Forms

	Primary Form A					Makeup Form B				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	397.9	37.9	16,716	100.0	0.94	379.6	36.5	1,168	100.0	0.92
Gender										
Male	397.8	39.7	8,433	50.4	0.95	378.6	39.5	609	52.1	0.93
Female	398.6	36.1	8,052	48.2	0.94	381.0	33.2	526	45.0	0.91
Missing	381.7	30.9	231	1.4	0.90	*	*	33	2.8	*
Special Education										
Yes	377.3	33.8	1,509	9.0	0.91	366.9	30.8	123	10.5	0.86
No	400.2	37.7	14,790	88.5	0.94	381.0	36.9	1,016	87.0	0.92
Exited	392.7	33.7	99	0.6	0.93	*	*	4	0.3	*
Exited and placed in 504	*	*	5	0.0	*	*	*	1	0.1	*
504	394.1	38.8	313	1.9	0.94	*	*	24	2.1	*
Ethnicity										
American Indian	389.1	35.9	81	0.5	0.93	*	*	10	0.9	*
Asian/Pacific Islander	412.6	44.9	437	2.6	0.96	*	*	23	2.0	*
African American	381.0	29.9	7,240	43.3	0.89	369.6	31.9	593	50.8	0.87
White	415.6	37.3	7,489	44.8	0.95	393.7	39.2	392	33.6	0.94
Hispanic	389.6	31.2	1,112	6.7	0.91	381.5	37.2	77	6.6	0.92
Missing	381.3	31.2	357	2.1	0.89	378.7	26.9	73	6.3	0.85
Limited English Proficient										
Yes	383.2	31.3	407	2.4	0.89	*	*	17	1.5	*
No	398.2	38.0	16,149	96.6	0.94	379.7	36.5	1,145	98.0	0.92
Exited	406.0	34.0	160	1.0	0.94	*	*	6	0.5	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.22** Summary Statistics for MD HSA Government: April 2009 Form

	Primary Form S				
	Mean	SD	N	%	Alpha
Overall	376.1	44.8	1,624	100.0	0.93
Gender					
Male	374.7	50.6	787	48.5	0.94
Female	377.5	38.6	820	50.5	0.92
Missing	*	*	17	1.0	*
Special Education					
Yes	357.2	39.6	110	6.8	0.89
No	377.8	44.6	1,489	91.7	0.93
Exited	*	*	6	0.4	*
Exited and placed in 504	*	*	5	0.3	*
504	*	*	14	0.9	*
Ethnicity					
American Indian	*	*	5	0.3	*
Asian/Pacific Islander	401.0	51.7	83	5.1	0.96
African American	366.6	40.4	1,062	65.4	0.90
White	407.1	56.4	213	13.1	0.96
Hispanic	382.0	31.5	228	14.0	0.89
Missing	*	*	33	2.0	*
Limited English Proficient					
Yes	378.4	30.8	160	9.9	0.87
No	375.3	45.9	1,426	87.8	0.94
Exited	*	*	38	2.3	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.



**Table 6.23** Summary Statistics for MD HSA Government: May 2009 Forms

	Primary Forms C–H, J–N					Makeup 1 Form X					Makeup 2 Form Y				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	415.6	40.4	57,529	100.0	0.94	397.5	45.3	2,867	100.0	0.94	410.2	43.3	1,116	100.0	0.94
Gender															
Male	416.4	42.6	28,395	49.4	0.94	395.7	48.2	1,443	50.3	0.94	409.0	45.4	564	50.5	0.95
Female	415.1	37.9	28,850	50.1	0.93	399.2	42.1	1,376	48.0	0.93	411.3	41.1	539	48.3	0.94
Missing	392.9	41.0	284	0.5	0.91	*	*	48	1.7	*	*	*	13	1.2	*
Special Education															
Yes	385.0	44.6	3,634	6.3	0.92	366.5	47.9	263	9.2	0.90	*	*	46	4.1	*
No	418.0	39.2	52,654	91.5	0.94	401.0	43.6	2,552	89.0	0.94	411.9	42.7	1,056	94.6	0.94
Exited	403.8	43.2	222	0.4	0.94	*	*	5	0.2	*	*	*	2	0.2	*
Exited and placed in 504	404.4	41.7	297	0.5	0.93	*	*	16	0.6	*	*	*	3	0.3	*
504	408.6	37.9	722	1.3	0.93	*	*	31	1.1	*	*	*	9	0.8	*
Ethnicity															
American Indian	411.2	43.2	231	0.4	0.93	*	*	15	0.5	*	*	*	5	0.4	*
Asian/Pacific Islander	437.8	34.6	3,423	6.0	0.93	429.8	41.1	118	4.1	0.94	443.0	31.3	84	7.5	0.93
African American	399.6	37.9	23,767	41.3	0.92	383.4	41.1	1,443	50.3	0.91	392.4	38.7	454	40.7	0.92
White	429.4	37.3	25,195	43.8	0.94	414.0	45.4	997	34.8	0.95	421.6	42.7	502	45.0	0.94
Hispanic	408.1	37.5	4,466	7.8	0.92	392.0	40.8	201	7.0	0.91	401.4	39.2	55	4.9	0.92
Missing	401.2	43.9	447	0.8	0.93	411.2	35.2	93	3.2	0.93	*	*	16	1.4	*
Limited English Proficient															
Yes	393.2	38.9	1,085	1.9	0.91	*	*	31	1.1	*	*	*	10	0.9	*
No	416.1	40.3	55,937	97.2	0.94	398.1	44.8	2,830	98.7	0.94	410.4	43.4	1,103	98.8	0.94
Exited	407.8	35.6	507	0.9	0.92	*	*	6	0.2	*	*	*	3	0.3	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.24** Summary Statistics for MD HSA Government: Summer 2009 Forms

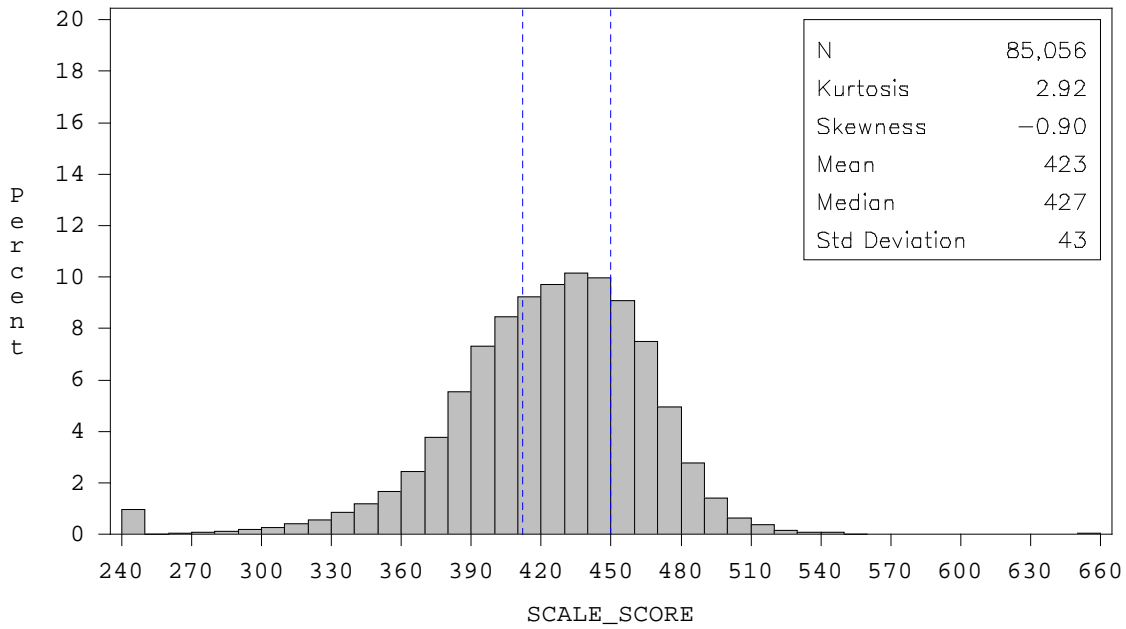
	Primary 1 Form P					Primary 2 Form Q				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	374.4	33.0	668	100.0	0.75	379.7	42.4	407	100.0	0.89
Gender										
Male	372.9	34.3	341	51.0	0.74	378.6	42.3	230	56.5	0.89
Female	376.7	30.7	319	47.8	0.75	381.7	41.7	173	42.5	0.90
Missing	*	*	8	1.2	*	*	*	4	1.0	*
Special Education										
Yes	361.3	40.4	75	11.2	0.78	*	*	24	5.9	*
No	376.1	31.8	584	87.4	0.75	381.3	41.2	376	92.4	0.89
Exited	*	*	1	0.1	*	*	*	3	0.7	*
Exited and laced in 504	*	*	0	0.0	*	*	*	1	0.2	*
504	*	*	8	1.2	*	*	*	3	0.7	*
Ethnicity										
American Indian	*	*	2	0.3	*	*	*	8	2.0	*
Asian/Pacific Islander	*	*	10	1.5	*	*	*	7	1.7	*
African American	371.2	28.6	458	68.6	0.67	376.1	45.5	240	59.0	0.90
White	386.1	36.6	132	19.8	0.85	384.8	31.1	111	27.3	0.87
Hispanic	*	*	49	7.3	*	*	*	17	4.2	*
Missing	*	*	17	2.5	*	*	*	24	5.9	*
Limited English Proficient										
Yes	*	*	9	1.3	*	*	*	4	1.0	*
No	374.4	33.1	657	98.4	0.75	379.6	42.6	402	98.8	0.89
Exited	*	*	2	0.3	*	*	*	1	0.2	*

\* Statistics not reported for sample size less than 50 (N < 50).

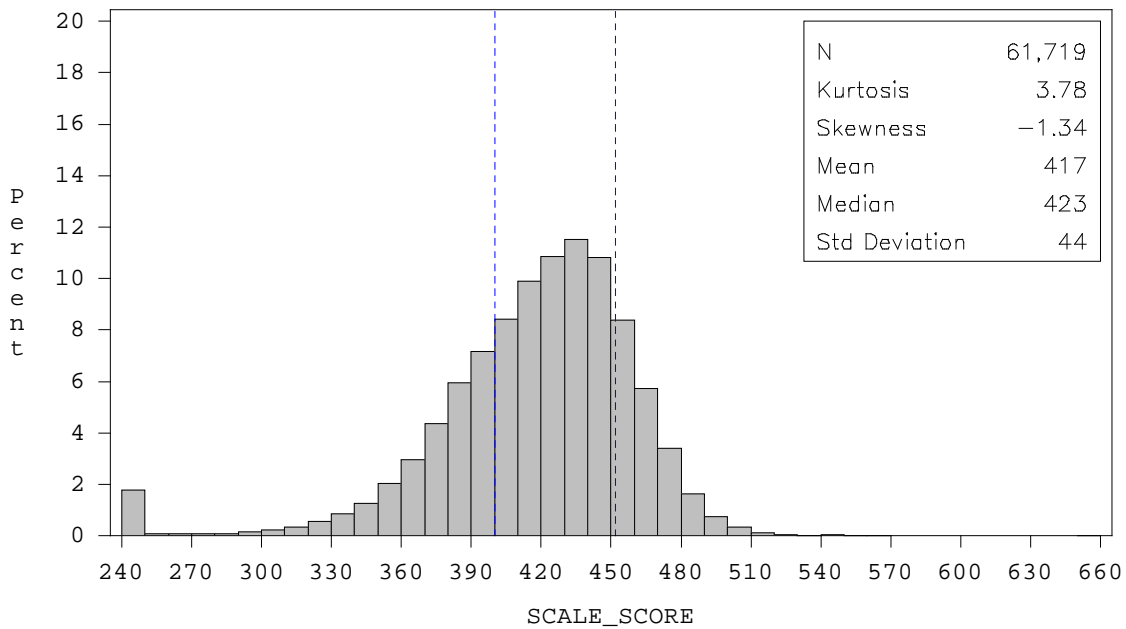
<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

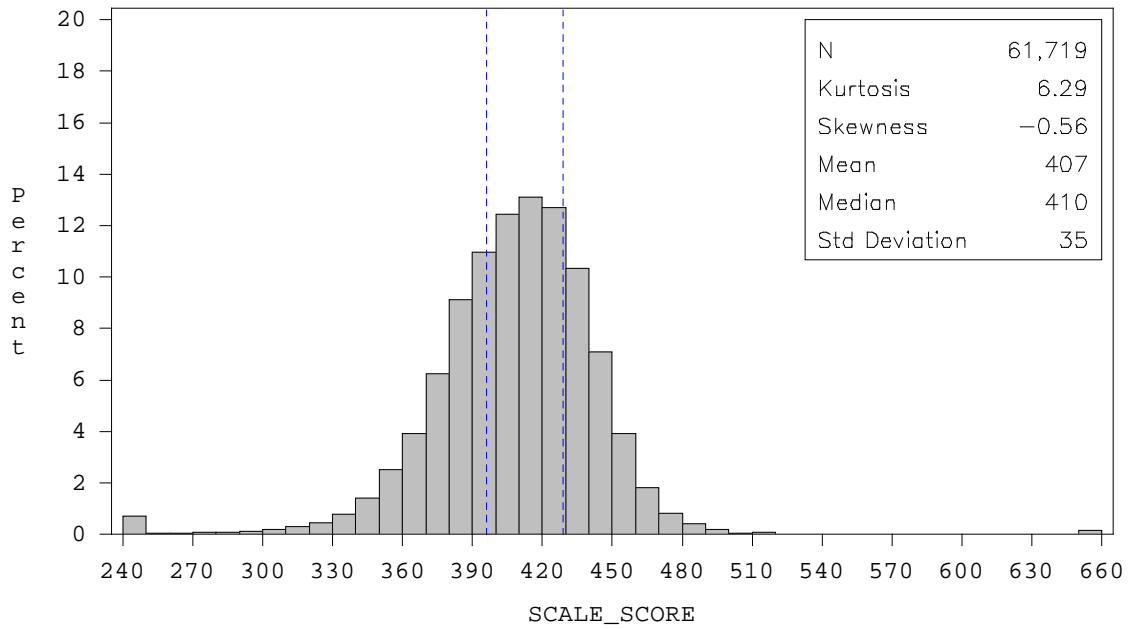
**Figure 6.1** Histogram of Total Scale Scores for MD HSA May 2009 Algebra



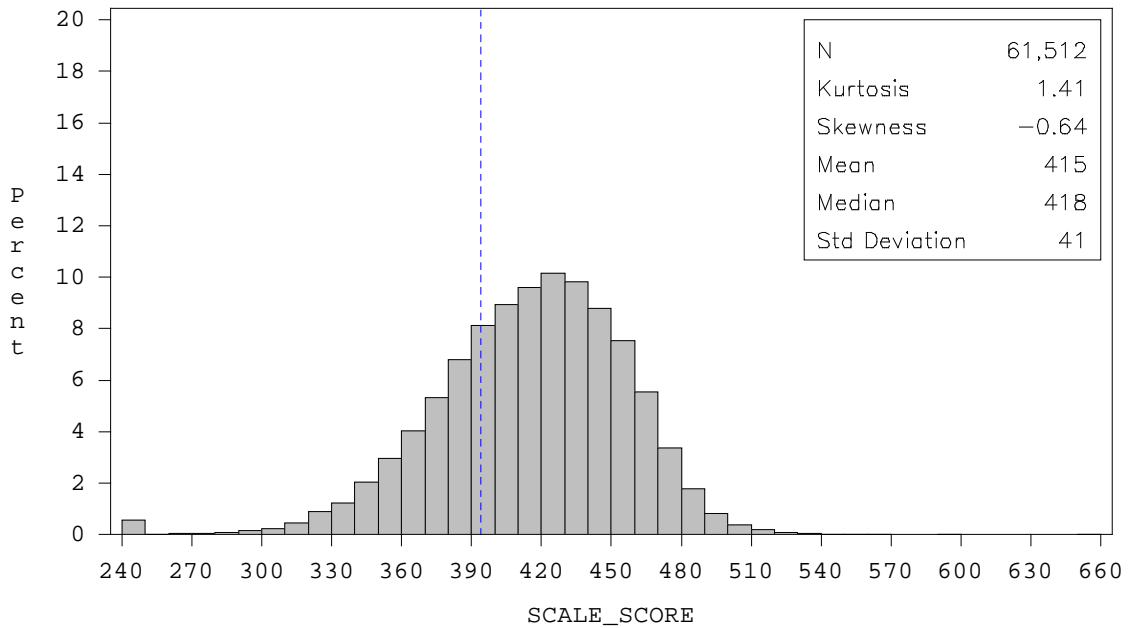
**Figure 6.2** Histogram of Total Scale Scores for MD HSA May 2009 Biology



**Figure 6.3** Histogram of Total Scale Scores for MD HSA May 2009 English



**Figure 6.4** Histogram of Total Scale Scores for MD HSA May 2009 Government



## **Demographic Characteristics**

Described in Tables 6.25 to 6.28 are the demographic characteristics of the students that took the October, January, April, May, and Summer MD HSAs. All demographic results are based on the final Research files delivered to MSDE.

The number of students participating in the May administration was greater than the number of students participating in the January administration. As a result, only one field test version was included in the January administration to ensure sufficient sample sizes for the analyses of the field test items.

Due to the small numbers of students participating in the October, April, and Summer administrations, those forms did not contain new field test items. Instead, previously administered field test sections were embedded in these Summer forms to ensure that the test length was comparable.

**Table 6.25** Demographic Information for MD HSA Algebra

	October Form		January Primary Form		January Makeup Form		April Form		May Primary Forms		May Makeup Forms		Summer Forms	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall	11,542	100.0	15,287	100.0	1,142	100.0	1,292	100.0	78,941	100.0	6,115	100.0	1,685	100.0
Gender														
Male	5,577	48.3	7,585	49.6	602	52.7	636	49.2	39,589	50.2	3,027	49.5	925	54.9
Female	5,687	49.3	7,427	48.6	524	45.9	629	48.7	39,002	49.4	2,999	49.0	725	43.0
Missing	278	2.4	275	1.8	16	1.4	27	2.1	350	0.4	89	1.5	35	2.1
Special Education														
Yes	1,038	9.0	1,529	10.0	105	9.2	112	8.7	5,091	6.4	354	5.8	128	7.6
No	10,302	89.3	13,405	87.7	1,007	88.2	1,162	89.9	71,965	91.2	5,650	92.4	1,531	90.9
Exited	56	0.5	72	0.5	10	0.9	5	0.4	397	0.5	17	0.3	3	0.2
Exited and placed in 504 <sup>a</sup>	15	0.1	11	0.1	0	0.0	7	0.5	337	0.4	22	0.4	1	0.1
504	131	1.1	270	1.8	20	1.8	6	0.5	1,151	1.5	72	1.2	22	1.3
Ethnicity														
American Indian	60	0.5	77	0.5	6	0.5	7	0.5	309	0.4	36	0.6	21	1.2
Asian/Pacific Islander	219	1.9	316	2.1	15	1.3	32	2.5	4,129	5.2	257	4.2	51	3.0
African American	7,429	64.4	9,010	58.9	699	61.2	976	75.5	35,415	44.9	3,270	53.5	1,088	64.6
White	2,362	20.5	4,181	27.4	315	27.6	101	7.8	30,802	39.0	1,808	29.6	325	19.3
Hispanic	1,034	9.0	1,233	8.1	66	5.8	136	10.5	7,809	9.9	583	9.5	108	6.4
Missing	438	3.8	470	3.1	41	3.6	40	3.1	477	0.6	161	2.6	92	5.5
Limited English Proficient														
Yes	487	4.2	581	3.8	13	1.1	59	4.6	2,845	3.6	139	2.3	31	1.8
No	10,968	95.0	14,595	95.5	1,128	98.8	1,211	93.7	75,158	95.2	5,928	96.9	1,646	97.7
Exited <sup>b</sup>	87	0.8	111	0.7	1	0.1	22	1.7	938	1.2	48	0.8	8	0.5

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.26** Demographic Information for MD HSA Biology

	October Form		January Primary Forms		January Makeup Form		April Form		May Primary Forms		May Makeup Forms		Summer Forms	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall	8,673	100.0	13,906	100.0	1,137	100.0	1,690	100.0	57,991	100.0	3,728	100.0	1,019	100.0
Gender														
Male	4,096	47.2	6,886	49.5	541	47.6	809	47.9	28,658	49.4	1,899	50.9	523	51.3
Female	4,380	50.5	6,874	49.4	585	51.5	865	51.2	29,199	50.4	1,779	47.7	485	47.6
Missing	197	2.3	146	1.0	11	1.0	16	0.9	134	0.2	50	1.3	11	1.1
Special Education														
Yes	779	9.0	1,070	7.7	128	11.3	130	7.7	3,483	6.0	219	5.9	90	8.8
No	7,753	89.4	12,471	89.7	970	85.3	1,536	90.9	53,293	91.9	3,429	92.0	915	89.8
Exited	33	0.4	107	0.8	3	0.3	6	0.4	206	0.4	8	0.2	3	0.3
Exited and placed in 504 <sup>a</sup>	7	0.1	10	0.1	0	0.0	7	0.4	263	0.5	18	0.5	0	0.0
504	101	1.2	248	1.8	36	3.2	11	0.7	746	1.3	54	1.4	11	1.1
Ethnicity														
American Indian	29	0.3	62	0.4	4	0.4	6	0.4	222	0.4	21	0.6	9	0.9
Asian/Pacific Islander	211	2.4	354	2.5	13	1.1	47	2.8	3,498	6.0	189	5.1	20	2.0
African American	5,704	65.8	6,519	46.9	568	50.0	1,259	74.5	23,577	40.7	1,719	46.1	675	66.2
White	1,653	19.1	5,824	41.9	455	40.0	157	9.3	25,707	44.3	1,470	39.4	220	21.6
Hispanic	768	8.9	911	6.6	59	5.2	192	11.4	4,729	8.2	251	6.7	59	5.8
Missing	308	3.6	236	1.7	38	3.3	29	1.7	258	0.4	78	2.1	36	3.5
Limited English Proficient														
Yes	347	4.0	364	2.6	23	2.0	108	6.4	1,228	2.1	42	1.1	9	0.9
No	8,256	95.2	13,434	96.6	1,110	97.6	1,553	91.9	56,256	97.0	3,673	98.5	1,006	98.7
Exited <sup>b</sup>	70	0.8	108	0.8	4	0.4	29	1.7	507	0.9	13	0.3	4	0.4

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 6.27** Demographic Information for MD HSA English

	October Form		January Primary Form		January Makeup Form		April Form		May Primary Forms		May Makeup Forms		Summer Forms	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall	10,549	100.0	14,848	100.0	1,141	100.0	1,641	100.0	57,638	100.0	4,081	100.0	1,415	100.0
Gender														
Male	5,639	53.5	7,911	53.3	606	53.1	849	51.7	28,805	50.0	2,104	51.6	824	58.2
Female	4,628	43.9	6,723	45.3	506	44.3	750	45.7	28,488	49.4	1,902	46.6	542	38.3
Missing	282	2.7	214	1.4	29	2.5	42	2.6	345	0.6	75	1.8	49	3.5
Special Education														
Yes	1,017	9.6	1,285	8.7	78	6.8	125	7.6	3,622	6.3	254	6.2	106	7.5
No	9,351	88.6	13,217	89.0	1,038	91.0	1,493	91.0	52,837	91.7	3,743	91.7	1,296	91.6
Exited	54	0.5	87	0.6	3	0.3	4	0.2	185	0.3	12	0.3	0	0.0
Exited and placed in 504 <sup>a</sup>	11	0.1	10	0.1	1	0.1	6	0.4	267	0.5	11	0.3	0	0.0
504	116	1.1	249	1.7	21	1.8	13	0.8	727	1.3	61	1.5	13	0.9
Ethnicity														
American Indian	43	0.4	73	0.5	6	0.5	8	0.5	227	0.4	28	0.7	5	0.4
Asian/Pacific Islander	295	2.8	408	2.7	16	1.4	72	4.4	3,371	5.8	214	5.2	29	2.0
African American	6,358	60.3	6,901	46.5	635	55.7	1,114	67.9	23,222	40.3	1,866	45.7	899	63.5
White	2,339	22.2	6,015	40.5	356	31.2	163	9.9	25,915	45.0	1,571	38.5	284	20.1
Hispanic	998	9.5	1,136	7.7	69	6.0	235	14.3	4,476	7.8	291	7.1	106	7.5
Missing	516	4.9	315	2.1	59	5.2	49	3.0	427	0.7	111	2.7	92	6.5
Limited English Proficient														
Yes	443	4.2	429	2.9	18	1.6	176	10.7	1,042	1.8	82	2.0	20	1.4
No	9,964	94.5	14,230	95.8	1,117	97.9	1,421	86.6	56,065	97.3	3,981	97.5	1,388	98.1
Exited <sup>b</sup>	142	1.3	189	1.3	6	0.5	44	2.7	531	0.9	18	0.4	7	0.5

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.



**Table 6.28** Demographic Information for MD HSA Government

	October Form		January Primary Form		January Makeup Form		April Form		May Primary Forms		May Makeup Forms		Summer Forms	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall	8,764	100.0	16,716	100.0	1,168	100.0	1,624	100.0	57,529	100.0	3,983	100.0	1,075	100.0
Gender														
Male	4,361	49.8	8,433	50.4	609	52.1	787	48.5	28,395	49.4	2,007	50.4	571	53.1
Female	4,211	48.0	8,052	48.2	526	45.0	820	50.5	28,850	50.1	1,915	48.1	492	45.8
Missing	192	2.2	231	1.4	33	2.8	17	1.0	284	0.5	61	1.5	12	1.1
Special Education														
Yes	936	10.7	1,509	9.0	123	10.5	110	6.8	3,634	6.3	309	7.8	99	9.2
No	7,671	87.5	14,790	88.5	1,016	87.0	1,489	91.7	52,654	91.5	3,608	90.6	960	89.3
Exited	35	0.4	99	0.6	4	0.3	6	0.4	222	0.4	7	0.2	4	0.4
Exited and placed in 504 <sup>a</sup>	10	0.1	5	0.0	1	0.1	5	0.3	297	0.5	19	0.5	1	0.1
504	112	1.3	313	1.9	24	2.1	14	0.9	722	1.3	40	1.0	11	1.0
Ethnicity														
American Indian	43	0.5	81	0.5	10	0.9	5	0.3	231	0.4	20	0.5	10	0.9
Asian/Pacific Islander	192	2.2	437	2.6	23	2.0	83	5.1	3,423	6.0	202	5.1	17	1.6
African American	5,310	60.6	7,240	43.3	593	50.8	1,062	65.4	23,767	41.3	1,897	47.6	698	64.9
White	2,100	24.0	7,489	44.8	392	33.6	213	13.1	25,195	43.8	1,499	37.6	243	22.6
Hispanic	788	9.0	1,112	6.7	77	6.6	228	14.0	4,466	7.8	256	6.4	66	6.1
Missing	331	3.8	357	2.1	73	6.3	33	2.0	447	0.8	109	2.7	41	3.8
Limited English Proficient														
Yes	332	3.8	407	2.4	17	1.5	160	9.9	1,085	1.9	41	1.0	13	1.2
No	8,371	95.5	16,149	96.6	1,145	98.0	1,426	87.8	55,937	97.2	3,933	98.7	1,059	98.5
Exited <sup>b</sup>	61	0.7	160	1.0	6	0.5	38	2.3	507	0.9	9	0.2	3	0.3

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

## Section 7. Field Test Analyses

Following the receipt of the final score file from Measurement Incorporated and Pearson for the January administration and from Pearson for the May administration, the field test analyses for SR and SPR items from January and May were completed. The analyses consisted of four components: classical item analyses, differential item functioning (DIF), calibration, and scaling. All the analyses were completed using *GENASYS*, an ETS proprietary software program. The analysis procedures for each component are described in detail below. All valid records available were used as samples for the analyses, including those for students learning English as a second language, students with IEP or 504 plans, and students receiving accommodations. Only records invalidated by the test administrator and records with no item responses to the first five items were excluded from the analysis sample.

### Classical Item Analyses

Classical item analyses involve computing a set of statistics based on classical test theory for every item in each form. The statistics provide key information about the quality of the items from an empirical perspective. The statistics estimated for the HSA field test items, and associated criteria used to flag items for the content specialists' review, are described below.

Classical item difficulty (“p-value”): This statistic indicates the mean item score expressed as a proportion of the maximum obtainable item score. For SR and SPR items, it is equivalent to the proportion of examinees in the sample that answered the item correctly. Desired p-values generally fall within the range of 0.25 to 0.90. Occasionally, items that fall outside this range can be justified for inclusion in an item bank based upon the quality and educational importance of the item content or the ability to measure students with very high or low achievement, especially if the students have not yet received instruction in the content.

Item-total correlation of the correct response option for SR and SPR items: This statistic describes the relationship between performance on the specific item and performance on the total test, including the item under study. It is sometimes referred to as a discrimination index. For SR and SPR items, the item-total correlation is the point-biserial correlation. Values less than 0.15 were flagged for a weaker than desired relationship and receive careful consideration by ETS staff and MSDE before including them on future forms. Items with negative correlations can indicate there are serious problems with the item content (e.g., multiple correct answers, unusually complex content), there is an incorrect key, or students have not been taught the content.

Proportion of students choosing each response option (SR items): This statistic indicates the percent of examinees selecting each answer choice, or option. Options not selected by any students or selected by a very low proportion of students indicate problems with plausibility of the option. Items that do not have all answer options functioning may be discarded or revised and field tested again.

Point-biserial correlation of incorrect response option (SR items) with the total raw score: These statistics describe the relationship between selecting an incorrect response option for a specific item and performance on the total test, including the item under study. Typically, the correlation between an incorrect answer and total test performance is weak or negative. Values are typically compared and contrasted with the discrimination index. When the magnitude of these point-biserial correlations for the incorrect answer is stronger relative to the correct answer, the item will be carefully reviewed for content-related problems. Alternatively, positive point-biserial correlations on incorrect options may indicate that students have not had sufficient opportunity to learn the material.

Percent of students omitting an item: This statistic is useful for identifying problems with test features, such as testing time and item/test layout. Typically, it is assumed that if students have an adequate amount of testing time, 95 percent should attempt to answer each question. When a pattern of omit percentages exceeds 5 percent for a series of items at the end of a timed section, this may indicate that there was insufficient time for students to complete all items. For individual items, if the omit percentage is greater than 5 percent for a single SR or SPR item, this could be an indication of an item/test layout problem. For example, students might accidentally skip an item that follows a lengthy stem.

In addition, a series of flags was created to identify items with extreme values. Flagged items were subject to additional scrutiny prior to the inclusion of the items in the final calibrations. The following flagging criteria were applied to all items tested in the 2009 assessments:

- *Difficulty flag:* P-values less than 0.25 or greater than 0.90.
- *Discrimination flag:* Item-total correlation less than 0.15.
- *Distractor flag:* SR point-biserial correlation positive for incorrect option.
- *Omit flag:* Percent omitted is greater than 5 for SR and SPR items.

Distributions of p-values and item-total correlations for the field test items administered in January 2009 are shown in Tables 7.1 and 7.2, respectively. Corresponding results for the field test items administered in May 2009 are shown in Tables 7.3 and 7.4, respectively.

Following the classical item analyses, items with poor item statistics and items that were not scored as per MSDE's instructions were removed from further analyses (see Table 7.5). These items have been identified for revision and possible additional field testing. Table 7.6 presents the number of items that were retained for further analyses and evaluation after being flagged for statistical reasons, including extreme p-values, low item-total correlations, and/or high omits rates. Calibration results indicated the items were estimated reasonably, and therefore they were not removed from scaling.

**Table 7.1** Distribution of P-Values for the MD HSA January 2009 Field Test Items

P-Value	Percentage and Number of Items							
	Algebra <sup>a</sup>		Biology		English		Government	
	%	N	%	N	%	N	%	N
$P < 0.25$	20	3	3	1	5	1	0	0
$0.25 \leq P < 0.35$	27	4	3	1	14	3	10	3
$0.35 \leq P < 0.45$	27	4	41	12	18	4	28	8
$0.45 \leq P < 0.55$	13	2	21	6	18	4	24	7
$0.55 \leq P < 0.65$	7	1	14	4	27	6	34	10
$0.65 \leq P < 0.75$	0	0	17	5	14	3	3	1
$0.75 \leq P < 0.85$	7	1	0	0	0	0	0	0
$P \geq 0.85$	0	0	0	0	5	1	0	0
Descriptive Statistics								
N Items	15		29		22		29	
Mean	0.36		0.48		0.51		0.49	
SD	0.16		0.14		0.17		0.11	
Min	0.08		0.22		0.22		0.26	
Max	0.75		0.72		0.88		0.67	

<sup>a</sup>SPR items included**Table 7.2** Distribution of Item-Total Correlations for the MD HSA January 2009 Field Test Items

Correlation	Percentage and Number of Items							
	Algebra <sup>a</sup>		Biology		English		Government	
	%	N	%	N	%	N	%	N
$R < 0.15$	20	3	0	0	5	1	0	0
$0.15 \leq R < 0.25$	7	1	7	2	18	4	17	5
$0.25 \leq R < 0.35$	40	6	17	5	55	12	31	9
$0.35 \leq R < 0.45$	33	5	45	13	18	4	24	7
$0.45 \leq R < 0.55$	0	0	31	9	5	1	24	7
$0.55 \leq R < 0.65$	0	0	0	0	0	0	3	1
$0.65 \leq R < 0.75$	0	0	0	0	0	0	0.0	0
$R \geq 0.75$	0	0	0	0	0	0	0.0	0
Descriptive Statistics								
N Items	15		29		22		29	
Mean	0.28		0.40		0.30		0.37	
SD	0.11		0.09		0.08		0.11	
Min	0.10		0.18		0.13		0.17	
Max	0.42		0.52		0.45		0.56	

<sup>a</sup>SPR items included

**Table 7.3** Distribution of P-Values for the MD HSA May 2009 Field Test Items

P-Value	Percentage and Number of Items							
	Algebra <sup>a</sup>		Biology		English		Government	
	%	N	%	N	%	N	%	N
P < 0.25	4	7	1	3	1	3	3	7
0.25 ≤ P < 0.35	9	15	7	16	5	15	6	17
0.35 ≤ P < 0.45	22	38	11	28	10	32	11	30
0.45 ≤ P < 0.55	19	33	20	48	14	47	16	42
0.55 ≤ P < 0.65	22	38	26	64	19	62	19	51
0.65 ≤ P < 0.75	14	25	19	47	24	78	23	60
0.75 ≤ P < 0.85	8	14	9	22	21	69	13	34
P ≥ 0.85 <sup>b</sup>	2	4	7	18	7	22	9	25
Descriptive Statistics								
N Items	174		246		328		266	
Mean	0.53		0.59		0.63		0.60	
SD	0.16		0.16		0.16		0.18	
Min	0.18		0.21		0.16		0.11	
Max	0.90		0.95		0.95		0.94	

<sup>a</sup> SPR items included; <sup>b</sup> P-value > 0.90: 7 Biology , 4 English, and 3 Government items

**Table 7.4** Distribution of Item-Total Correlations for the MD HSA May 2009 Field Test Items

Correlation	Percentage and Number of Items							
	Algebra <sup>a</sup>		Biology		English		Government	
	%	N	%	N	%	N	%	N
R < 0.15	2	3	2	5	4	12	5	12
0.15 ≤ R < 0.25	5	9	10	25	11	37	9	25
0.25 ≤ R < 0.35	15	26	26	63	29	94	18	47
0.35 ≤ R < 0.45	33	57	38	93	42	138	43	114
0.45 ≤ R < 0.55	30	53	24	58	14	47	25	66
0.55 ≤ R < 0.65	14	24	1	2	0	0	1	2
0.65 ≤ R < 0.75	1	2	0	0	0	0	0	0
R ≥ 0.75	0	0	0	0	0	0	0	0
Descriptive Statistics								
N Items	174		246		328		266	
Mean	0.43		0.37		0.35		0.38	
SD	0.12		0.10		0.10		0.11	
Min	0.10		0.08		0.08		0.08	
Max	0.67		0.58		0.54		0.59	

<sup>a</sup> SPR items included

**Table 7.5 MD HSA 2009 Field Test Items Excluded from Calibration**

Administration	Content	ItemID	Form	Sequence	Response Type	Reason
January	Biology	79501	A, B	18	SR	R_ITT = -0.02
	English	108772	A	55	SR	Faulty item; MSDE approved item be suppressed in IRT
	English	251242	A, B	22	SR	Faulty item; MSDE approved item be suppressed in IRT
	English	251243	A, B	23	SR	Faulty item; MSDE approved item be suppressed in IRT
	English	251244	A, B	24	SR	Faulty item; MSDE approved item be suppressed in IRT
	Government	302865	A, B	63	SR	R_ITT = 0.04
May	Algebra	282463	H	63	SR	R_ITT = 0.01
	Algebra	268716	J	15	SR	R_ITT = 0.05
	Biology	297528	D	89	SR	R_ITT = -0.19
	Biology	271125	E	44	SR	R_ITT = -0.14
	Biology	263127	K	42	SR	R_ITT = -0.03
	Biology	256519	M	74	SR	R_ITT = 0.04
	Biology	264041	N	73	SR	R_ITT = -0.05
	English	288639	C	21	SR	R_ITT = 0.05
	English	281409	E	40	SR	R_ITT = 0.06
	English	261667	F	88	SR	R_ITT = -0.04
	English	281757	H	6	SR	R_ITT = 0.04
	English	264668	H	18	SR	R_ITT = -0.15
	English	264669	H	19	SR	R_ITT = 0.06
	English	281386	H	84	SR	R_ITT = 0.04
	English	285440	J	88	SR	R_ITT = -0.00
	English	288647	K	40	SR	R_ITT = -0.05
	English	288672	L	22	SR	R_ITT = 0.01
	English	285495	M	89	SR	R_ITT = 0.07
	English	281404	N	22	SR	R_ITT = 0.05
	English	285617	N	39	SR	R_ITT = -0.10
	Government	297121	C	104	SR	R_ITT = -0.08
	Government	296522	D	69	SR	R_ITT = 0.06
	Government	79700	D	80	SR	R_ITT = 0.06
Government	263975	G	60	SR	R_ITT = -0.01	
Government	283278	H	104	SR	R_ITT = 0.04	
Government	297436	J	52	SR	R_ITT = 0.03	
Government	296486	M	52	SR	R_ITT = 0.02	
Government	263974	M	68	SR	R_ITT = -0.07	
Government	279834	N	6	SR	R_ITT = 0.05	

**Table 7.6 MD HSA 2009 Field Test Items with Statistical Flags Retained in Calibration**

	P- Value < 0.25	P- Value > 0.90	R_ITT < 0.15	Distractor Pt-Bis > 0	Omit Rate > 5%	C- Level DIF	Missing Response <sup>a</sup>	Total Flags	N Items <sup>b</sup>
January									
Algebra	3	0	3	2	6	1	0	15	10
Biology	1	0	0	1	0	1	0	3	3
English	1	0	1	1	0	2	0	5	4
Government	0	0	0	3	0	0	0	3	3
May									
Algebra	7	0	3	14	14	5	0	43	33
Biology	3	7	5	22	0	3	0	40	33
English	3	4	12	42	0	13	0	74	60
Government	7	3	12	32	0	12	0	66	47

<sup>a</sup> SR option with 0 students; <sup>b</sup> Represents total number of unique items.

### Differential Item Functioning

Following the classical item analyses, differential item functioning analyses were completed. One goal of test development is to assemble a set of items that provides an estimate of student ability that is as fair and accurate as possible for all groups within the population. DIF statistics are used to identify items whereby identifiable groups of students with the same underlying level of ability (e.g., females, African Americans, Hispanics) have different probabilities of answering correctly. If the item is more difficult for an identifiable subgroup, the item may be measuring something different from the intended construct. However, it is important to recognize that DIF-flagged items might be related to actual differences in relevant knowledge or skill (item impact) or statistical Type I error. A subsequent review by MSDE and ETS content experts is conducted to investigate the source and meaning of evident differences.

ETS used the Mantel-Haenszel DIF detection method. As part of the Mantel-Haenszel procedure, the statistic described by Holland & Thayer (1988), known as MH D-DIF, was used<sup>8</sup>. This statistic is expressed as the difference between the focal and reference group performance on an

<sup>8</sup> The formula for the estimate of constant odds ratio is

$$\hat{\alpha}_{MH} = \frac{\left( \frac{\sum_m R_{fm} W_{rm}}{N_m} \right)}{\left( \frac{\sum_m R_{rm} W_{fm}}{N_m} \right)},$$

where

- $R_{fm}$  = number in focal group at ability level m answering the item right,
- $W_{fm}$  = number in focal group at ability level m answering the item wrong,
- $R_{rm}$  = number in reference group at ability level m answering the item right,
- $W_{rm}$  = number in reference group at ability level m answering the item wrong,
- $N_m$  = total group at ability level m.

This can then be used in the following formula (Holland & Thayer, 1985):

$$MH\ D - DIF = -2.35 \ln[\alpha_{MH}].$$

item after conditioning on total test score. Negative MH D-DIF statistics favor the reference group, and positive values favor the focal group. The classification logic used for flagging items is based on a combination of absolute differences and significance testing. Items that are not significantly different based on the MH D-DIF ( $p > 0.05$ ) are considered to have similar performance between the two studied groups and to be functioning appropriately. For items where the statistical test indicates significant differences ( $p < 0.05$ ), the effect size is used to determine the direction and severity of the DIF. The male and white groups were treated as the reference groups for gender and ethnicity, respectively; the female and other race and ethnic groups were considered the focal groups.

Based on their DIF statistics, items are classified into one of three categories and assigned values of A, B, or C. Category A items contain negligible DIF, Category B items exhibit slight or moderate DIF, and Category C items have moderate to large DIF. Negative values imply that, conditional on the matching variable, the focal group has a lower mean item score than the reference group. In contrast, a positive value implies that, conditional on the matching variable, the reference group has a lower mean item score than the focal group.

Among the items field-tested in January, one Algebra item, one Biology item, and two English items were flagged for C-level DIF. Among the items field tested in May, five Algebra items, three Biology items, thirteen English items, and twelve Government items were flagged for C-level DIF. These flags were recorded in the item bank. The flagged items will be reviewed by ETS and MSDE content specialists as well as by ETS senior staff to determine their availability for future use.

### **IRT Calibration and Scaling**

One purpose of item calibration and scaling is to create a common scale for expressing the difficulty estimates of all the items across all versions of a test. The resulting scale has a mean score of 0 and a standard deviation of 1. This scale is often referred to as the “theta” metric and is not used for reporting purposes because the values typically range from  $-3$  to  $+3$ . Therefore, the scale is usually transformed to a reporting scale (also known as a scale score), which can be more meaningfully interpreted by students, teachers, and other stakeholders.

As noted previously, the IRT model used to calibrate the MD HSA test items was the 3-parameter logistic (3PL) model. Item response theory expresses the probability that a student will achieve a certain score on an item (such as correct or incorrect) as a function of the item’s statistical properties and the ability level (or proficiency level) of the student.

The 3PL model relates the probability that a person with ability  $\theta$  will respond correctly to item  $i$  as follows:

$$P_i(\theta) = c_i + \frac{1 - c_i}{1 + e^{-1.7a_i(\theta - b_i)}},$$



where

- $a_i$  is the slope parameter of item  $i$ , characterizing its discrimination;
- $b_i$  is the location parameter of item  $i$ , characterizing its difficulty; and
- $c_i$  is the lower asymptote parameter of item  $i$ , reflecting the chance that students with very low proficiency will select the correct answer, sometimes called the “pseudo-guessing” level.

A proprietary version of the *PARSCALE* computer program (Muraki & Bock, 1995) was used for all item calibration work. The resulting calibrations were then scaled to the bank estimates using Stocking and Lord’s (1983) test characteristic curve (TCC) method and the operational items as the anchor set.

The calibration and equating process is outlined in the steps below.

1. For each test, calibrate all items using a sparse matrix design that places all items on a common scale. Essentially, this means that the data were set up using the following format. In the diagram below, X’s represent items and spaces indicate missing data. For example, items included on version 2 but not on version 1, 3, 4, or 5 were treated as “not reached” for the purposes of the analyses and are denoted as “missing” in the diagram below.

Common	Unique 1	Unique 2	Unique 3	Unique 4	Unique 5
XXXXXXXX	XXXXXXXX				
XXXXXXXX		XXXXXXXX			
XXXXXXXX			XXXXXXXX		
XXXXXXXX				XXXXXXXX	
XXXXXXXX					XXXXXXXX

2. Once the items have been calibrated, results are reviewed to determine if any items failed to calibrate.
3. After the final calibration parameters were obtained, the items were then linked to the bank scale using the TCC method. Specifically, the banked parameters of the primary form operational items were used to place the field test items onto the operational reporting scale.

Once the items were calibrated and placed onto the operational scale, they were loaded into the item bank. Items that were not calibrated were listed as unavailable (see Table 7.5).

## CHAPTER II: MODIFIED HIGH SCHOOL ASSESSMENTS

### Section 8. Introduction

The Maryland Modified High School Assessments (MD Mod-HSAs) were introduced in May 2008. These assessments are a modified version of the MD HSAs designed for special education students with Individualized Education Programs (IEPs). Eligibility to take the MD Mod-HSAs is determined by a student's IEP and evidence of progress in learning course content.

The MD Mod-HSAs consist of end-of-course tests in Algebra/Data Analysis, Biology, English, and Government and assess the same skills as the MD HSAs. The MD Mod-HSAs may be taken in place of one or more of the MD HSAs.

Students who entered ninth grade in the 2005–2006 school year or subsequent school years are required to earn satisfactory scores on all four content areas measured by the MD Mod-HSAs or HSAs in order to earn a Maryland High School Diploma.<sup>9</sup> Results from the Algebra, Biology, and English administrations are used in the Maryland State Department of Education (MSDE) Adequate Yearly Progress (AYP) reports, required under the No Child Left Behind (NCLB) Act. Information on the interpretation of scores is provided to students, parents, schools, and other stakeholders via the MSDE website.

MD Mod-HSA items were derived from banked MD HSA items, but the question format is simplified. For example, the MD Mod-HSAs contain selected response (SR) items that have three answer options instead of four, and the items have a reduced reading load and simplified graphics. All items are based on content outlined in Maryland's Core Learning Goals (CLGs).<sup>10</sup>

MD Mod-HSA forms are administered both online and in paper format. The goal is eventually to have most students test online, with only the special Braille, Kurzweil, and large-print forms administered on paper.

Detailed information regarding the development of MD Mod-HSA forms as well as descriptions of the methods used to align them to the MD HSA reporting scale are provided in the Maryland Modified High School Assessment 2008 Technical Report.<sup>11</sup>

This chapter of the 2009 technical report provides information about the October 2008 administration and the January, April, May, and Summer (July/August) 2009 administrations of the MD Mod-HSAs.

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<sup>9</sup> More information on state graduation requirements is available on the Maryland State Department of Education website at <http://www.marylandpublicschools.org/MSDE/testing/hsa/>.

<sup>10</sup> The MD HSA Core Learning Goals documents can be found on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

<sup>11</sup> The report is available at <http://marylandpublicschools.org/MSDE/divisions/planningresultstest/HSA+Technical+Reports.htm>.

The item response model used to calibrate the items in the MD Mod-HSAs was the three-parameter logistic (3PL) model. Currently, this model is used to generate both total test scores and subscores. In the past, the total test scores were generated using item-pattern (IP) scoring, and the subscores were created using raw score (RS) to scale score (SS) conversion tables. Beginning with the May 2009 administration, subscores have been calculated using IP scoring instead of RS to SS tables. This change was implemented to provide consistency in scoring between total test scores and subscores and to mitigate possible confusion due to the use of different scoring methods within the MD Mod-HSAs. Total test results in the scale score metric are reported to students. Subscores are not reported to students but are aggregated at the classroom level to provide teachers and administrators with information about student performance in each of the subscore categories.

The MD Mod-HSA forms are constructed using pre-equated item parameters. When pre-equated item parameters are used, the parameters are not estimated following an administration; instead, existing bank parameters are used to produce student scores. Using this approach, scores can be calculated and assigned to students immediately after their answer documents have been processed.

All technical support and analyses were carried out in accordance with both the *ETS Standards for Quality and Fairness* (2002) and the *Standards for Educational and Psychological Testing*, issued jointly by the American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999).

This chapter of the technical report consists of five other sections and one appendix. Section 9 describes the procedures used for test construction and administration. Section 10 discusses the validity of the MD Mod-HSAs. Section 11 describes the scoring procedures and score types. Section 12 describes the results of analyses of test reliability and decision consistency and decision accuracy. Section 13 presents summary statistics and descriptive information about student characteristics. Appendix 2 provides classical item statistics for each operational form.

## Section 9. Test Construction and Administration

### Test Development

#### *Planning*

Planning for the test development process began with the creation of the MD Mod-HSA blueprints and item modification/development plans for each content area. MSDE content specialists collaborated with Maryland educators, both special education and content area experts, to develop a plan for modifying and developing content for the modified assessments. The MD HSA item bank was reviewed to determine how well the available item pool could be modified to meet the item requirements of the MD Mod-HSAs and blueprint requirements as identified across the CLGs. Items, passages, and stimuli identified as modifiable were revised according to item plans, using such modifications as reducing the number of response options from four to three, simplifying language and graphics, grouping text within longer passages, and repeating critical passage text within an item. When deficits in the pool of modifiable items were identified, MSDE and its collaborative partners developed additional items.

#### *Test Specifications and Design*

MSDE defined the basic test design and provided it to Educational Testing Service (ETS). The blueprints for the 50-item test design are presented below in the section on test specifications. The basic test design defined the reporting categories and the number of items in each reporting. Decisions about the distribution of items throughout the forms were left to the collaborative efforts of the ETS and MSDE content specialists. Construction of the operational forms was based on test blueprints approved by MSDE.

#### *Item Type*

The MD Mod-HSAs consist of selected response items only. Each of the four content areas—Algebra, Biology, English, and Government—contained 50 operational items worth a total of 50 score points.

#### *Item Modification, Development, Review, and Revision*

MSDE oversaw the initial item modification and development. MSDE content and special education specialists worked with Maryland educators to modify existing MD HSA items and to develop new items written specifically for the MD Mod-HSA program. These items underwent review and revision at MSDE prior to their submission to ETS for inclusion in the MD Mod-HSA item bank.

Once received by ETS, all items were uploaded into the item bank and all graphics and stimulus materials were revised as requested. At this point, all items underwent a series of editorial reviews in accordance with the following procedures:

- Items were edited according to standard rules developed in conjunction with MSDE.

- Items were reviewed for accuracy, organization, comprehension, style, usage, consistency, and fairness/sensitivity.
- Item content was reviewed to establish whether the item measured the intended Goal-Expectation-Indicator-Assessment Limit.
- Verification was made that copyright and/or trademark permissions had been obtained for any materials requiring permissions.
- Internal reviews were conducted and historical records established for all version changes.

After ETS performed the required internal reviews, item revision recommendations were submitted to MSDE for their review. Any associated stimulus material, graphic, and/or art was provided as well as information regarding the Goal-Expectation-Indicator-Assessment Limit that each question addressed.

MSDE performed a final review of the items and provided feedback to ETS content specialists. The edits were incorporated into the items. The items were then prepared for a final round of reviews by the Content Review and Bias/Sensitivity Review Committees.

The committees, selected by MSDE, were composed of diverse groups of Maryland educators. The committees reviewed each item to ensure that the content (1) accurately reflected what was taught in Maryland schools; (2) correctly matched the intended CLG indicator; and (3) did not unfairly favor or disadvantage an individual or group. A total of 699 items were reviewed across all four content areas. Of these items, 8 (0.01%) were rejected by the Bias/Sensitivity Review Committee, while 159 (22.7%) were accepted with edits. In total, the two committees accepted a total of 532 (76.1%) of the 699 MD Mod-HSA test items.

Upon completion of this final round of reviews, MSDE and ETS content specialists conducted another side-by-side meeting to evaluate the reviews. The ETS content specialists then made any necessary final edits to the items and/or revisions to the accompanying graphics. The items that survived this process were then eligible for placement in the MD Mod-HSA forms.

### **Test Specifications**

Tables 9.1 to 9.4 identify each reporting category and the number of items in each category.

**Table 9.1** MD Mod-HSA Algebra Blueprint

Reporting Category	Number of items
Expectation 1.1 Analyzing Pattern and Functions	13
Expectation 1.2 Modeling Real-World Situations	16
Expectation 3.1 Collecting, Organizing, and Analyzing Data	11
Expectation 3.2 Using Data to Make Predictions	10
Total	50

*Note:* Information about the referenced expectations can be found in the Maryland Core Learning Goals for Algebra on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

**Table 9.2** MD Mod-HSA Biology Blueprint

Reporting Category	Number of items
Goal 1 Skills and Processes of Biology	11
Expectation 3.1 Structure and Function of Biological Molecules	8
Expectation 3.2 Structure and Function of Cells and Organisms	9
Expectation 3.3 Inheritance of Traits	8
Expectation 3.4 Mechanism of Evolutionary Change	6
Expectation 3.5 Interdependence of Organisms in the Biosphere	8
Total	50

*Note:* Information about the referenced goals and expectations can be found in the Maryland Core Learning Goals for Biology on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

**Table 9.3** MD Mod-HSA English Blueprint

Reporting Category	Number of Items
1: Reading and Literature: Comprehension and Interpretation Includes indicators 1.1.1; 1.1.2; 1.1.3; 1.2.1; 1.3.3; 3.2.2.	13
2: Reading and Literature: Making Connections and Evaluation Includes indicators 1.1.4; 1.2.2; 1.2.3; 1.2.4; 1.2.5; 1.3.5; 4.2.1.	13
3: Writing—Composing Includes indicators 2.2.1; 2.2.2; 2.2.3; 2.2.5; 2.3.1; 2.3.3; 4.3.1.	13
4: Writing—Language Usage and Conventions Includes indicators 3.1.3; 3.1.4; 3.1.6; 3.1.8; 3.3.1; 3.3.2.	11
Total	50

*Note:* Information about the referenced indicators can be found in the Maryland Core Learning Goals for English on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

**Table 9.4** MD Mod-HSA Government Blueprint

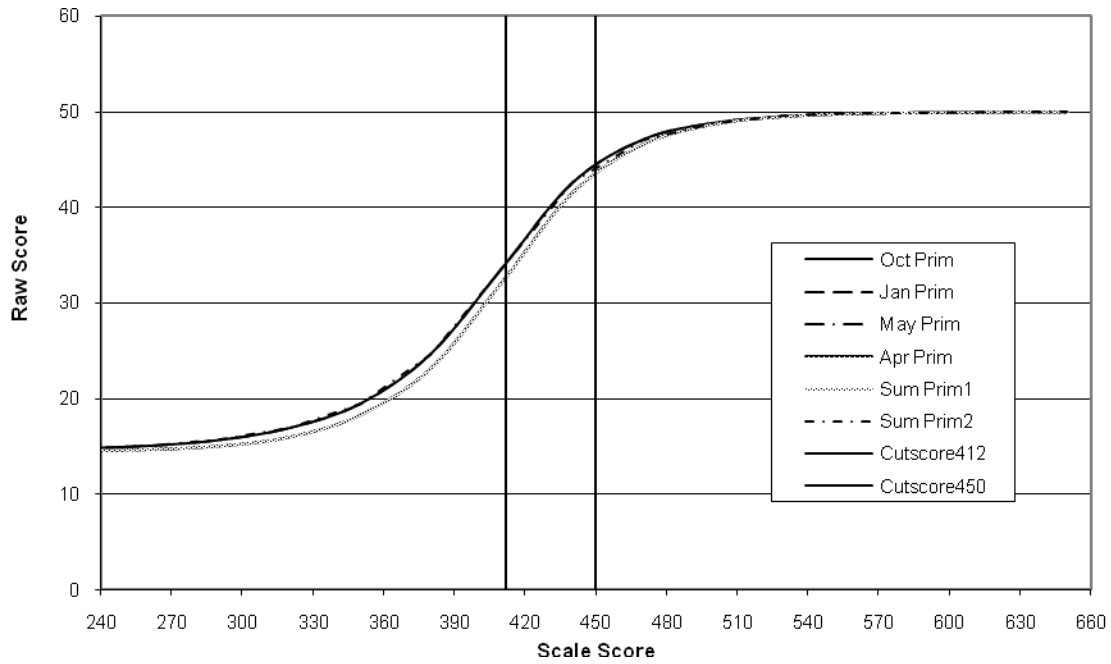
Reporting Category	Number of Items
Expectation 1.1 U.S. Government Structure, Functions and Principles	14
Expectation 1.2 Protecting Rights and Maintaining Order	12
Goal 2 Systems of Government and U.S. Foreign Policy	8
Goal 3 Impact of Geography on Governmental Policy	7
Goal 4 Economic Principles, Institutions and Processes	9
Total	50

*Note:* Information about the referenced expectations and goals can be found in the Maryland Core Learning Goals for Government on the Maryland School Improvement website at <http://www.mdk12.org/assessments/standards/9-12.html>.

Figures 9.1 to 9.8 show the plots of the TCCs and CSEMs for the forms developed for each content area. It is important to note that the TCCs and CSEMs shown in the plots are based on pre-equated item parameters and therefore are theoretical curves calculated prior to administration of the tests. As expected, the CSEM plots indicate that the CSEMs for each content area were lowest in the middle range of scale scores (375 to 475). The majority of

students score in the middle range, where the CSEMs are smallest. (Refer to figures 13.1 to 13.4 for histograms of student performance.)

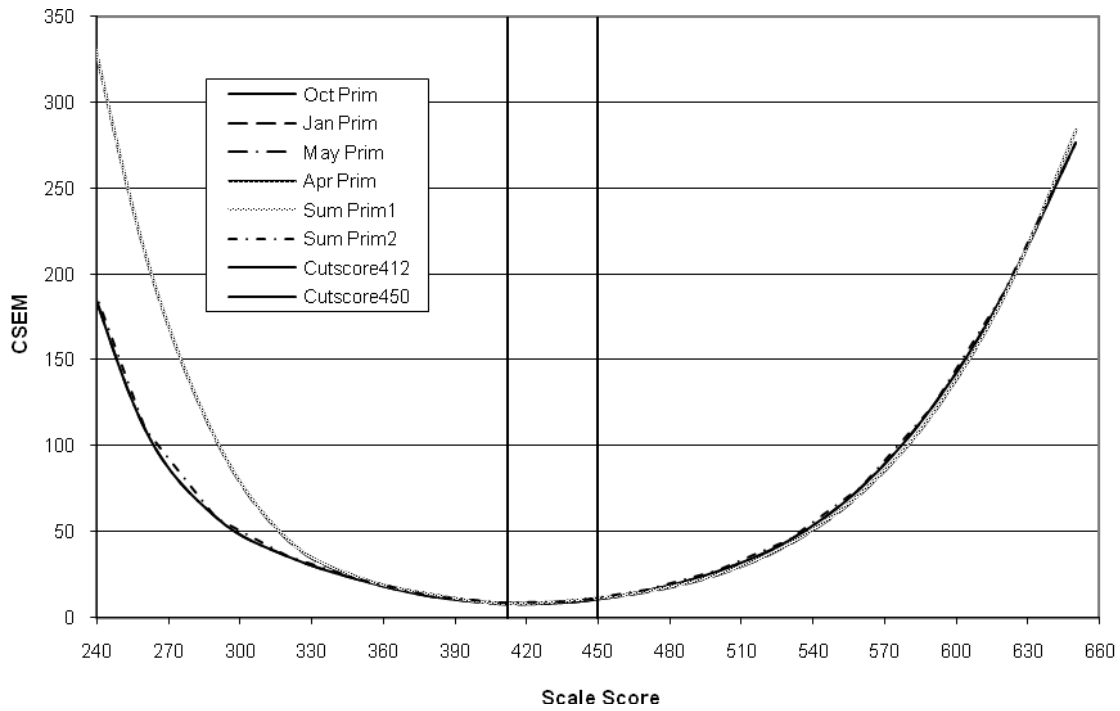
**Figure 9.1** Test Characteristic Curves for the 2009 MD Mod-HSA Algebra Forms



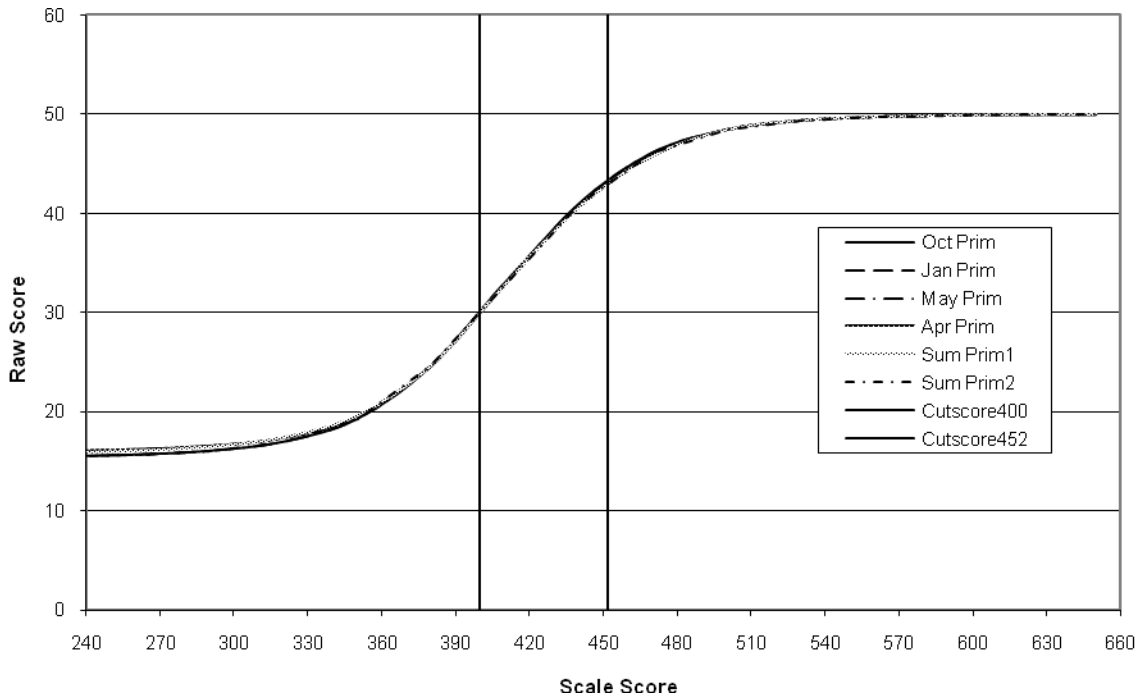
*Note:* Maximum possible raw score is 50.



**Figure 9.2** Conditional Standard Error Measurement for the 2009 MD Mod-HSA Algebra Forms

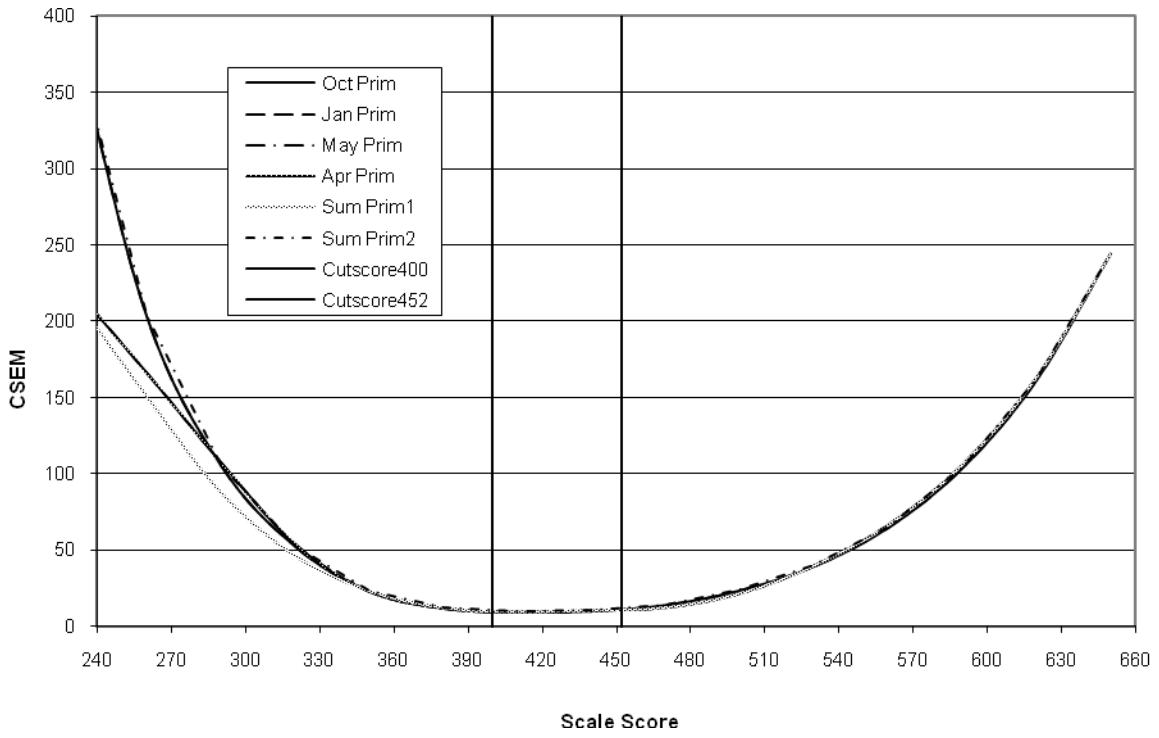


**Figure 9.3** Test Characteristic Curves for the MD Mod-HSA 2009 Biology Forms

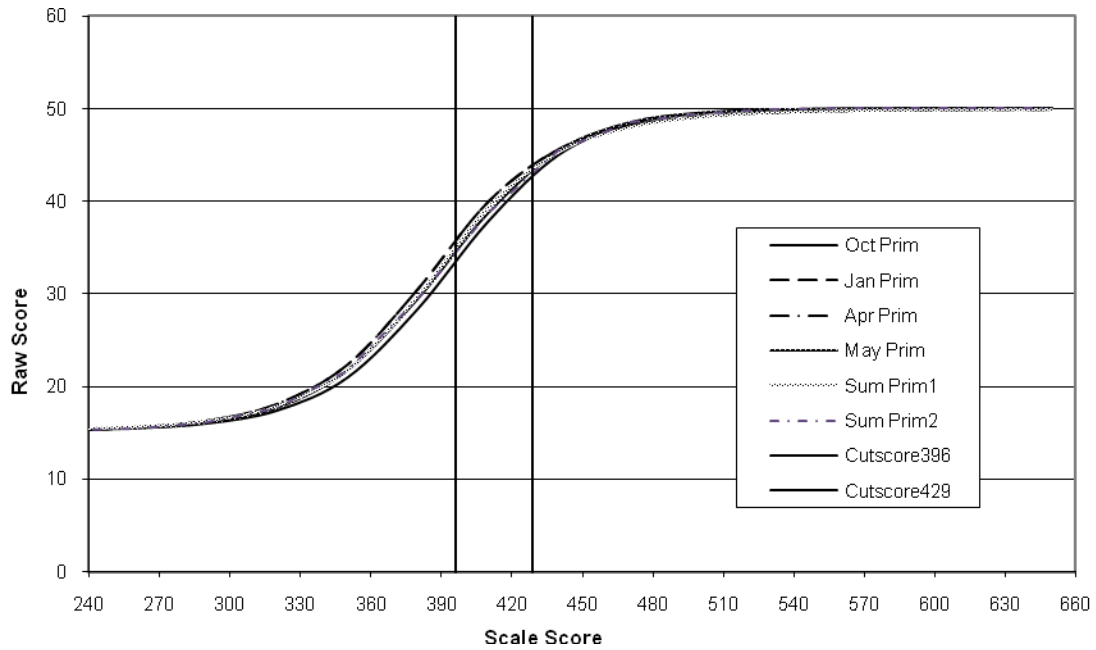


Note: Maximum possible raw score is 50.

**Figure 9.4** Conditional Standard Error Measurement for the MD Mod-HSA 2009 Biology Forms

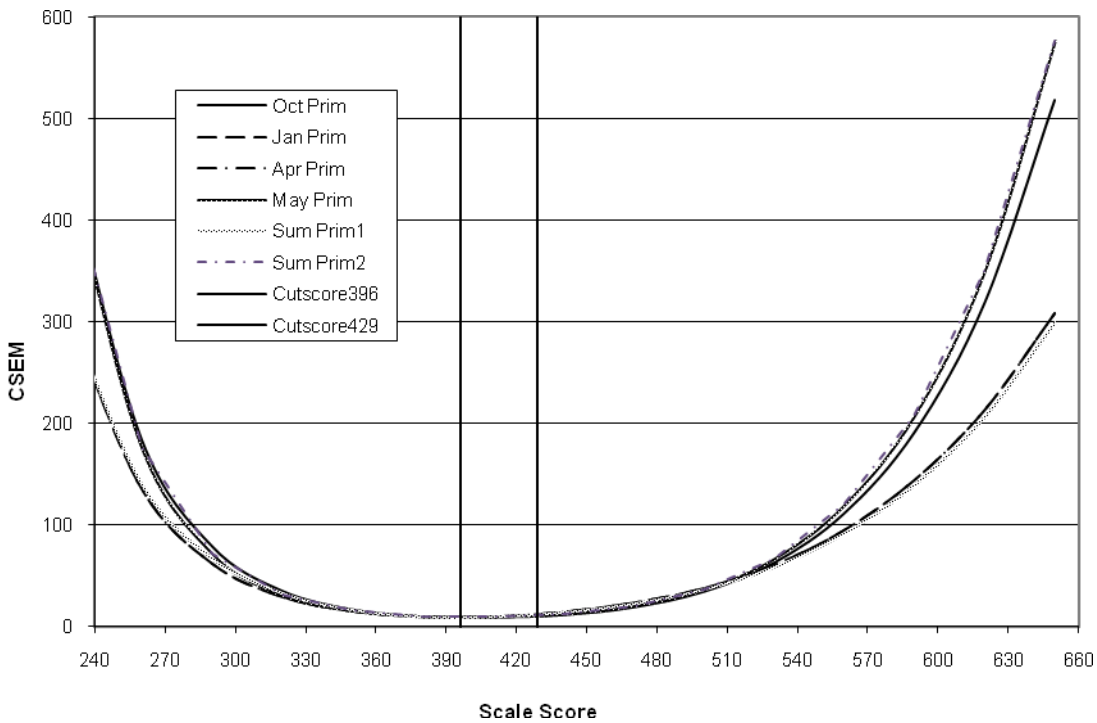


**Figure 9.5** Test Characteristic Curves for the MD Mod-HSA 2009 English Forms

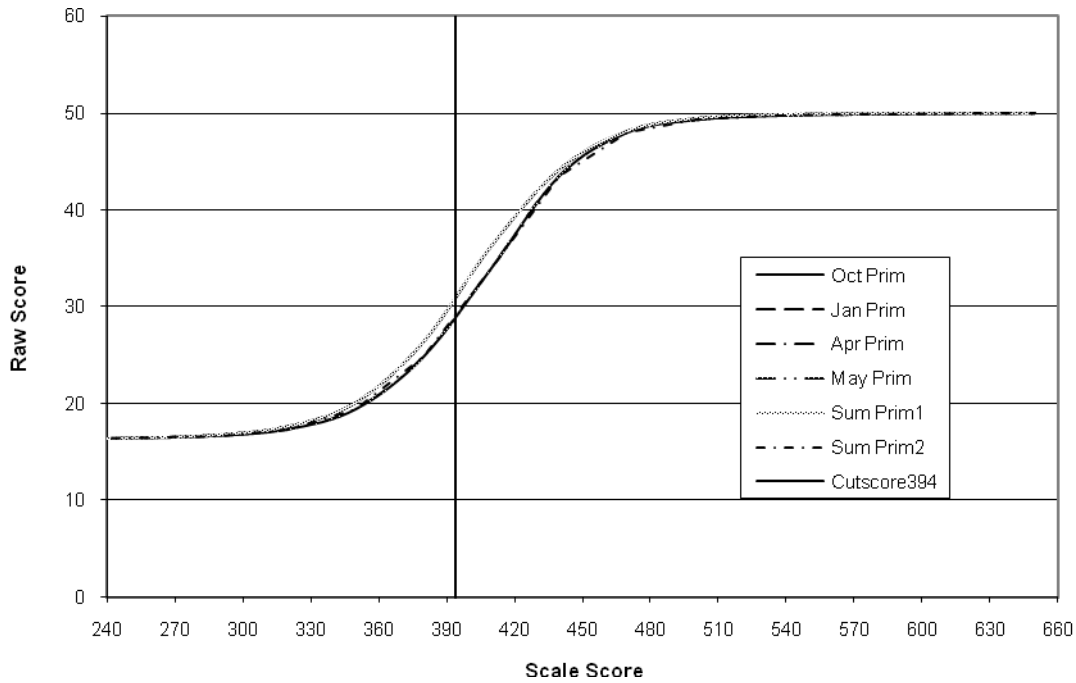


Note: Maximum possible raw score is 50.

**Figure 9.6** Conditional Standard Error Measurement for the MD Mod-HSA 2009 English Forms

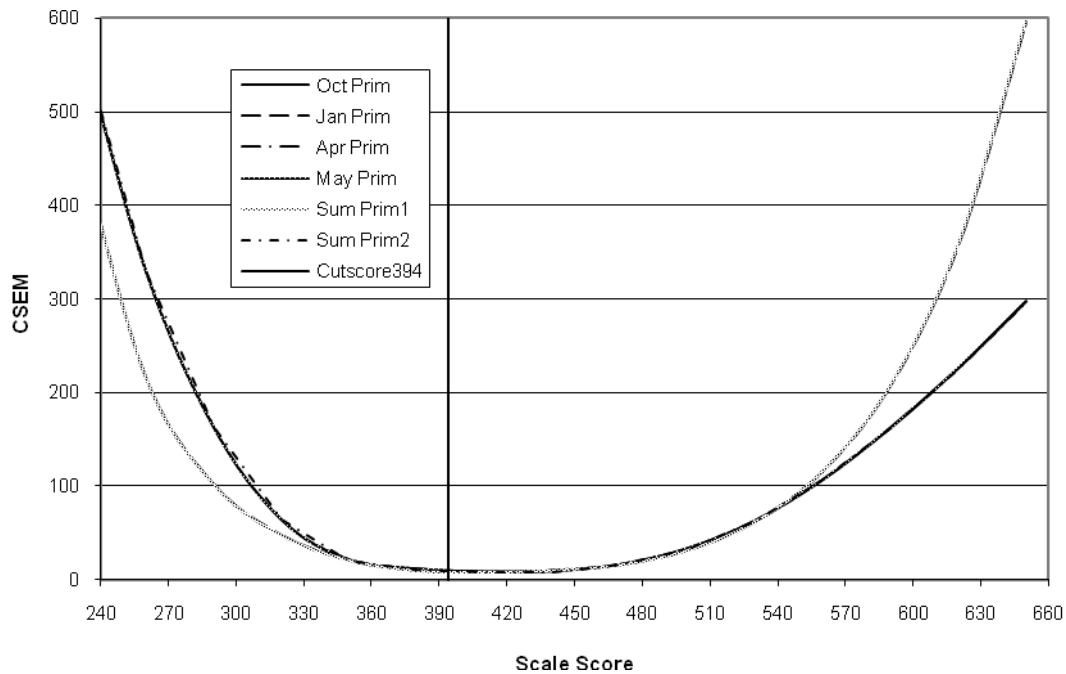


**Figure 9.7** Test Characteristic Curves for the MD Mod-HSA 2009 Government Forms



Note: Maximum possible raw score is 50.

**Figure 9.8** Conditional Standard Error Measurement for the MD Mod-HSA 2009 Government Forms



## Test Administration

The MD Mod-HSA tests were administered both online and on paper in October 2008 and January, April, May, and Summer 2009. One paper and one online MD Mod-HSA form per content area was administered during each administration, with the exception of Summer 2009, where two paper and two online forms were administered.

The forms for Algebra, Biology, English, and Government consist of two sessions administered within a single sitting. Sessions are separated by a short break. All forms administered without accommodations have the timing limits shown in Table 9.5.

**Table 9.5** MD Mod-HSA Testing Timing Schedule in Minutes by Content Area

Content Area	Session 1	Break	Session 2
Algebra	50	5	50
Biology	30	5	30
English*	50 / 45	5	35 / 40
Government	30	5	30

\*Timing for the English test changed slightly for the May and Summer administrations—the October, January, and April timing is listed first, and the May and Summer timing is listed second.

## Section 10. Validity

Validity is one of the most important attributes of assessment quality. Validity refers to the degree to which logical, empirical, and judgmental evidence supports each proposed interpretation or use of a set of scores, and it is one of the most fundamental considerations in developing and evaluating tests (AERA, APA, & NCME, 1999; Messick, 1989). Validity is not based on a single study or type of study but is an ongoing process of gathering evidence supporting the interpretation or use of the resulting test scores. The process begins with the test design and continues throughout the entire assessment process, including design, content specifications, item development, psychometric quality, and inferences made from the test results.

Students' scores on an MD Mod-HSA are inferred to reflect students' level of knowledge and skills in a content area. The scores are used to classify students in terms of their level of proficiency, based on cut-scores established by the state.

### Evidence Based on Analyses of Test Content

The Maryland Mod-HSAs are referred to as end-of-course tests because students take each test as they complete the appropriate coursework. Banked HSA items were selected and adapted for the MD Mod-HSAs to measure the knowledge and skills expected of students following completion of coursework.

The constructs measured by each MD Mod-HSA are described in detail in the Maryland high school curriculum standards, or Core Learning Goals. All ETS content staff working on item selection and development have been trained in the CLGs. The test blueprint documents presented in Section 9 (see Tables 9.1 to 9.4) were created in collaboration with committees of Maryland educators and were derived from the Maryland goals, expectations, and indicators.

The process of selecting and adapting banked MD HSA items for use as MD Mod-HSA items is summarized briefly in Section 9 and described in detail in the Maryland Modified High School Assessment 2008 Technical Report.<sup>12</sup> Banked items were referenced to a particular instructional standard (i.e., goal, expectation, or indicator). During the internal ETS development process, the specific reference was confirmed or changed to reflect changes to the item. When the item went to a committee of Maryland educators for content review, the members of the committee made independent judgments about the match of the item content to the standard it was intended to measure and evaluated the appropriateness for the age and cognitive ability of the students being tested.

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<sup>12</sup> Available at <http://marylandpublicschools.org/MSDE/divisions/planningresultstest/HSA+Technical+Reports.htm>.

## Evidence Based on Analyses of Internal Test Structure

### *Exploratory Factor Analysis*

To investigate the dimensionality of the MD Mod-HSA operational forms, exploratory factor analyses were conducted at the item level for each 50-item operational form created after the May 2008 test administration. The software program *Mplus* (Muthén & Muthén, 2007) was used to generate tetrachoric correlations that were then read into the program for the analyses. The estimator used in these exploratory analyses was a weighted least-squares with mean and variance adjustment (Muthén, DuToit, & Spisic, 1997). This estimator was specifically designed for the analysis of ordered categorical data. Solutions were rotated by Quartimin methods because the factors were expected to be correlated.

Two groups of students took the MD Mod-HSAs in May 2008; data from each group were analyzed separately for the exploratory factor analyses. The first group was the *target* population, made up of students identified by MSDE as being eligible to take the MD Mod-HSAs. These students took the MD Mod-HSA instead of the regular MD HSA. The second group of students was the *linking* sample, which consisted of regular MD HSA examinees identified by MSDE to take the MD Mod-HSA in the same content area as their May MD HSA. The data provided by this second group of examinees were used to calibrate the MD Mod-HSA forms and to align these forms to the MD HSA reporting scale.

The percentage of score variance accounted for by each factor having an eigenvalue greater than 1.0 is shown in Tables 10.1 to 10.8 for each form. The decision to include only eigenvalues greater than 1.0 follows the Kaiser-Guttman rule (Kaiser, 1960). Scree plots (Catell, 1966) for each form are given in Figures 10.1 to 10.16 for the first 50 factors extracted. The scree plot involves plotting the eigenvalues of the factors extracted in order of magnitude from high to low. The plot is examined for a point at which the decrease in eigenvalues levels off. Factors prior to this point are considered important because of the variance they explain. Factors at and beyond this point add relatively little information.

Examination of the plots and tables for the linking sample shows that the eigenvalues for the first factors ranged from about 12.0 to 15.6 across forms and subject areas, and these first factors accounted for 24 to 31 percent of the variance. The eigenvalues for the second and subsequent factors were no greater than about 2.0, and these factors accounted for about 2 to 5 percent of the remaining variance. Results for the two forms taken by the linking sample were very similar across forms. The sizable amount of variance accounted for by the first factor indicates a large first factor; confirmatory factor analyses or a study of the essential dimensionality of the data for the linking sample could be used to assess the fit of a single factor model to the data.

With regard to the target population, the first factor results tended to be about half of those obtained for the linking sample. Specifically, the eigenvalues for the first factors ranged from about 5.5 to 7.0, and this factor accounted for about 11 to 14 percent of the variance. Thus, for the target population a much smaller first factor was found. Like the linking sample, the second and subsequent factors had small eigenvalues and accounted for 4 percent or less of the remaining variance.

The lower eigenvalues and percentages of score variance accounted for by the first factor in the target population appears to be a product of the difficulty of the MD Mod-HSA items for students in the target population. Table 10.9 shows that for the linking sample the mean item p-values were in the low 0.70s, a moderate degree of difficulty. For the target population, Table 10.10 shows that p-values were in the high 0.40s, on average. The MD Mod-HSA items are multiple-choice items with three answer choices; therefore the item p-values could reflect a considerable amount of guessing.

Very difficult items discriminate less well than do moderately difficult items and introduce more error because of increased guessing. As shown in Tables 10.11 and 10.12, the MD Mod-HSA item point-biserials were considerably lower for the target population than they were for the linking sample. Also the internal consistency results were notably lower: for the linking sample, internal consistency ranged from 0.86 to 0.89 across subject areas, whereas for the target population it ranged from 0.71 to 0.79. Comparison of the tetrachoric correlations read into the factor analyses and summarized in Table 10.13 also shows that the item intercorrelations for the target population were quite low and about half the size of those observed for the linking sample, on average. Presumably as achievement in the target population improves, item discrimination, internal consistency, and the item intercorrelations will improve concomitantly.

**Table 10.1** Factor Analysis Results for MD Mod-HSA Algebra, May 2008 Linking Sample

Factor	Form 108		Form 208	
	Eigenvalue	% Var	Eigenvalue	% Var
1	11.87	23.75	12.49	24.98
2	2.13	4.26	2.01	4.01
3	1.64	3.28	1.67	3.34
4	1.47	2.93	1.62	3.24
5	1.40	2.79	1.46	2.93
6	1.36	2.72	1.40	2.81
7	1.33	2.67	1.34	2.68
8	1.26	2.51	1.26	2.52
9	1.23	2.46	1.23	2.46
10	1.16	2.32	1.16	2.32
11	1.10	2.20	1.09	2.19
12	1.08	2.16	1.07	2.14
13	1.07	2.13	1.06	2.11
14	1.04	2.08	1.05	2.10
15	1.01	2.01		



**Table 10.2** Factor Analysis Results for MD Mod-HSA Algebra, May 2008 Target Population

Factor	Form 108		Form 208	
	Eigenvalue	% Var	Eigenvalue	% Var
1	7.08	14.17	6.48	12.96
2	1.71	3.41	2.30	4.60
3	1.66	3.31	1.81	3.62
4	1.49	2.98	1.54	3.08
5	1.43	2.86	1.47	2.95
6	1.38	2.77	1.45	2.90
7	1.34	2.68	1.40	2.80
8	1.32	2.65	1.35	2.70
9	1.26	2.52	1.31	2.63
10	1.25	2.49	1.29	2.58
11	1.21	2.42	1.26	2.52
12	1.17	2.34	1.22	2.44
13	1.11	2.22	1.18	2.36
14	1.10	2.20	1.12	2.24
15	1.07	2.14	1.11	2.22
16	1.04	2.08	1.09	2.18
17	1.01	2.02	1.08	2.16
18			1.07	2.14
19			1.01	2.03

**Table 10.3** Factor Analysis Results for MD Mod-HSA Biology, May 2008 Linking Sample

Factor	Form 108		Form 208	
	Eigenvalue	% Var	Eigenvalue	% Var
1	12.28	24.57	12.04	24.07
2	1.54	3.08	1.77	3.53
3	1.50	2.99	1.56	3.12
4	1.42	2.84	1.52	3.05
5	1.39	2.78	1.32	2.63
6	1.35	2.71	1.29	2.58
7	1.29	2.58	1.21	2.42
8	1.26	2.51	1.19	2.38
9	1.18	2.36	1.17	2.34
10	1.13	2.27	1.12	2.24
11	1.10	2.20	1.11	2.23
12	1.08	2.16	1.08	2.16
13	1.07	2.14	1.06	2.13
14	1.04	2.09	1.03	2.05
15	1.00	2.00	1.01	2.02

**Table 10.4** Factor Analysis Results for MD Mod-HSA Biology, May 2008 Target Population

Factor	Form 108		Form 208	
	Eigenvalue	% Var	Eigenvalue	% Var
1	5.55	1.11	6.23	12.45
2	1.81	3.61	1.79	3.58
3	1.63	3.27	1.69	3.38
4	1.59	3.17	1.53	3.05
5	1.50	2.99	1.48	2.96
6	1.49	2.97	1.45	2.90
7	1.43	2.87	1.42	2.84
8	1.40	2.79	1.36	2.72
9	1.36	2.73	1.33	2.66
10	1.33	2.65	1.29	2.59
11	1.27	2.54	1.26	2.52
12	1.24	2.49	1.24	2.47
13	1.22	2.43	1.22	2.44
14	1.19	2.39	1.20	2.40
15	1.17	2.34	1.14	2.28
16	1.14	2.29	1.13	2.26
17	1.13	2.26	1.11	2.22
18	1.11	2.22	1.10	2.19
19	1.08	2.15	1.05	2.10
20	1.04	2.08		
21	1.01	2.02		

**Table 10.5** Factor Analysis Results for MD Mod-HSA English, May 2008 Linking Sample

Factor	Form 108		Form 208	
	Eigenvalue	% Var	Eigenvalue	% Var
1	12.90	25.79	12.62	25.23
2	1.90	3.81	2.01	4.01
3	1.83	3.65	1.76	3.52
4	1.57	3.14	1.68	3.36
5	1.52	3.04	1.57	3.14
6	1.47	2.95	1.43	2.87
7	1.39	2.77	1.32	2.64
8	1.25	2.51	1.27	2.54
9	1.22	2.44	1.24	2.48
10	1.19	2.38	1.22	2.44
11	1.18	2.36	1.18	2.36
12	1.17	2.33	1.14	2.28
13	1.06	2.12	1.10	2.19
14	1.01	2.03	1.07	2.14
15			1.04	2.07

**Table 10.6** Factor Analysis Results for MD Mod-HSA English, May 2008 Target Population

Factor	Form 108		Form 208	
	Eigenvalue	% Var	Eigenvalue	% Var
1	5.67	11.35	6.69	13.37
2	1.81	3.61	1.84	3.68
3	1.66	3.33	1.78	3.56
4	1.56	3.11	1.65	3.31
5	1.49	2.98	1.44	2.88
6	1.47	2.94	1.42	2.84
7	1.38	2.75	1.39	2.78
8	1.31	2.62	1.30	2.61
9	1.27	2.53	1.28	2.57
10	1.25	2.49	1.26	2.52
11	1.22	2.44	1.24	2.49
12	1.21	2.41	1.20	2.40
13	1.18	2.36	1.18	2.35
14	1.17	2.34	1.15	2.30
15	1.15	2.30	1.09	2.19
16	1.09	2.18	1.08	2.16
17	1.06	2.11	1.04	2.08
18	1.03	2.06	1.01	2.03
19	1.01	2.02	1.01	2.01

**Table 10.7** Factor Analysis Results for MD Mod-HSA Government, May 2008 Linking Sample

Factor	Form 108		Form 208	
	Eigenvalue	% Var	Eigenvalue	% Var
1	14.74	29.47	15.61	31.22
2	1.93	3.86	1.74	3.48
3	1.66	3.31	1.60	3.20
4	1.45	2.89	1.51	3.02
5	1.41	2.81	1.40	2.79
6	1.34	2.69	1.30	2.60
7	1.29	2.58	1.25	2.50
8	1.25	2.49	1.20	2.39
9	1.18	2.36	1.15	2.31
10	1.11	2.22	1.12	2.23
11	1.08	2.16	1.09	2.17
12	1.06	2.12	1.05	2.10
13	1.01	2.02	1.01	2.02

**Table 10.8** Factor Analysis Results for MD Mod-HSA Government, May 2008 Target Population

Factor	Form 108		Form 208	
	Eigenvalue	% Var	Eigenvalue	% Var
1	6.50	12.99	6.58	13.16
2	1.86	3.71	1.90	3.81
3	1.55	3.10	1.77	3.55
4	1.51	3.02	1.66	3.31
5	1.42	2.84	1.52	3.04
6	1.38	2.77	1.41	2.83
7	1.37	2.73	1.39	2.78
8	1.33	2.67	1.33	2.67
9	1.30	2.60	1.32	2.63
10	1.25	2.50	1.27	2.54
11	1.22	2.44	1.26	2.52
12	1.20	2.39	1.21	2.42
13	1.16	2.31	1.16	2.32
14	1.14	2.29	1.14	2.28
15	1.09	2.19	1.10	2.21
16	1.08	2.17	1.07	2.15
17	1.06	2.12	1.04	2.08
18	1.04	2.07	1.02	2.05
19	1.02	2.05	1.02	2.05

**Table 10.9** Distributions of P-Values: MD Mod-HSA May 2008 Operational Items—Linking Sample

P-Value	Number and Percentage of Items							
	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$P < 0.10$	0	0.0	0	0.0	0	0.0	0	0.0
$0.10 \leq P < 0.20$	0	0.0	0	0.0	0	0.0	0	0.0
$0.20 \leq P < 0.30$	1	1.0	1	1.0	0	0.0	0	0.0
$0.30 \leq P < 0.40$	1	1.0	1	1.0	1	1.0	0	0.0
$0.40 \leq P < 0.50$	4	4.0	6	6.1	3	3.1	2	2.0
$0.50 \leq P < 0.60$	12	12.0	13	13.3	9	9.3	10	10.0
$0.60 \leq P < 0.70$	22	22.0	20	20.4	16	16.5	17	17.0
$0.70 \leq P < 0.80$	28	28.0	27	27.6	26	26.8	33	33.0
$0.80 \leq P < 0.90$	26	26.0	24	24.5	34	35.1	29	29.0
$P \geq 0.90$	6	6.0	6	6.1	8	8.3	9	9.0
Descriptive Statistics								
N Items*	100		98		97		100	
Mean	0.72		0.71		0.74		0.75	
SD	0.14		0.14		0.13		0.11	
Min	0.29		0.23		0.31		0.48	
Max	0.96		0.93		0.93		0.94	

\* Includes the number of unique items; some Biology and English items appear on both Form 108 and Form 208.

**Table 10.10** Distributions of P-Values: MD Mod-HSA May 2008 Operational Items—Target Population

P-Value	Number and Percentage of Items							
	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
$P < 0.10$	0	0.0	0	0.0	0	0.0	0	0.0
$0.10 \leq P < 0.20$	0	0.0	1	1.0	1	1.0	0	0.0
$0.20 \leq P < 0.30$	7	7.0	7	7.1	1	1.0	4	4.0
$0.30 \leq P < 0.40$	21	21.0	20	20.4	19	19.6	21	21.0
$0.40 \leq P < 0.50$	32	32.0	27	27.6	27	27.8	36	36.0
$0.50 \leq P < 0.60$	22	22.0	22	22.5	24	24.7	23	23.0
$0.60 \leq P < 0.70$	13	13.0	17	17.4	21	21.7	13	13.0
$0.70 \leq P < 0.80$	5	5.0	4	4.1	4	4.1	3	3.0
$0.80 \leq P < 0.90$	0	0.0	0	0.0	0	0.0	0	0.0
$P \geq 0.90$	0	0.0	0	0.0	0	0.0	0	0.0
<b>Descriptive Statistics</b>								
N Items*	100		98		97		100	
Mean	0.47		0.48		0.50		0.48	
SD	0.13		0.13		0.12		0.11	
Min	0.23		0.16		0.18		0.23	
Max	0.79		0.79		0.76		0.79	

\* Includes the number of unique items; some Biology and English items appear on both Form 108 and Form 208.

**Table 10.11** Distributions of Point-Biserial Correlations: MD Mod-HSA May 2008 Operational Items—Linking Sample

Correlation	Number and Percentage of Items							
	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
R < 0.10	0	0.0	1	1.0	0	0.0	0	0.0
0.10 ≤ R < 0.20	4	4.0	5	5.1	0	0.0	1	1.0
0.20 ≤ R < 0.30	16	16.0	17	17.4	23	23.7	6	6.0
0.30 ≤ R < 0.40	40	40.0	34	34.7	43	44.3	29	29.0
0.40 ≤ R < 0.50	35	35.0	36	36.7	28	28.9	52	52.0
0.50 ≤ R < 0.60	4	4.0	5	5.1	3	3.1	12	12.0
0.60 ≤ R < 0.70	1	1.0	0	0.0	0	0.0	0	0.0
R ≥ 0.70	0	0.0	0	0.0	0	0.0	0	0.0
Descriptive Statistics								
N Items*	100		98		97		100	
Mean	0.37		0.37		0.37		0.41	
SD	0.09		0.09		0.08		0.08	
Min	0.18		0.09		0.23		0.13	
Max	0.61		0.54		0.53		0.56	

\* Includes the number of unique items; some Biology and English items appear on both Form 108 and Form 208.

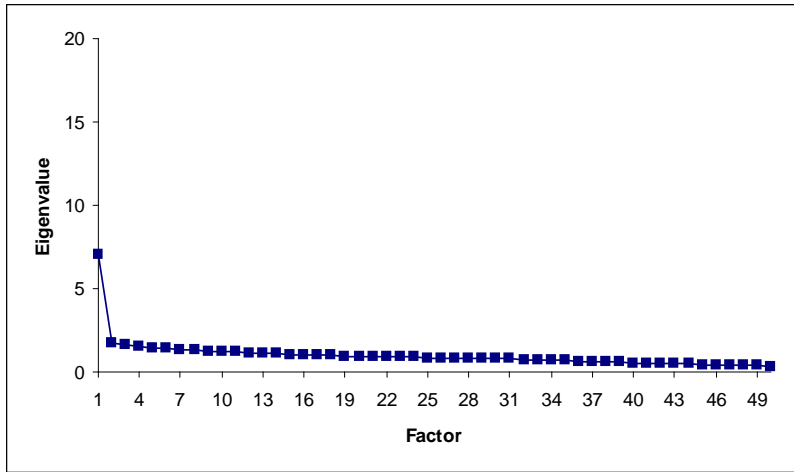
**Table 10.12** Distributions of Point-Biserial Correlations: MD Mod-HSA May 2008 Operational Items—Target Population

Correlation	Number and Percentage of Items							
	Algebra		Biology		English		Government	
	N	%	N	%	N	%	N	%
R < 0.10	1	1.0	6	6.1	3	3.1	2	2.0
0.10 ≤ R < 0.20	15	15.0	17	17.4	15	15.5	12	12.0
0.20 ≤ R < 0.30	37	37.0	36	36.7	41	42.3	40	40.0
0.30 ≤ R < 0.40	37	37.0	33	33.7	32	33.0	41	41.0
0.40 ≤ R < 0.50	10	10.0	6	6.1	6	6.2	4	4.0
0.50 ≤ R < 0.60	0	0.0	0	0.0	0	0.0	1	1.0
0.60 ≤ R < 0.70	0	0.0	0	0.0	0	0.0	0	0.0
R ≥ 0.70	0	0.0	0	0.0	0	0.0	0	0.0
Descriptive Statistics								
N Items*	100		98		97		100	
Mean	0.29		0.26		0.27		0.29	
SD	0.09		0.10		0.09		0.09	
Min	0.06		-0.03		-0.04		0.05	
Max	0.48		0.48		0.45		0.50	

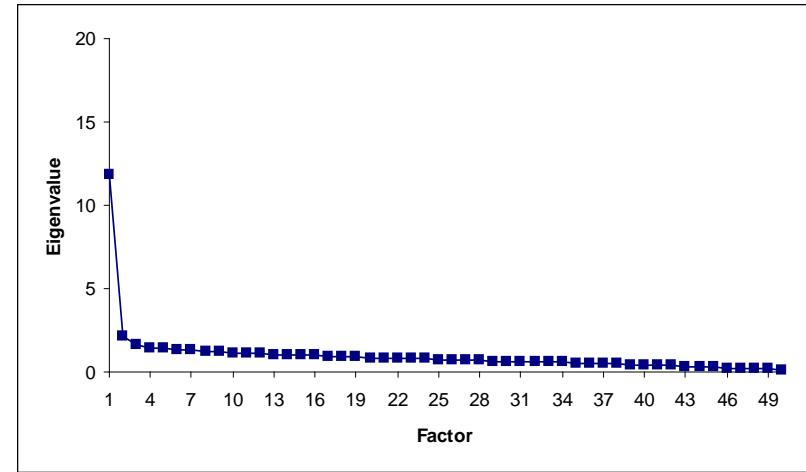
\* Includes the number of unique items; some Biology and English items appear on both Form 108 and Form 208.

**Table 10.13** Summary Statistics of Tetrachoric Correlations: MD Mod-HSA May 2008 by Sample, Content, and Form

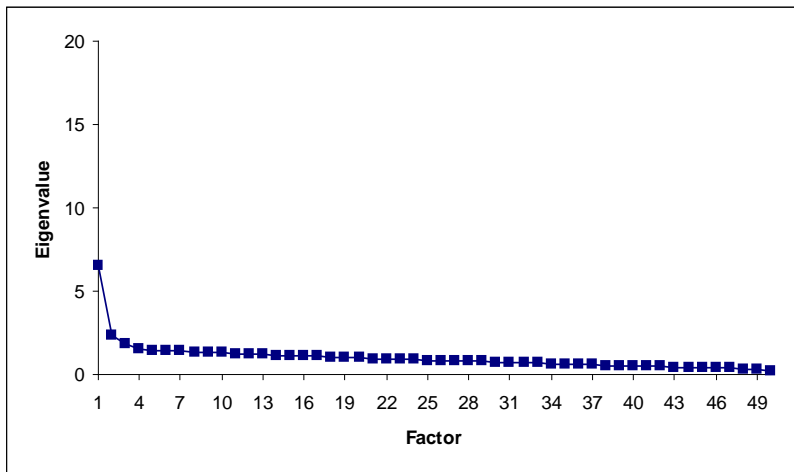
Sample	Content	Form	Mean	Std Dev	Minimum	Maximum
Linking	Algebra	108	0.206	0.101	-0.120	0.747
		208	0.220	0.102	-0.077	0.581
	Biology	108	0.211	0.106	-0.076	0.524
		208	0.203	0.111	-0.072	0.533
	English	108	0.233	0.094	-0.042	0.627
		208	0.223	0.103	-0.060	0.638
	Government	108	0.266	0.107	-0.072	0.703
		208	0.286	0.104	0.020	0.633
Target	Algebra	108	0.104	0.083	-0.236	0.395
		208	0.099	0.079	-0.114	0.424
	Biology	108	0.071	0.082	-0.196	0.338
		208	0.081	0.088	-0.259	0.402
	English	108	0.081	0.071	-0.180	0.337
		208	0.102	0.077	-0.094	0.346
	Government	108	0.097	0.075	-0.088	0.506
		208	0.097	0.083	-0.145	0.338



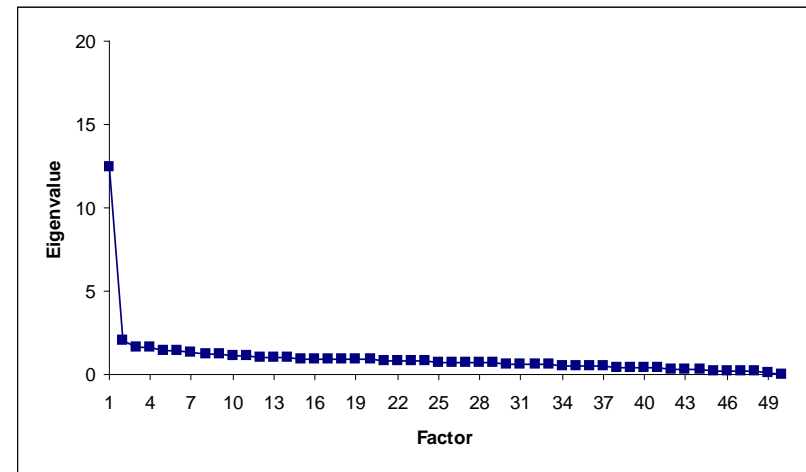
**Figure 10.1** Scree Plot: Algebra—Target Population—Form 108



**Figure 10.3** Scree Plot: Algebra—Linking Sample—Form 108

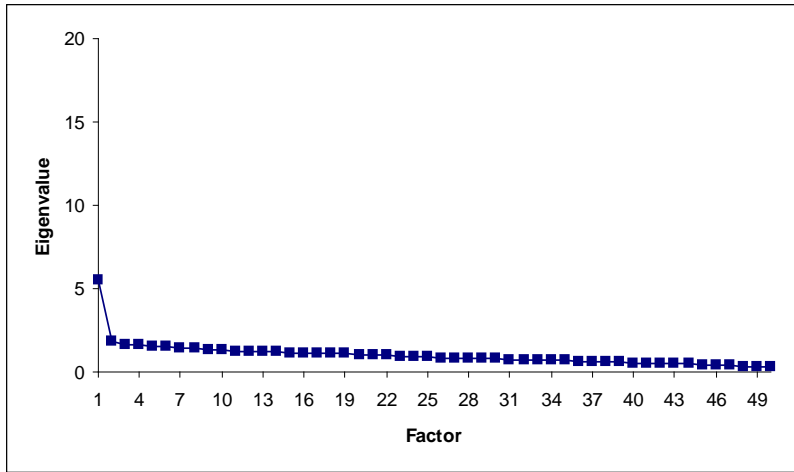


**Figure 10.2** Scree Plot: Algebra—Target Population—Form 208

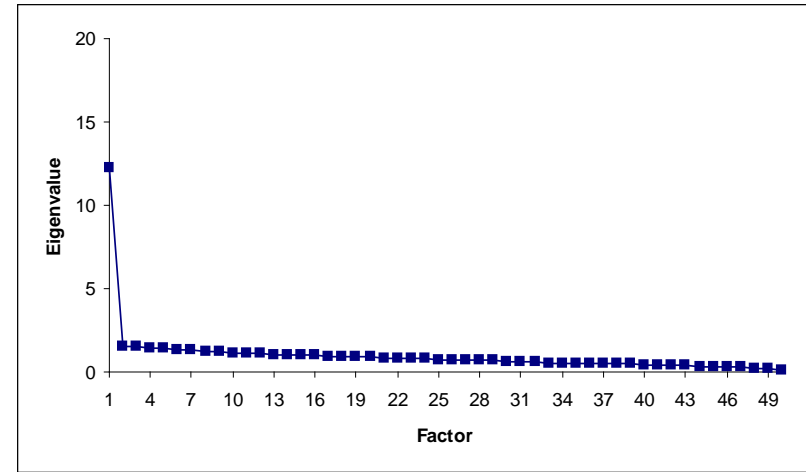


**Figure 10.4** Scree Plot: Algebra—Linking Sample—Form 208

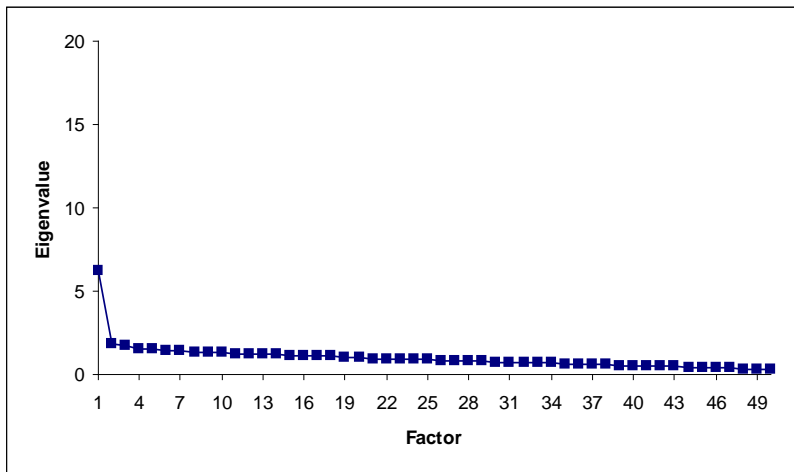




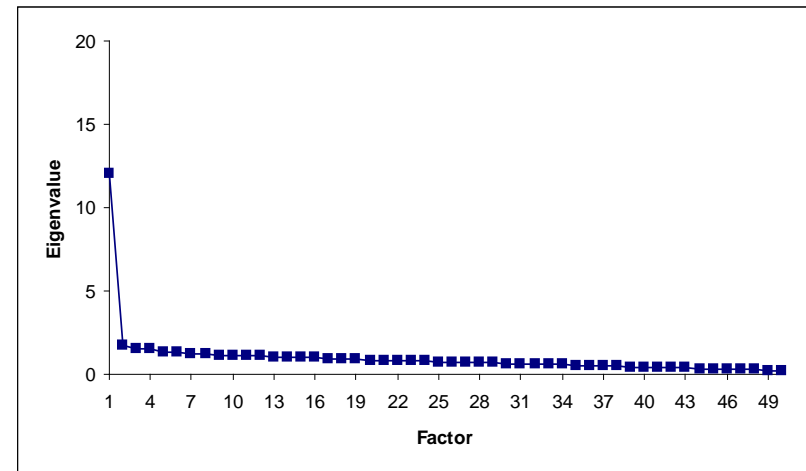
**Figure 10.5** Scree Plot: Biology—Target Population—Form 108



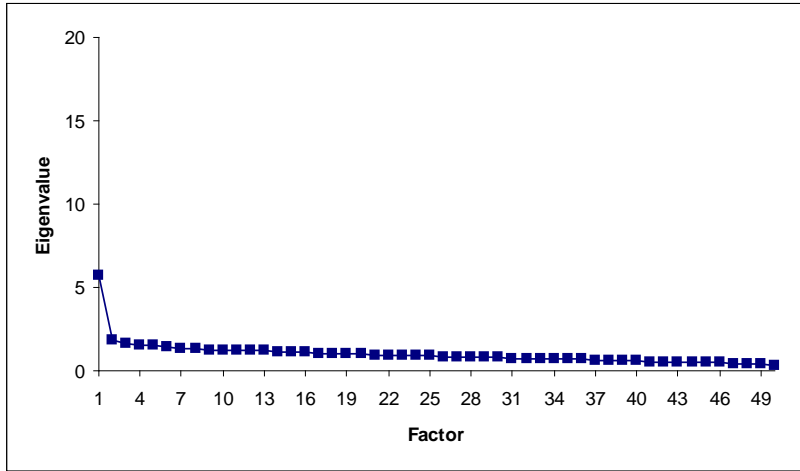
**Figure 10.7** Scree Plot: Biology—Linking Sample—Form 108



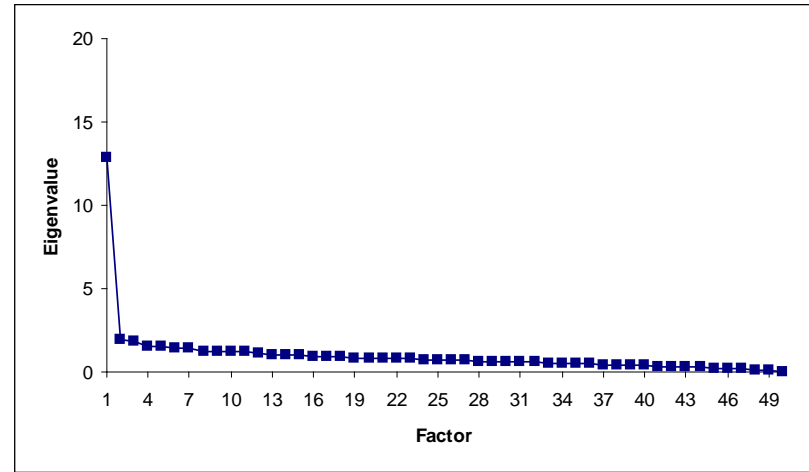
**Figure 10.6** Scree Plot: Biology—Target Population—Form 208



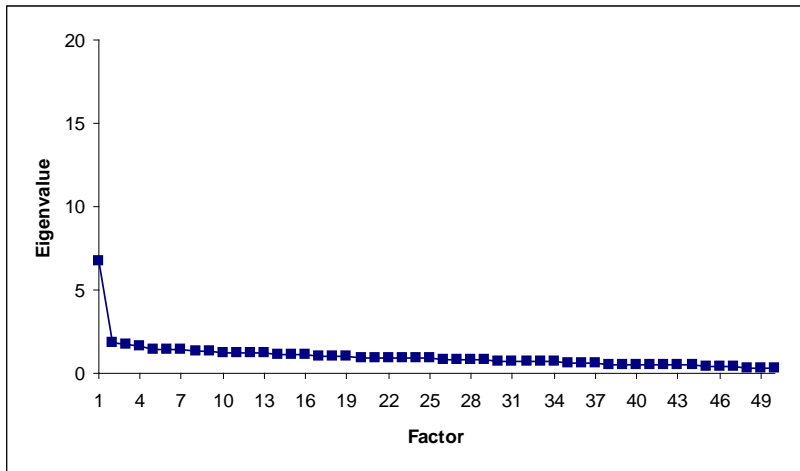
**Figure 10.8** Scree Plot: Biology—Linking Sample—Form 208



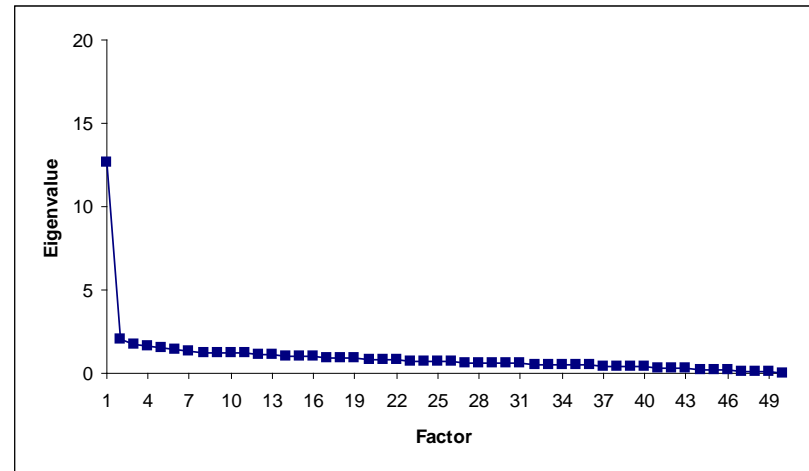
**Figure 10.9** Scree Plot: English—Target Population—Form 108



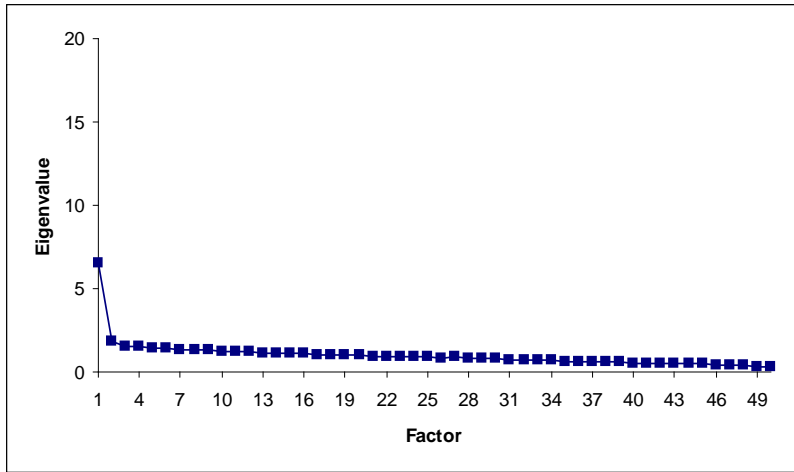
**Figure 10.11** Scree Plot: English—Linking Sample—Form 108



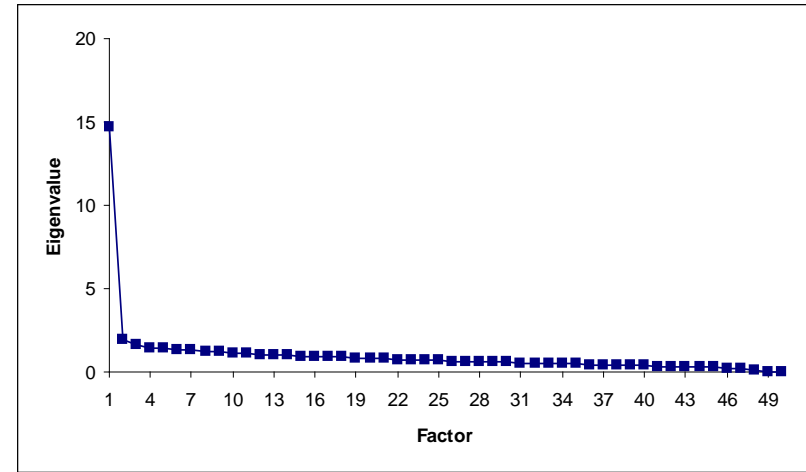
**Figure 10.10** Scree Plot: English—Target Population—Form 208



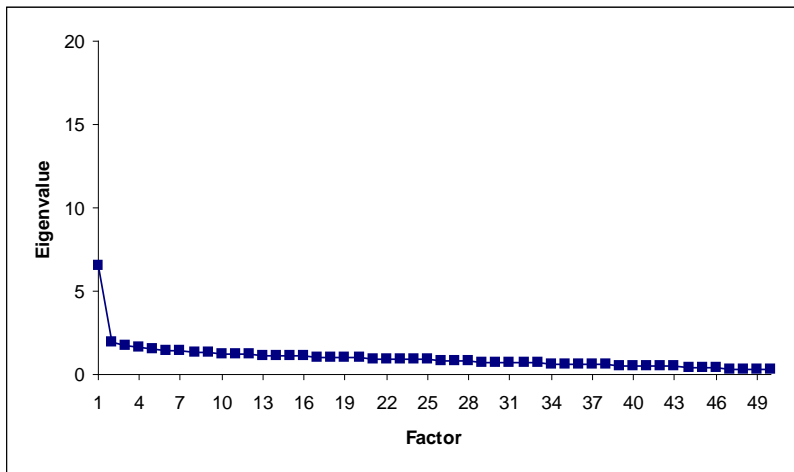
**Figure 10.12** Scree Plot: English—Linking Sample—Form 208



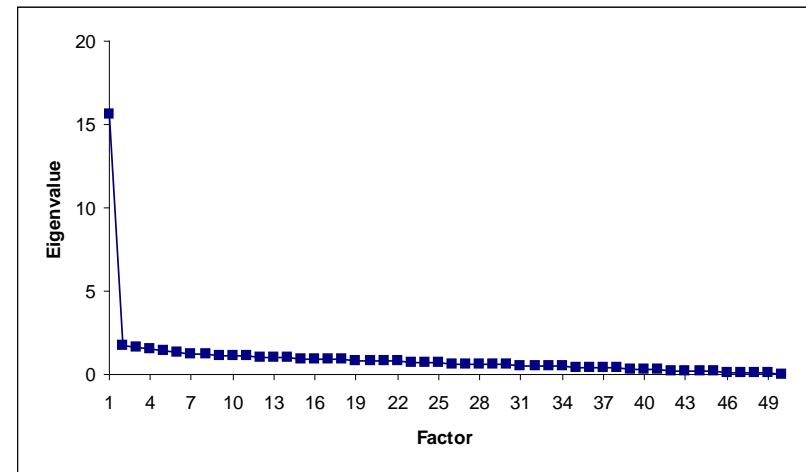
**Figure 10.13** Scree Plot: Government—Target Population—Form 108



**Figure 10.15** Scree Plot: Government—Linking Sample—Form 108



**Figure 10.14** Scree Plot: Government—Target Population—Form 208



**Figure 10.16** Scree Plot: Government—Linking Sample—Form 208

### *Speededness*

The percentage of students who respond to the last items in a test can be used to assess the degree to which a test is speeded. When speededness occurs, a test is measuring not only students' knowledge and skills as defined by the construct of interest but also the speed at which the knowledge and skills are demonstrated, which is a second construct. In tests of achievement, it is desirable to find that speededness is not present in a test, which provides evidence that student scores on the test reflect only the intended construct. Evidence of speededness is provided by the finding that the omit rates at the end of a test are notably higher than those observed elsewhere in the test.

Appendix 2 presents the percentage of students who omitted items on the MD Mod-HSA operational forms. The percentage of students who did not respond to the last ten items of a test was less than 1 percent for all content areas and sessions, with the exception of two forms. The summer administration of Algebra Form P and Government Form Q had 1.6 percent and 1.1 percent of students omitting the last ten items, respectively. These omit rates are comparable to the average omit rates for each form and suggest that students had sufficient time to complete the entire test.

Further, if more than 5 percent of students omit a selected response item at any point in the test, the item is flagged as having a high omit rate. No MD Mod-HSA items were flagged for high omit rate in any content area for any administration.

Other information in support of the uses and interpretations of the MD Mod-HSA scores appears in the following sections:

- Section 11 provides detailed information concerning the scores that were reported and the cut-scores for each content area.
- Section 12 provides information concerning test characteristics based on classical test theory.
- Section 13 presents information regarding student characteristics for the MD Mod-HSA administrations.

## **Section 11. Scoring Procedures**

### **Scale Scores**

The MD Mod-HSA reporting scale ranges from 240 to 650. This scale was aligned to the MD HSA scale, which was established in 2003. Scale scores describing both total test and subscore performance on the MD Mod-HSA are maximum likelihood estimates obtained using item-pattern (IP) scoring and the parameters estimated for the items in each operational test form.

Beginning with the May 2009 administration and onward, subscores were calculated using IP scoring instead of raw score to scale score conversion tables. This change was implemented to provide consistency in scoring between total test scores and subscores, and to mitigate possible confusion due to different scoring methods within the MD Mod-HSAs. Total test results in the scale score metric were reported to students. Subscores were not reported to students but were aggregated at the classroom level to provide teachers and administrators with additional information about student performance in each of the subscore categories.

### **Lowest and Highest Obtainable Test Scores**

The maximum likelihood procedure under the 3PL model cannot produce reasonable scale score estimates for students with perfect scores or scores below the level expected by guessing. While maximum likelihood estimates are usually available for students with extreme scores other than zero or perfect, occasionally these estimates have very large conditional standard errors of measurement (CSEMs), and differences between these extreme values have little meaning. Therefore, scores were established for these students based on the procedure used for the MD HSA (refer to Appendix 3.C of the 2004 Technical Report). These values were called the lowest obtainable scale score (LOSS) and the highest obtainable scale score (HOSS). The same LOSS and HOSS values were used for RS–SS tables and the IP scoring. Starting with the summer 2005 administration of the MD HSA, MSDE decided that the LOSS and HOSS values would be 240 and 650, respectively, for all content areas. Since the MD Mod-HSA is on the same scale as the MD HSA, the same LOSS and HOSS values were used.

### **Cut-Scores**

MSDE requested that the MD Mod-HSAs be aligned with the MD HSA scales so that the cut-scores established for the MD HSAs could be applied to the MD Mod-HSAs. The MD HSA cut-scores associated with each performance level in the non-English content areas were established by MSDE in 2003.<sup>13</sup> The MD HSA English cut-scores were established during a standard setting held in October 2005.

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<sup>13</sup> Technical documentation on the standard-setting method used to establish MD HSA cut-scores is available on the Maryland State Department of Education website at <http://www.marylandpublicschools.org/divisions/planningresultstest/maryland+standard+setting+technical+reports.htm>.

Two cut-scores were established for the Algebra and English tests, enabling students to be classified as Basic, Proficient, or Advanced. Two cut-scores were needed because the results for these tests are used as the high school mathematics and English/language arts components of Maryland’s system of accountability under NCLB.<sup>14</sup> Prior to the 2007–2008 school year, Biology had only one cut-score. In 2007 an advanced cut-score was set for Biology, and the results are now used as components of the MSDE accountability system. There is only one cut-score for the Government test; it is used to classify students as Basic or Proficient.

To verify that the cut-scores established for the MD HSAs were appropriate for the MD Mod-HSAs, a standard setting was conducted in August 2008 using the MD Mod-HSA student results. The standard-setting panels, consisting of Maryland general and special educators, confirmed that the MD HSA cut-scores were appropriate for the MD Mod-HSA.<sup>15</sup>

Students eligible to take an MD Mod-HSA and who entered grade 9 in or after the 2005–2006 academic year must pass MD Mod-HSAs or MD HSAs in all four content areas or achieve an overall combined score of 1602 as part of the requirements for graduation. The Proficient cut-scores are used to determine Pass/Fail classifications. The cut-scores by content area are given in Table 11.1.

**Table 11.1** MD Mod-HSA Cut-Scores by Content Area

Content Area	Cut-Score	
	Proficient	Advanced
Algebra	412	450
Biology	400	452
English	396	429
Government	394	--

<sup>14</sup> Information regarding the system of accountability is available on the Maryland State Department of Education website at [http://www.marylandpublicschools.org/NR/rdonlyres/0146EDA2-5F91-47DD-9A84-16164BDEA25C/18082/Acct\\_workbook\\_final\\_w\\_table\\_appendices\\_r\\_93008.doc](http://www.marylandpublicschools.org/NR/rdonlyres/0146EDA2-5F91-47DD-9A84-16164BDEA25C/18082/Acct_workbook_final_w_table_appendices_r_93008.doc).

<sup>15</sup> Information regarding the standard-setting process for the MD Mod-HSA is available at the MSDE website at [http://www.marylandpublicschools.org/NR/rdonlyres/3253C1DD-CA2E-4E64-A066-D6F36EBADF9B/18003/ModHSA\\_SB\\_Final.ppt](http://www.marylandpublicschools.org/NR/rdonlyres/3253C1DD-CA2E-4E64-A066-D6F36EBADF9B/18003/ModHSA_SB_Final.ppt).

## Section 12. Test Characteristics

Provided in this section is a discussion of the results of analyses of test reliability and decision consistency and decision accuracy for all test forms administered.

### Reliability

The general concept of reliability concerns the precision of a test score. Of interest is quantifying the degree to which a score will vary from an average result obtained over many testing occasions due to random factors (Haertel, 2006). A variety of theories and methods can be used to estimate reliability.

Classical test theory defines reliability as the proportion of total score variance that is true-score variance. Several different ways of estimating this proportion exist. The estimate of reliability given in this report is Cronbach's alpha (Cronbach, 1951), an internal consistency measure. It is derived from analysis of the consistency of performance over items within a test and provides a lower-bound estimate of a test's reliability. Cronbach's alpha can be expressed as

$$\alpha = \frac{n}{n-1} \left[ 1 - \frac{\sum_{i=1}^n \sigma_i^2}{\sigma_x^2} \right],$$

where  $n$  is the number of items,  $\sigma_i^2$  is the variance of scores on the  $i$ -th item, and  $\sigma_x^2$  is the variance of the total score (sum of scores on the individual items).

Values for Cronbach's alpha were calculated for each test form, each test group, and selected subgroups. The results for the reliability analyses are presented along with other summary statistics in Tables 13.5 to 13.24 of Section 13. The tables show that the overall reliability coefficients for the MD Mod-HSA ranged from 0.63 to 0.86.

### Decision Accuracy and Decision Consistency

The accuracy of decisions based on specified cut-scores was assessed for reliability of classification using the ETS computer program *RELCLASS*, which provides two statistics that describe the reliability of classifications based on test scores (Livingston & Lewis, 1995). More specifically, information from an administration of one form is used to estimate the following:

Decision accuracy describes the extent to which examinees are classified in the same way as they would be on the basis of the average of all possible forms of a test. Decision accuracy answers the question: How does the actual classification of test takers, based on their single-form scores, agree with the classification that would be made on the basis of their true scores, if their true scores were somehow known?

Decision consistency describes the extent to which examinees are classified in the same way they would be on the basis of a single form of a test other than the one for which data are available. Decision consistency answers the question: What is the agreement between the classifications based on two non-overlapping, equally difficult forms of the test?

*RELCLASS* estimates decision accuracy using an estimated joint distribution of reported performance-level classifications on the current form of the test and the performance-level classifications based on an all-forms average (true score). *RELCLASS* estimates decision consistency using an estimated joint distribution of reported performance-level classifications on the current form of the test and performance-level classifications on an alternate (parallel) form. In each case, the proportion of performance-level classifications with exact agreement is the sum of the entries in the diagonal of the contingency table representing the joint distribution.

*RELCLASS* results were calculated using student scale scores derived from item-pattern score distributions for each form and content area. In three cases, the *RELCLASS* program would not converge due to the nature of the data (i.e., small sample sizes). The three cases were Biology Form 409, English Form 409, and Government Form 409, all taken by the Summer populations.

The results are provided in Tables 12.1 to 12.20 by content area for the October, January, April, May, and Summer administrations. The tables show decision accuracy values, which describe the agreement between classifications based on an observable variable (scores on one form of a test) and classifications based on an unobservable variable (the test takers' true scores). Decision accuracy values ranged from 0.83 to 0.90 across all performance levels and content areas and from 0.86 to 0.91 for the Proficient and Advanced classifications in Algebra, Biology, and English.

Decision consistency values describe the agreement between classifications based on two variables (scores on the form students have taken and a parallel form of the same test that is not administered to the students). Decision consistency values ranged from 0.79 to 0.87 across all performance levels and content areas and from 0.81 to 0.87 for the Proficient and Advanced classifications in Algebra, Biology, and English.

Note that in all cases the decision accuracy indices are somewhat larger than the decision consistency indices. This is due to differences in the estimation procedures. The estimation procedure for decision accuracy includes a random component on one of the two variables, whereas in estimating decision consistency each variable includes a random component (Livingston & Lewis, 1995).



**Table 12.1** Decision Accuracy and Consistency: MD Mod-HSA Algebra October 2008 Form

Form 108	Placement Scores	Estimated Proportion Within Category			
		Advanced	Proficient	Basic	Category Total
	450–650	0.00	0.00	0.00	0.00
Decision Accuracy	412–449	0.00	0.05	0.03	0.08
	240–411	0.02	0.06	0.84	0.92
Estimated Proportion Correctly Classified* = 0.89 ; Proficient & Above = 0.89					
	450–650	0.00	0.00	0.00	0.00
Decision Consistency	412–449	0.01	0.03	0.03	0.08
	240–411	0.03	0.09	0.80	0.92
Estimated Proportion Consistently Classified* = 0.84 ; Proficient & Above = 0.85					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.2** Decision Accuracy and Consistency: MD Mod-HSA Algebra January 2009 Form

Form 209	Placement Scores	Estimated Proportion Within Category			
		Advanced	Proficient	Basic	Category Total
	450–650	0.00	0.00	0.00	0.00
Decision Accuracy	412–449	0.00	0.04	0.03	0.07
	240–411	0.02	0.06	0.86	0.93
Estimated Proportion Correctly Classified* = 0.90 ; Proficient & Above = 0.90					
	450–650	0.00	0.00	0.00	0.00
Decision Consistency	412–449	0.01	0.03	0.03	0.07
	240–411	0.02	0.08	0.82	0.93
Estimated Proportion Consistently Classified* = 0.85 ; Proficient & Above = 0.86					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.3** Decision Accuracy and Consistency: MD Mod-HSA Algebra April 2009 Form

Form 209	Placement Scores	Estimated Proportion Within Category			
		Advanced	Proficient	Basic	Category Total
	450–650	0.00	0.00	0.00	0.00
Decision Accuracy	412–449	0.00	0.04	0.02	0.07
	240–411	0.02	0.06	0.85	0.93
Estimated Proportion Correctly Classified* = 0.90 ; Proficient & Above = 0.90					
	450–650	0.00	0.00	0.00	0.00
Decision Consistency	412–449	0.01	0.03	0.03	0.07
	240–411	0.03	0.09	0.81	0.93
Estimated Proportion Consistently Classified* = 0.85 ; Proficient & Above = 0.86					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.4** Decision Accuracy and Consistency: MD Mod-HSA Algebra May 2009 Form

Form 109	Placement Scores	Estimated Proportion Within Category			Category Total
		Advanced	Proficient	Basic	
	450–650	0.00	0.00	0.00	0.00
Decision Accuracy	412–449	0.02	0.06	0.04	0.11
	240–411	0.02	0.05	0.82	0.89
Estimated Proportion Correctly Classified* = 0.88 ; Proficient & Above = 0.90					
	450–650	0.00	0.00	0.00	0.00
Decision Consistency	412–449	0.03	0.04	0.04	0.11
	240–411	0.02	0.07	0.79	0.89
Estimated Proportion Consistently Classified* = 0.83 ; Proficient & Above = 0.86					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.5** Decision Accuracy and Consistency: MD Mod-HSA Algebra Summer 2009 Form

Form 309	Placement Scores	Estimated Proportion Within Category			Category Total
		Advanced	Proficient	Basic	
	450–650	0.01	0.00	0.00	0.01
Decision Accuracy	412–449	0.00	0.03	0.02	0.05
	240–411	0.02	0.06	0.87	0.94
Estimated Proportion Correctly Classified* = 0.90 ; Proficient & Above = 0.91					
	450–650	0.01	0.00	0.00	0.01
Decision Consistency	412–449	0.00	0.02	0.02	0.05
	240–411	0.03	0.08	0.83	0.94
Estimated Proportion Consistently Classified* = 0.87 ; Proficient & Above = 0.87					
Form 409					
	450–650	0.00	0.00	0.00	0.00
Decision Accuracy	412–449	0.06	0.09	0.05	0.19
	240–411	0.02	0.04	0.75	0.81
Estimated Proportion Correctly Classified* = 0.83 ; Proficient & Above = 0.89					
	450–650	0.00	0.00	0.00	0.00
Decision Consistency	412–449	0.07	0.07	0.06	0.19
	240–411	0.03	0.06	0.72	0.81
Estimated Proportion Consistently Classified* = 0.79 ; Proficient & Above = 0.86					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.6** Decision Accuracy and Consistency: MD Mod-HSA Biology October 2008 Form

Form 108	Placement Scores	Estimated Proportion Within Category			Category Total
		Advanced	Proficient	Basic	
	452–650	0.00	0.00	0.00	0.00
Decision Accuracy	400–451	0.00	0.08	0.06	0.13
	240–399	0.01	0.07	0.79	0.87
Estimated Proportion Correctly Classified* = 0.86 ; Proficient & Above = 0.86					
	452–650	0.00	0.00	0.00	0.00
Decision Consistency	400–451	0.01	0.06	0.06	0.13
	240–399	0.02	0.11	0.74	0.87
Estimated Proportion Consistently Classified* = 0.80 ; Proficient & Above = 0.81					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.7** Decision Accuracy and Consistency: MD Mod-HSA Biology January 2009 Form

Form 209	Placement Scores	Estimated Proportion Within Category			Category Total
		Advanced	Proficient	Basic	
	452–650	0.00	0.00	0.00	0.00
Decision Accuracy	400–451	0.00	0.08	0.05	0.12
	240–399	0.01	0.07	0.79	0.87
Estimated Proportion Correctly Classified* = 0.86 ; Proficient & Above = 0.87					
	452–650	0.00	0.00	0.00	0.00
Decision Consistency	400–451	0.01	0.07	0.05	0.12
	240–399	0.02	0.11	0.74	0.87
Estimated Proportion Consistently Classified* = 0.81 ; Proficient & Above = 0.81					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.8** Decision Accuracy and Consistency: MD Mod-HSA Biology April 2009 Form

Form 209	Placement Scores	Estimated Proportion Within Category			Category Total
		Advanced	Proficient	Basic	
	452–650	0.00	0.01	0.00	0.01
Decision Accuracy	400–451	0.00	0.07	0.04	0.11
	240–399	0.01	0.07	0.80	0.88
Estimated Proportion Correctly Classified* = 0.87 ; Proficient & Above = 0.87					
	452–650	0.00	0.00	0.00	0.01
Decision Consistency	400–451	0.00	0.06	0.05	0.11
	240–399	0.02	0.11	0.75	0.88
Estimated Proportion Consistently Classified* = 0.82 ; Proficient & Above = 0.82					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.9** Decision Accuracy and Consistency: MD Mod-HSA Biology May 2009 Form

Form 109	Placement Scores	Estimated Proportion Within Category			Category Total
		Advanced	Proficient	Basic	
	452–650	0.00	0.00	0.00	0.00
Decision Accuracy	400–451	0.00	0.10	0.06	0.16
	240–399	0.01	0.07	0.76	0.84
Estimated Proportion Correctly Classified* = 0.86 ; Proficient & Above = 0.86					
	452–650	0.00	0.00	0.00	0.00
Decision Consistency	400–451	0.01	0.08	0.07	0.16
	240–399	0.02	0.11	0.72	0.84
Estimated Proportion Correctly Classified* = 0.80 ; Proficient & Above = 0.81					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.10** Decision Accuracy and Consistency: MD Mod-HSA Biology 2009 Summer Form

Form 309	Placement Scores	Estimated Proportion Within Category			Category Total
		Advanced	Proficient	Basic	
	452–650	0.00	0.00	0.00	0.00
Decision Accuracy	400–451	0.00	0.08	0.03	0.11
	240–399	0.02	0.07	0.80	0.89
Estimated Proportion Correctly Classified* = 0.88 ; Proficient & Above = 0.88					
	452–650	0.00	0.00	0.00	0.00
Decision Consistency	400–451	0.01	0.06	0.04	0.11
	240–399	0.02	0.11	0.76	0.89
Estimated Proportion Consistently Classified* = 0.82 ; Proficient & Above = 0.83					
Form 409					
	452–650	-	-	-	-
Decision Accuracy	400–451	-	-	-	-
	240–399	-	-	-	-
Insufficient sample size < 50					
	452–650	-	-	-	-
Decision Consistency	400–451	-	-	-	-
	240–399	-	-	-	-
Insufficient sample size < 50					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.11** Decision Accuracy and Consistency: MD Mod-HSA English October 2008 Form

Form 108	Placement	Advanced	Proficient	Basic	Category
	Scores				Total*
	429–650	0.00	0.00	0.00	0.00
Decision	396–428	0.02	0.07	0.04	0.12
Accuracy	240–395	0.02	0.06	0.79	0.87
Estimated Proportion Correctly Classified*: Total = 0.87, Proficient & Above = 0.88					
	429–650	0.00	0.00	0.00	0.00
Decision	396–428	0.03	0.05	0.05	0.12
Consistency	240–395	0.03	0.09	0.76	0.87
Estimated Proportion Consistently Classified*: Total = 0.81; Proficient & Above = 0.84					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.12** Decision Accuracy and Consistency: MD Mod-HSA English January 2009 Form

Form 209	Placement	Advanced	Proficient	Basic	Category
	Scores				Total*
	429–650	0.00	0.00	0.00	0.00
Decision	396–428	0.01	0.07	0.04	0.12
Accuracy	240–395	0.01	0.06	0.80	0.88
Estimated Proportion Correctly Classified*: Total = 0.88, Proficient & Above = 0.89					
	429–650	0.00	0.00	0.00	0.00
Decision	396–428	0.02	0.05	0.04	0.12
Consistency	240–395	0.02	0.09	0.77	0.88
Estimated Proportion Consistently Classified*: Total = 0.83 , Proficient & Above = 0.85					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.13** Decision Accuracy and Consistency: MD Mod-HSA English April 2009 Form

Form 209	Placement	Advanced	Proficient	Basic	Category
	Scores				Total*
	429–650	0.01	0.00	0.00	0.01
Decision	396–428	0.01	0.07	0.04	0.12
Accuracy	240–395	0.01	0.05	0.81	0.87
Estimated Proportion Correctly Classified*: Total = 0.89, Proficient & Above = 0.90					
	429–650	0.01	0.00	0.00	0.01
Decision	396–428	0.02	0.06	0.05	0.12
Consistency	240–395	0.02	0.08	0.78	0.87
Estimated Proportion Consistently Classified*: Total = 0.84 , Proficient & Above = 0.86					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.14** Decision Accuracy and Consistency: MD Mod-HSA English May 2009 Form

Form 109	Placement	Advanced	Proficient	Basic	Category
	Scores				Total*
	429–650	0.01	0.00	0.00	0.01
Decision	396–428	0.01	0.06	0.04	0.11
Accuracy	240–395	0.02	0.06	0.81	0.88
Estimated Proportion Correctly Classified*: Total = 0.88, Proficient & Above = 0.89					
	429–650	0.01	0.00	0.00	0.01
Decision	396–428	0.02	0.05	0.04	0.11
Consistency	240–395	0.02	0.08	0.78	0.88
Estimated Proportion Consistently Classified*: Total = 0.83 , Proficient & Above = 0.85					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.15** Decision Accuracy and Consistency: MD Mod-HSA English Summer 2009 Form

Form 309	Placement Scores	Estimated Proportion within Category			Category Total
		Advanced	Proficient	Basic	
	429–650	0.01	0.01	0.00	0.02
Decision	396–428	0.00	0.04	0.03	0.07
Accuracy	240–395	0.01	0.06	0.84	0.91
Estimated Proportion Correctly Classified* = 0.89 ; Proficient & Above = 0.90					
	429–650	0.01	0.01	0.00	0.02
Decision	396–428	0.00	0.03	0.03	0.07
Consistency	240–395	0.02	0.09	0.80	0.91
Estimated Proportion Consistently Classified* = 0.85; Proficient & Above = 0.86					
Form 409					
	429–650	-	-	-	-
Decision	396–428	-	-	-	-
Accuracy	240–395	-	-	-	-
Insufficient sample size < 50					
	429–650	-	-	-	-
Decision	396–428	-	-	-	-
Consistency	240–395	-	-	-	-
Insufficient sample size < 50					

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.16** Decision Accuracy and Consistency: MD Mod-HSA Government October 2008 Form

Form 108	Placement Scores	Estimated Proportion Within Category		Category Total
		Proficient	Basic	
Decision Accuracy	394–650	0.14	0.06	0.20
	240–393	0.06	0.74	0.80
Estimated Proportion Correctly Classified* = 0.88				
Decision Consistency	394–650	0.13	0.07	0.20
	240–393	0.10	0.70	0.80
Estimated Proportion Consistently Classified* = 0.84				

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.17** Decision Accuracy and Consistency: MD Mod-HSA Government January 2009 Form

Form 209	Placement Scores	Estimated Proportion Within Category		Category Total
		Proficient	Basic	
Decision Accuracy	394–650	0.12	0.03	0.16
	240–393	0.06	0.78	0.84
Estimated Proportion Correctly Classified* = 0.90				
Decision Consistency	394–650	0.11	0.04	0.16
	240–393	0.10	0.75	0.84
Estimated Proportion Consistently Classified* = 0.86				

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.18** Decision Accuracy and Consistency: MD Mod-HSA Government April 2009 Form

Form 209	Placement Scores	Estimated Proportion Within Category		Category Total
		Proficient	Basic	
Decision Accuracy	394–650	0.12	0.04	0.16
	240–393	0.06	0.78	0.84
Estimated Proportion Correctly Classified* = 0.89				
Decision Consistency	394–650	0.11	0.05	0.16
	240–393	0.10	0.74	0.84
Estimated Proportion Consistently Classified* = 0.85				

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.19** Decision Accuracy and Consistency: MD Mod-HSA Government May 2009 Form

Form 109	Placement Scores	Estimated Proportion Within Category		Category Total
		Proficient	Basic	
Decision Accuracy	394–650	0.18	0.07	0.25
	240–393	0.05	0.70	0.75
Estimated Proportion Correctly Classified* = 0.88				
Decision Consistency	394–650	0.17	0.08	0.25
	240–393	0.09	0.67	0.75
Estimated Proportion Consistently Classified* = 0.83				

\*Inconsistencies within category cell entries are due to rounding.

**Table 12.20** Decision Accuracy and Consistency: MD Mod-HSA Government Summer 2009 Form

Form 309	Placement Scores	Proficient	Basic	Category
				Total*
Decision Accuracy	394–650	0.06	0.04	0.10
	240–393	0.07	0.82	0.90
Estimated Proportion Correctly Classified*: Total = 0.88				
Decision Consistency	394–650	0.06	0.04	0.10
	240–393	0.13	0.77	0.90
Estimated Proportion Consistently Classified*: Total = 0.83				
Form 409				
Decision Accuracy	394–650	-	-	-
	240–393	-	-	-
Insufficient sample size < 50				
Decision Consistency	394–650	-	-	-
	240–393	-	-	-
Insufficient sample size < 50				

\*Inconsistencies within category cell entries are due to rounding.



## Section 13. Student Characteristics

### Summary Statistics

Students' scale score means and standard deviations are presented in Table 13.1. Results from online and paper test-takers were pooled for the analyses. All results are based on the final Research files sent to MSDE.

**Table 13.1** MD Mod-HSA Mean Scale Scores by Content Area and Test Administration

Content Area	October			January			April			May			Summer		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Algebra	1,696	365.8	46.0	2,535	363.0	45.8	513	363.8	47.1	4,291	362.2	51.2	254	362.9	49.7
Biology	1,271	362.9	44.5	1,961	364.4	43.4	564	364.7	42.1	2,800	366.1	43.1	218	367.9	46.2
English	1,698	360.7	40.3	2,377	361.7	37.8	570	362.1	36.2	3,291	358.3	40.5	240	362.4	37.4
Government	1,381	359.4	47.2	2,000	356.0	46.9	462	357.0	45.9	2,950	361.5	50.0	221	359.0	46.8

The results presented in Tables 13.2 to 13.3 are based on the combined results for students who took the tests in October 2008 and January, April, May, and Summer 2009. The mean scale scores are presented for the years 2008 and 2009 by content area in Table 13.2. Table 13.3 presents the passing rates for these years.

**Table 13.2** MD Mod-HSA Mean Scale Scores by Content Area and Test Year

Content Area	2008	2009
Algebra	360.1	363.2
Biology	360.2	365.0
English	353.2	360.2
Government	357.2	359.2

**Table 13.3** MD Mod-HSA Percentage Passing Rates (Proficient + Advanced) by Content Area and Test Year

Content Area	2008	2009
Algebra	9.8	9.2
Biology	16.1	14.5
English	10.4	12.2
Government	19.9	20.3

The Algebra and English tests are used for the high school mathematics and English/language arts components of the MSDE Adequate Yearly Progress report as required

under the NCLB Act. Beginning with the January 2008 administration, Biology was used for the NCLB science component. Table 13.4 presents the percentage of Algebra, English, and Biology students classified as Basic, Proficient, and Advanced in 2009. Figures 13.1 through 13.4 show the distribution of scale scores for the May 2009 administration for each content area.

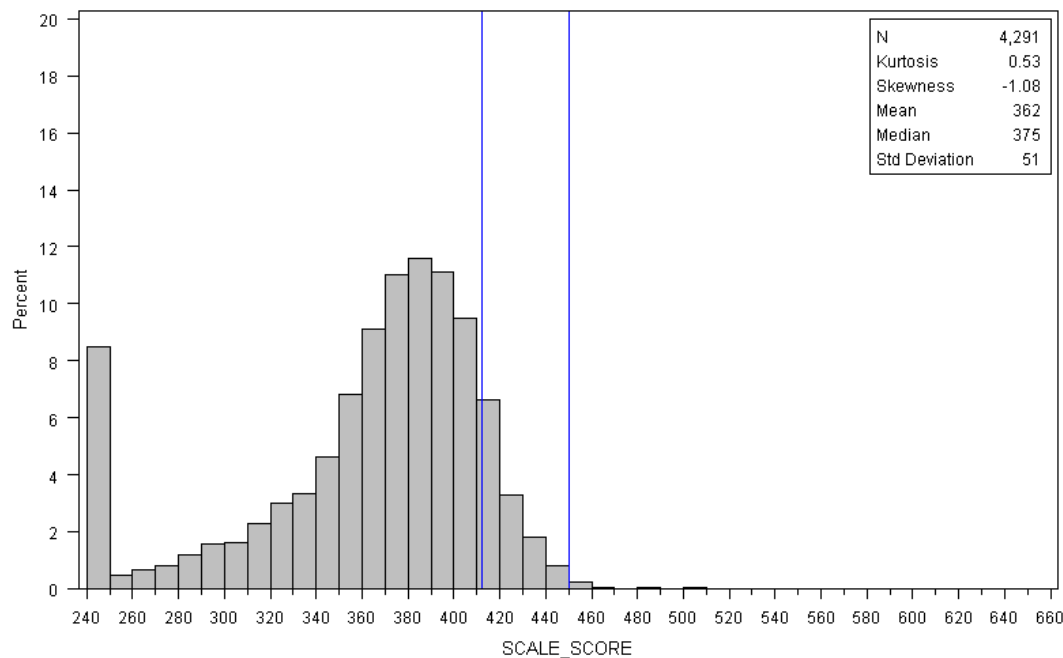
**Table 13.4** MD Mod-HSA Percentage of Students in Each Performance Category by Content Area

Content Area*	Basic	Proficient	Advanced
Algebra	90.8	8.9	0.4
Biology	85.5	14.2	0.3
English	87.8	11.7	0.6

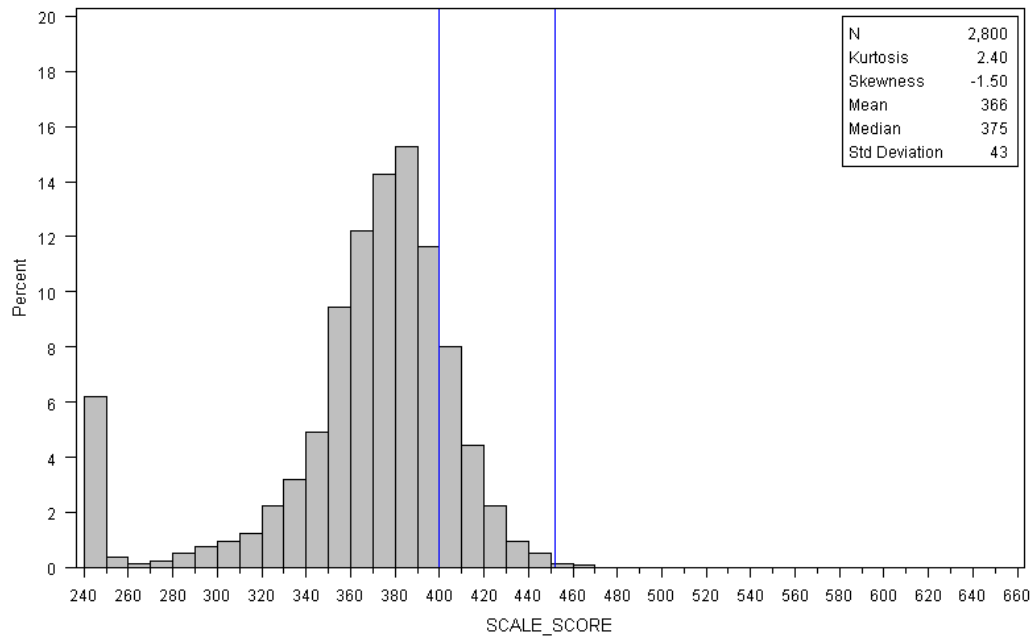
\*Government does not have an Advanced cut-score and therefore is not included in this table.

Summary statistics for all students and for subgroups based on gender, special education programs, ethnicity, and English language fluency are presented in Tables 13.5 through 13.28. The tables include the number of students tested for whom valid scores were available, mean scale scores, and standard deviations of scale scores. In addition, raw score reliabilities are provided for the overall group of examinees and for subgroups.

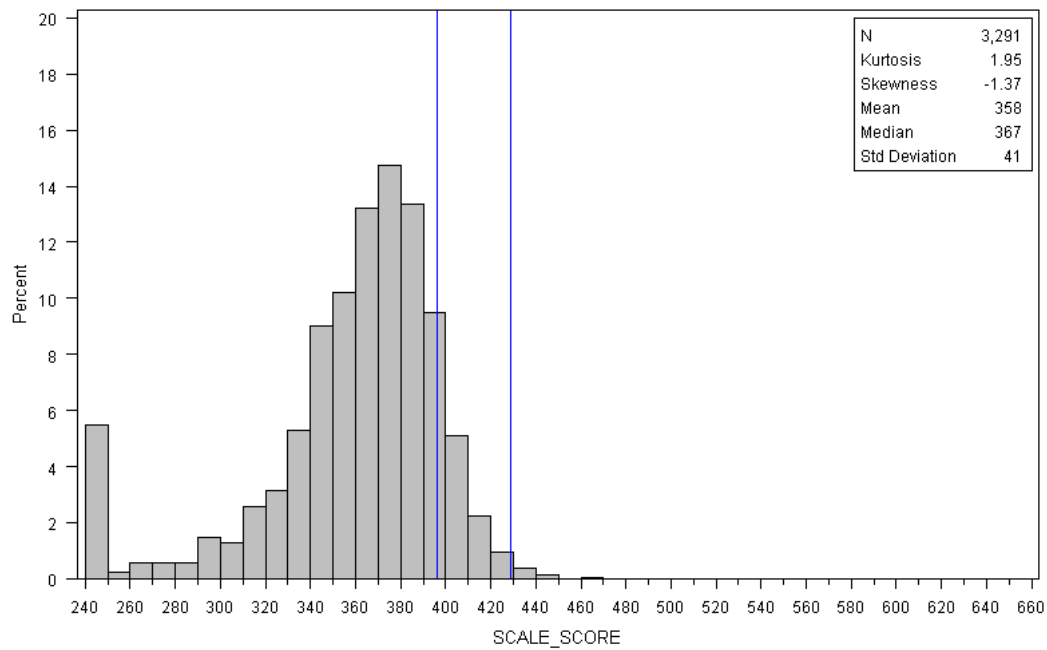
**Figure 13.1** Histogram of Total Scale Scores for MD Mod-HSA May 2009 Algebra



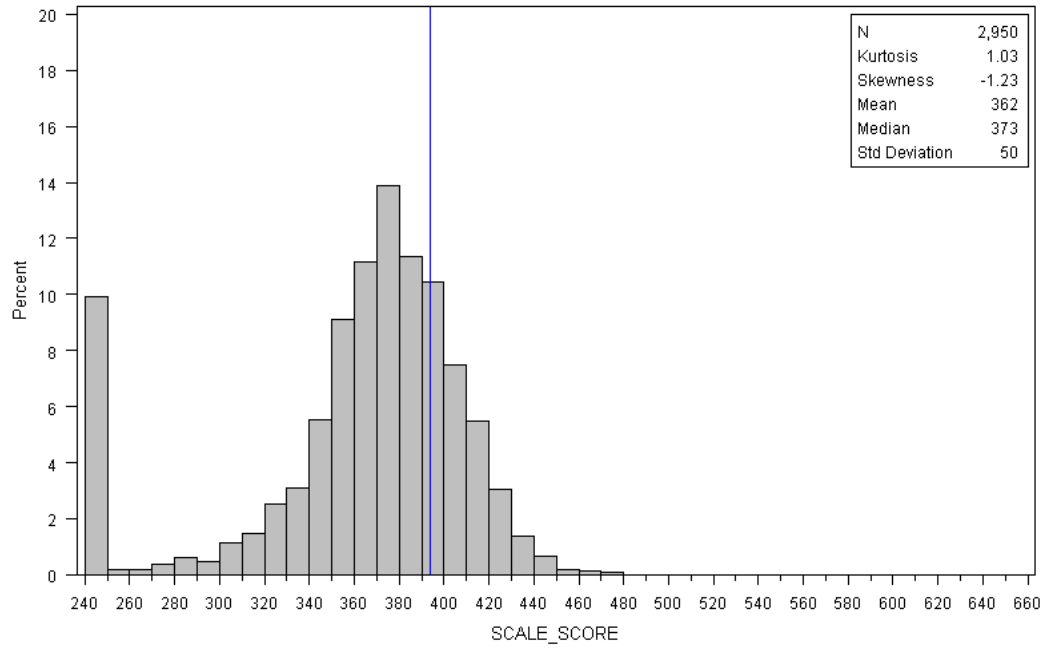
**Figure 13.2** Histogram of Total Scale Scores for MD Mod-HSA May 2009 Biology



**Figure 13.3** Histogram of Total Scale Scores for MD Mod-HSA May 2009 English



**Figure 13.4** Histogram of Total Scale Scores for MD Mod-HSA May 2009 Government



**Table 13.5** Summary Statistics for Algebra: MD Mod-HSA October 2008 Form

		Forms 108, 308				
		Mean	SD	N	%	Alpha
Overall		365.8	46.0	1,696	100.0	0.75
Gender						
	Male	367.2	45.8	1,034	61.0	0.76
	Female	363.4	46.3	654	38.6	0.72
	Missing	*	*	8	0.5	*
Special Education						
	Yes	363.6	47.6	847	49.9	0.75
	No	368.1	44.3	845	49.8	0.75
	Exited	*	*	0	0.0	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	4	0.2	*
Ethnicity						
	American Indian	*	*	2	0.1	*
	Asian/Pacific Islander	*	*	20	1.2	*
	African American	358.3	48.7	1,019	60.1	0.72
	White	379.0	36.3	561	33.1	0.76
	Hispanic	364.3	50.1	80	4.7	0.76
	Missing	*	*	14	0.8	*
Limited English Proficient						
	Yes	*	*	4	0.2	*
	No	365.9	45.9	1,691	99.7	0.75
	Exited <sup>b</sup>	*	*	1	0.1	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.6** Summary Statistics for Algebra: MD Mod-HSA January 2009 Form

		Form 209				
		Mean	SD	N	%	Alpha
Overall		363.0	45.8	2,535	100.0	0.74
Gender						
	Male	363.8	46.1	1,558	61.5	0.75
	Female	361.4	45.3	957	37.8	0.71
	Missing	*	*	20	0.8	*
Special Education						
	Yes	363.9	45.1	1,629	64.3	0.74
	No	361.4	46.8	899	35.5	0.74
	Exited	*	*	0	0.0	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	7	0.3	*
Ethnicity						
	American Indian	*	*	15	0.6	*
	Asian/Pacific Islander	*	*	27	1.1	*
	African American	356.9	47.6	1,619	63.9	0.72
	White	375.8	38.9	728	28.7	0.75
	Hispanic	369.2	40.5	110	4.3	0.70
	Missing	*	*	36	1.4	*
Limited English Proficient						
	Yes	*	*	5	0.2	*
	No	363.0	45.8	2,525	99.6	0.74
	Exited <sup>b</sup>	*	*	5	0.2	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.7** Summary Statistics for Algebra: MD Mod-HSA April 2009 Form

		Form 209				Alpha
		Mean	SD	N	%	
Overall		363.8	47.1	513	100.0	0.75
Gender						
	Male	363.0	48.3	322	62.8	0.75
	Female	365.0	45.6	186	36.3	0.76
	Missing	*	*	5	1.0	*
Special Education						
	Yes	361.5	47.1	417	81.3	0.71
	No	373.4	46.1	94	18.3	0.83
	Exited	*	*	0	0.0	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	2	0.4	*
Ethnicity						
	American Indian	*	*	3	0.6	*
	Asian/Pacific Islander	*	*	6	1.2	*
	African American	359.5	49.0	381	74.3	0.75
	White	380.6	35.9	90	17.5	0.73
	Hispanic	*	*	28	5.5	*
	Missing	*	*	5	1.0	*
Limited English Proficient						
	Yes	*	*	0	0.0	*
	No	363.7	47.1	511	99.6	0.75
	Exited <sup>b</sup>	*	*	2	0.4	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.8** Summary Statistics for Algebra: MD Mod-HSA May 2009 Forms

		Forms 109, 509				
		Mean	SD	N	%	Alpha
Overall		362.2	51.2	4,291	100.0	0.78
Gender						
	Male	363.3	51.2	2,794	65.1	0.79
	Female	360.0	51.2	1,465	34.1	0.77
	Missing	*	*	32	0.8	*
Special Education						
	Yes	363.3	49.9	3,267	76.1	0.77
	No	358.9	55.1	994	23.2	0.80
	Exited	*	*	10	0.2	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	20	0.5	*
Ethnicity						
	American Indian	*	*	16	0.4	*
	Asian/Pacific Islander	376.3	49.2	56	1.3	0.79
	African American	354.9	53.2	2,741	63.9	0.76
	White	377.1	43.5	1,058	24.7	0.79
	Hispanic	371.0	45.7	373	8.7	0.77
	Missing	*	*	47	1.1	*
Limited English Proficient						
	Yes	*	*	25	0.6	*
	No	362.1	51.3	4,226	98.5	0.78
	Exited <sup>b</sup>	*	*	40	0.9	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.



**Table 13.9** Summary Statistics for Algebra: MD Mod-HSA Summer 2009 Forms

	Forms 309, 609					Forms 409, 709				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	361.7	46.2	192	100.0	0.75	366.5	59.4	62	100.0	0.86
Gender										
Male	358.6	49.9	117	60.9	0.76	*	*	39	62.9	*
Female	366.6	39.6	75	39.1	0.73	*	*	23	37.1	*
Missing	*	*	0	0.0	*	*	*	0	0.0	*
Special Education										
Yes	368.7	48.5	51	26.6	0.78	*	*	13	21.0	*
No	359.2	45.2	141	73.4	0.73	*	*	49	79.0	*
Exited	*	*	0	0.0	*	*	*	0	0.0	*
Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*	*	*	0	0.0	*
504	*	*	0	0.0	*	*	*	0	0.0	*
Ethnicity										
American Indian	*	*	0	0.0	*	*	*	2	3.2	*
Asian/Pacific Islander	*	*	1	0.5	*	*	*	0	0.0	*
African American	358.3	44.5	130	67.7	0.69	*	*	39	62.9	*
White	*	*	46	24.0	*	*	*	19	30.6	*
Hispanic	*	*	10	5.2	*	*	*	1	1.6	*
Missing	*	*	5	2.6	*	*	*	1	1.6	*
Limited English Proficient										
Yes	*	*	1	0.5	*	*	*	0	0.0	*
No	361.5	46.2	191	99.5	0.75	366.5	59.4	62	100.0	0.86
Exited <sup>b</sup>	*	*	0	0.0	*	*	*	0	0.0	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.10** Summary Statistics for Biology: MD Mod-HSA October 2008 Forms

		Forms 108, 308				
		Mean	SD	N	%	Alpha
Overall		362.9	44.5	1,271	100.0	0.67
Gender						
	Male	362.0	45.8	779	61.3	0.67
	Female	364.6	41.7	487	38.3	0.66
	Missing	*	*	5	0.4	*
Special Education						
	Yes	361.0	45.7	682	53.7	0.66
	No	365.2	42.8	586	46.1	0.68
	Exited	*	*	0	0.0	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	3	0.2	*
Ethnicity						
	American Indian	*	*	2	0.2	*
	Asian/Pacific Islander	*	*	11	0.9	*
	African American	355.8	47.0	794	62.5	0.68
	White	375.7	35.7	399	31.4	0.62
	Hispanic	376.7	34.2	60	4.7	0.61
	Missing	*	*	5	0.4	*
Limited English Proficient						
	Yes	*	*	2	0.2	*
	No	362.8	44.5	1,268	99.8	0.67
	Exited <sup>b</sup>	*	*	1	0.1	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.11** Summary Statistics for Biology: MD Mod-HSA January 2009 Form

		Form 209				
		Mean	SD	N	%	Alpha
Overall		364.4	43.4	1,961	100.0	0.69
Gender						
	Male	364.5	45.1	1,203	61.3	0.71
	Female	364.7	39.8	748	38.1	0.65
	Missing	*	*	10	0.5	*
Special Education						
	Yes	365.9	42.3	1,399	71.3	0.69
	No	360.8	45.9	553	28.2	0.68
	Exited	*	*	2	0.1	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	7	0.4	*
Ethnicity						
	American Indian	*	*	7	0.4	*
	Asian/Pacific Islander	*	*	25	1.3	*
	African American	360.3	45.4	1,251	63.8	0.69
	White	373.8	37.2	561	28.6	0.66
	Hispanic	364.5	39.4	102	5.2	0.65
	Missing	*	*	15	0.8	*
Limited English Proficient						
	Yes	*	*	6	0.3	*
	No	364.5	43.3	1,949	99.4	0.69
	Exited <sup>b</sup>	*	*	6	0.3	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.12** Summary Statistics for Biology: MD Mod-HSA April 2009 Form

		Form 209				
		Mean	SD	N	%	Alpha
Overall		364.7	42.1	564	100.0	0.69
Gender						
	Male	363.4	42.4	352	62.4	0.70
	Female	366.7	41.6	212	37.6	0.67
	Missing	*	*	0	0.0	*
Special Education						
	Yes	362.0	44.2	452	80.1	0.70
	No	375.5	29.8	112	19.9	0.65
	Exited	*	*	0	0.0	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	0	0.0	*
Ethnicity						
	American Indian	*	*	2	0.4	*
	Asian/Pacific Islander	*	*	5	0.9	*
	African American	362.4	42.8	416	73.8	0.68
	White	372.1	38.7	103	18.3	0.69
	Hispanic	*	*	33	5.9	*
	Missing	*	*	5	0.9	*
Limited English Proficient						
	Yes	*	*	0	0.0	*
	No	364.6	42.1	562	99.6	0.69
	Exited <sup>b</sup>	*	*	2	0.4	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.13** Summary Statistics for Biology: MD Mod-HSA May 2009 Forms

		Forms 109, 509				
		Mean	SD	N	%	Alpha
Overall		366.1	43.1	2,800	100.0	0.70
Gender						
	Male	366.5	43.9	1,809	64.6	0.72
	Female	365.2	41.5	967	34.5	0.67
	Missing	*	*	24	0.9	*
Special Education						
	Yes	366.0	42.7	2,299	82.1	0.69
	No	367.1	45.3	487	17.4	0.73
	Exited	*	*	5	0.2	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	9	0.3	*
Ethnicity						
	American Indian	*	*	13	0.5	*
	Asian/Pacific Islander	*	*	46	1.6	*
	African American	360.8	45.4	1,755	62.7	0.68
	White	376.1	37.5	726	25.9	0.71
	Hispanic	372.4	37.7	229	8.2	0.70
	Missing	*	*	31	1.1	*
Limited English Proficient						
	Yes	*	*	13	0.5	*
	No	366.3	43.1	2,772	99.0	0.70
	Exited <sup>b</sup>	*	*	15	0.5	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.14** Summary Statistics for Biology: MD Mod-HSA Summer 2009 Forms

	Forms 309, 609					Forms 409, 709				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	360.4	46.9	171	100.0	0.74	*	*	47	100.0	*
Gender										
Male	356.2	53.4	111	64.9	0.79	*	*	27	57.4	*
Female	368.4	30.2	60	35.1	0.54	*	*	20	42.6	*
Missing	*	*	0	0.0	*	*	*	0	0.0	*
Special Education										
Yes	*	*	40	23.4	*	*	*	16	34.0	*
No	358.5	45.8	131	76.6	0.71	*	*	31	66.0	*
Exited	*	*	0	0.0	*	*	*	0	0.0	*
Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*	*	*	0	0.0	*
504	*	*	0	0.0	*	*	*	0	0.0	*
Ethnicity										
American Indian	*	*	1	0.6	*	*	*	0	0.0	*
Asian/Pacific Islander	*	*	3	1.8	*	*	*	0	0.0	*
African American	357.4	44.9	122	71.3	0.68	*	*	23	48.9	*
White	*	*	40	23.4	*	*	*	20	42.6	*
Hispanic	*	*	5	2.9	*	*	*	3	6.4	*
Missing	*	*	0	0.0	*	*	*	1	2.1	*
Limited English Proficient										
Yes	*	*	1	0.6	*	*	*	0	0.0	*
No	360.3	47.0	170	99.4	0.74	*	*	47	100.0	*
Exited <sup>b</sup>	*	*	0	0.0	*	*	*	0	0.0	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.15** Summary Statistics for English: MD Mod-HSA October 2008 Forms

		Forms 108, 308				
		Mean	SD	N	%	Alpha
Overall		360.7	40.3	1,698	100.0	0.76
Gender						
	Male	359.0	42.0	1,091	64.3	0.77
	Female	363.7	36.8	600	35.3	0.74
	Missing	*	*	7	0.4	*
Special Education						
	Yes	357.6	40.7	870	51.2	0.73
	No	364.0	39.5	822	48.4	0.77
	Exited	*	*	1	0.1	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	5	0.3	*
Ethnicity						
	American Indian	*	*	5	0.3	*
	Asian/Pacific Islander	*	*	19	1.1	*
	African American	356.2	42.2	951	56.0	0.76
	White	366.0	38.5	626	36.9	0.76
	Hispanic	370.0	27.8	89	5.2	0.70
	Missing	*	*	8	0.5	*
Limited English Proficient						
	Yes	*	*	2	0.1	*
	No	360.7	40.3	1,695	99.8	0.76
	Exited <sup>b</sup>	*	*	1	0.1	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.16** Summary Statistics for English: MD Mod-HSA January 2009 Form

		Form 209				
		Mean	SD	N	%	Alpha
Overall		361.7	37.8	2,377	100.0	0.77
Gender						
	Male	360.4	39.2	1,502	63.2	0.78
	Female	364.3	34.8	863	36.3	0.77
	Missing	*	*	12	0.5	*
Special Education						
	Yes	363.2	35.8	1,586	66.7	0.77
	No	359.1	40.8	785	33.0	0.78
	Exited	*	*	1	0.0	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	5	0.2	*
Ethnicity						
	American Indian	*	*	12	0.5	*
	Asian/Pacific Islander	*	*	32	1.3	*
	African American	357.6	39.8	1,465	61.6	0.78
	White	370.3	32.2	725	30.5	0.75
	Hispanic	366.3	30.3	128	5.4	0.76
	Missing	*	*	15	0.6	*
Limited English Proficient						
	Yes	*	*	5	0.2	*
	No	361.8	37.8	2,366	99.5	0.77
	Exited <sup>b</sup>	*	*	6	0.3	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.



**Table 13.17** Summary Statistics for English: MD Mod-HSA April 2009 Form

		Form 209				
		Mean	SD	N	%	Alpha
Overall		362.1	36.2	570	100.0	0.79
Gender						
	Male	360.9	37.2	371	65.1	0.77
	Female	364.1	34.7	194	34.0	0.81
	Missing	*	*	5	0.9	*
Special Education						
	Yes	360.4	36.6	466	81.8	0.79
	No	369.8	33.7	104	18.2	0.76
	Exited	*	*	0	0.0	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	0	0.0	*
Ethnicity						
	American Indian	*	*	2	0.4	*
	Asian/Pacific Islander	*	*	5	0.9	*
	African American	358.0	37.0	396	69.5	0.77
	White	374.5	29.0	124	21.8	0.75
	Hispanic	*	*	36	6.3	*
	Missing	*	*	7	1.2	*
Limited English Proficient						
	Yes	*	*	0	0.0	*
	No	362.0	36.2	568	99.6	0.78
	Exited <sup>b</sup>	*	*	2	0.4	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.18** Summary Statistics for English: MD Mod-HSA May 2009 Forms

		Forms 109, 509				
		Mean	SD	N	%	Alpha
Overall		358.3	40.5	3291	100.0	0.77
Gender						
	Male	357.3	41.5	2135	64.9	0.78
	Female	360.0	38.9	1117	33.9	0.77
	Missing	*	*	39	1.2	*
Special Education						
	Yes	358.8	39.8	2453	74.5	0.77
	No	356.6	42.8	818	24.9	0.79
	Exited	*	*	8	0.2	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	12	0.4	*
Ethnicity						
	American Indian	*	*	18	0.5	*
	Asian/Pacific Islander	360.0	44.5	58	1.8	0.76
	African American	354.3	42.2	2010	61.1	0.78
	White	365.0	37.1	892	27.1	0.77
	Hispanic	364.9	35.4	273	8.3	0.75
	Missing	*	*	40	1.2	*
Limited English Proficient						
	Yes	*	*	14	0.4	*
	No	358.3	40.5	3256	98.9	0.77
	Exited <sup>b</sup>	*	*	21	0.6	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.19** Summary Statistics for English: MD Mod-HSA Summer 2009 Forms

	Forms 309, 609					Forms 409, 709				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	358.9	37.6	194	100.0	0.74	*	*	46	100.0	*
Gender										
Male	354.3	38.9	121	62.4	0.72	*	*	27	58.7	*
Female	366.1	34.5	72	37.1	0.76	*	*	16	34.8	*
Missing	*	*	1	0.5	*	*	*	3	6.5	*
Special Education										
Yes	*	*	44	22.7	*	*	*	9	19.6	*
No	358.6	38.5	150	77.3	0.75	*	*	37	80.4	*
Exited	*	*	0	0.0	*	*	*	0	0.0	*
Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*	*	*	0	0.0	*
504	*	*	0	0.0	*	*	*	0	0.0	*
Ethnicity										
American Indian	*	*	1	0.5	*	*	*	1	2.2	*
Asian/Pacific Islander	*	*	5	2.6	*	*	*	0	0.0	*
African American	354.8	39.9	126	64.9	0.74	*	*	25	54.3	*
White	*	*	48	24.7	*	*	*	12	26.1	*
Hispanic	*	*	13	6.7	*	*	*	3	6.5	*
Missing	*	*	1	0.5	*	*	*	5	10.9	*
Limited English Proficient										
Yes	*	*	6	3.1	*	*	*	0	0.0	*
No	358.9	38.2	188	96.9	0.75	*	*	46	100.0	*
Exited <sup>b</sup>	*	*	0	0.0	*	*	*	0	0.0	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.20** Summary Statistics for Government: MD Mod-HSA October 2008 Forms

		Forms 108, 308				
		Mean	SD	N	%	Alpha
Overall		359.4	47.2	1,381	100.0	0.73
Gender						
	Male	360.6	47.4	851	61.6	0.74
	Female	357.1	46.9	522	37.8	0.71
	Missing	*	*	8	0.6	*
Special Education						
	Yes	356.9	48.9	685	49.6	0.70
	No	362.1	45.1	692	50.1	0.76
	Exited	*	*	0	0.0	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	4	0.3	*
Ethnicity						
	American Indian	*	*	5	0.4	*
	Asian/Pacific Islander	*	*	17	1.2	*
	African American	355.0	49.5	782	56.6	0.74
	White	367.0	41.7	491	35.6	0.69
	Hispanic	353.7	52.3	74	5.4	0.82
	Missing	*	*	12	0.9	*
Limited English Proficient						
	Yes	*	*	3	0.2	*
	No	359.5	47.1	1,376	99.6	0.73
	Exited <sup>b</sup>	*	*	2	0.1	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.21** Summary Statistics for Government: MD Mod-HSA January 2009 Form

		Form 209				
		Mean	SD	N	%	Alpha
Overall		356.0	46.9	2,000	100.0	0.79
Gender						
	Male	356.7	47.7	1,253	62.7	0.80
	Female	354.9	45.4	734	36.7	0.77
	Missing	*	*	13	0.7	*
Special Education						
	Yes	357.4	45.4	1,371	68.6	0.78
	No	352.9	49.9	621	31.1	0.81
	Exited	*	*	1	0.1	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	7	0.4	*
Ethnicity						
	American Indian	*	*	10	0.5	*
	Asian/Pacific Islander	*	*	27	1.4	*
	African American	354.2	48.4	1,241	62.1	0.80
	White	360.2	43.6	601	30.1	0.77
	Hispanic	353.1	47.6	104	5.2	0.71
	Missing	*	*	17	0.9	*
Limited English Proficient						
	Yes	*	*	3	0.2	*
	No	356.0	47.0	1,992	99.6	0.79
	Exited <sup>b</sup>	*	*	5	0.3	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.22** Summary Statistics for Government: MD Mod-HSA April 2009 Form

		Form 209				
		Mean	SD	N	%	Alpha
Overall		357.0	45.9	462	100.0	0.76
Gender						
	Male	354.4	49.3	286	61.9	0.76
	Female	361.9	38.7	173	37.4	0.76
	Missing	*	*	3	0.6	*
Special Education						
	Yes	355.0	46.0	385	83.3	0.74
	No	366.9	44.2	77	16.7	0.80
	Exited	*	*	0	0.0	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	0	0.0	*
Ethnicity						
	American Indian	*	*	1	0.2	*
	Asian/Pacific Islander	*	*	6	1.3	*
	African American	354.6	46.9	347	75.1	0.75
	White	365.1	44.1	79	17.1	0.77
	Hispanic	*	*	25	5.4	*
	Missing	*	*	4	0.9	*
Limited English Proficient						
	Yes	*	*	1	0.2	*
	No	357.1	45.9	460	99.6	0.76
	Exited <sup>b</sup>	*	*	1	0.2	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.23** Summary Statistics for Government: MD Mod-HSA May 2009 Forms

		Forms 109, 509				
		Mean	SD	N	%	Alpha
Overall		361.5	50.0	2,950	100.0	0.78
Gender						
	Male	361.6	51.1	1,873	63.5	0.79
	Female	360.9	48.5	1,032	35.0	0.75
	Missing	*	*	45	1.5	*
Special Education						
	Yes	361.8	49.5	2,200	74.6	0.78
	No	361.1	51.3	735	24.9	0.78
	Exited	*	*	7	0.2	*
	Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*
	504	*	*	8	0.3	*
Ethnicity						
	American Indian	*	*	18	0.6	*
	Asian/Pacific Islander	370.6	46.3	50	1.7	0.81
	African American	357.3	50.7	1,791	60.7	0.76
	White	369.2	48.3	801	27.2	0.80
	Hispanic	364.6	48.7	234	7.9	0.77
	Missing	370.2	44.9	56	1.9	0.74
Limited English Proficient						
	Yes	*	*	13	0.4	*
	No	361.5	50.0	2,919	98.9	0.78
	Exited <sup>b</sup>	*	*	18	0.6	*

\* Statistics not reported for sample size less than 50 ( $N < 50$ ).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.24** Summary Statistics for Government: MD Mod-HSA Summer 2009 Forms

	Forms 309, 609					Forms 409, 709				
	Mean	SD	N	%	Alpha	Mean	SD	N	%	Alpha
Overall	352.3	46.0	187	100.0	0.63	*	*	34	100.0	*
Gender										
Male	350.7	50.1	124	66.3	0.67	*	*	25	73.5	*
Female	355.4	36.5	63	33.7	0.50	*	*	9	26.5	*
Missing	*	*	0	0.0	*	*	*	0	0.0	*
Special Education										
Yes	354.9	42.4	61	32.6	0.62	*	*	11	32.4	*
No	351.0	47.7	126	67.4	0.64	*	*	23	67.6	*
Exited	*	*	0	0.0	*	*	*	0	0.0	*
Exited and placed in 504 <sup>a</sup>	*	*	0	0.0	*	*	*	0	0.0	*
504	*	*	0	0.0	*	*	*	0	0.0	*
Ethnicity										
American Indian	*	*	1	0.5	*	*	*	0	0.0	*
Asian/Pacific Islander	*	*	1	0.5	*	*	*	1	2.9	*
African American	349.8	46.8	132	70.6	0.57	*	*	20	58.8	*
White	*	*	46	24.6	*	*	*	12	35.3	*
Hispanic	*	*	7	3.7	*	*	*	1	2.9	*
Missing	*	*	0	0.0	*	*	*	0	0.0	*
Limited English Proficient										
Yes	*	*	1	0.5	*	*	*	0	0.0	*
No	352.2	46.1	186	99.5	0.63	*	*	33	97.1	*
Exited <sup>b</sup>	*	*	0	0.0	*	*	*	1	2.9	*

\* Statistics not reported for sample size less than 50 (N < 50).

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.



## Demographic Characteristics

Summary statistics describing the demographic characteristics of the students who received scores on the MD Mod-HSAs are provided in Tables 13.25 to 13.28. Statistics are provided for the October 2008 and the January, April, May, and Summer 2009 administrations of Algebra, Biology, English, and Government. The results from online and paper test-takers were pooled for the analyses. All demographic results are based on the final Research file sent to MSDE.

**Table 13.25** Demographic Information for MD Mod-HSA Algebra

	October Forms		January Form		April Form		May Form		Summer Forms	
	N	%	N	%	N	%	N	%	N	%
Overall	1696	100.0	2535	100.0	513	100.0	4291	100.0	192	100.0
Gender										
Male	1034	61.0	1558	61.5	322	62.8	2794	65.1	117	60.9
Female	654	38.6	957	37.8	186	36.3	1465	34.1	75	39.1
Missing	8	0.5	20	0.8	5	1.0	32	0.7	0	0.0
Special Education										
Yes	847	49.9	1629	64.3	417	81.3	3267	76.1	51	26.6
No	845	49.8	899	35.5	94	18.3	994	23.2	141	73.4
Exited	0	0.0	0	0.0	0	0.0	10	0.2	0	0.0
Exited and placed in 504 <sup>a</sup>	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
504	4	0.2	7	0.3	2	0.4	20	0.5	0	0.0
Ethnicity										
American Indian	2	0.1	15	0.6	3	0.6	16	0.4	0	0.0
Asian/Pacific Islander	20	1.2	27	1.1	6	1.2	56	1.3	1	0.5
African American	1019	60.1	1619	63.9	381	74.3	2741	63.9	130	67.7
White	561	33.1	728	28.7	90	17.5	1058	24.7	46	24.0
Hispanic	80	4.7	110	4.3	28	5.5	373	8.7	10	5.2
Missing	14	0.8	36	1.4	5	1.0	47	1.1	5	2.6
Limited English Proficient										
Yes	4	0.2	5	0.2	0	0.0	25	0.6	1	0.5
No	1691	99.7	2525	99.6	511	99.6	4226	98.5	191	99.5
Exited <sup>b</sup>	1	0.1	5	0.2	2	0.4	40	0.9	0	0.0

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.26** Demographic Information for MD Mod-HSA Biology

	October Forms		January Form		April Form		May Form		Summer Forms	
	N	%	N	%	N	%	N	%	N	%
Overall	1,271	100.0	1,961	100.0	564	100.0	2,800	100.0	218	100.0
Gender										
Male	779	61.3	1,203	61.3	352	62.4	1,809	64.6	138	63.3
Female	487	38.3	748	38.1	212	37.6	967	34.5	80	36.7
Missing	5	0.4	10	0.5	0	0.0	24	0.9	0	0.0
Special Education										
Yes	682	53.7	1,399	71.3	452	80.1	2,299	82.1	56	25.7
No	586	46.1	553	28.2	112	19.9	487	17.4	162	74.3
Exited	0	0.0	2	0.1	0	0.0	5	0.2	0	0.0
Exited and placed in 504 <sup>a</sup>	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
504	3	0.2	7	0.4	0	0.0	9	0.3	0	0.0
Ethnicity										
American Indian	2	0.2	7	0.4	2	0.4	13	0.5	1	0.5
Asian/Pacific Islander	11	0.9	25	1.3	5	0.9	46	1.6	3	1.4
African American	794	62.5	1,251	63.8	416	73.8	1,755	62.7	145	66.5
White	399	31.4	561	28.6	103	18.3	726	25.9	60	27.5
Hispanic	60	4.7	102	5.2	33	5.9	229	8.2	8	3.7
Missing	5	0.4	15	0.8	5	0.9	31	1.1	1	0.5
Limited English Proficient										
Yes	2	0.2	6	0.3	0	0.0	13	0.5	1	0.5
No	1,268	99.8	1,949	99.4	562	99.6	2,772	99.0	217	99.5
Exited <sup>b</sup>	1	0.1	6	0.3	2	0.4	15	0.5	0	0.0

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.27** Demographic Information for MD Mod-HSA English

	October Forms		January Form		April Form		May Form		Summer Forms	
	N	%	N	%	N	%	N	%	N	%
Overall	1,698	100.0	2,377	100.0	570	100.0	3,291	100.0	240	100.0
Gender										
Male	1,091	64.3	1,502	63.2	371	65.1	2,135	64.9	148	61.7
Female	600	35.3	863	36.3	194	34.0	1,117	33.9	88	36.7
Missing	7	0.4	12	0.5	5	0.9	39	1.2	4	1.7
Special Education										
Yes	870	51.2	1,586	66.7	466	81.8	2,453	74.5	53	22.1
No	822	48.4	785	33.0	104	18.2	818	24.9	187	77.9
Exited	1	0.1	1	0.0	0	0.0	8	0.2	0	0.0
Exited and placed in 504 <sup>a</sup>	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
504	5	0.3	5	0.2	0	0.0	12	0.4	0	0.0
Ethnicity										
American Indian	5	0.3	12	0.5	2	0.4	18	0.5	2	0.8
Asian/Pacific Islander	19	1.1	32	1.3	5	0.9	58	1.8	5	2.1
African American	951	56.0	1,465	61.6	396	69.5	2,010	61.1	151	62.9
White	626	36.9	725	30.5	124	21.8	892	27.1	60	25.0
Hispanic	89	5.2	128	5.4	36	6.3	273	8.3	16	6.7
Missing	8	0.5	15	0.6	7	1.2	40	1.2	6	2.5
Limited English Proficient										
Yes	2	0.1	5	0.2	0	0.0	14	0.4	6	2.5
No	1,695	99.8	2,366	99.5	568	99.6	3,256	98.9	234	97.5
Exited <sup>b</sup>	1	0.1	6	0.3	2	0.4	21	0.6	0	0.0

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

**Table 13.28** Demographic Information for MD Mod-HSA Government

	October Forms		January Form		April Form		May Form		Summer Forms	
	N	%	N	%	N	%	N	%	N	%
Overall	1,381	100.0	2,000	100.0	462	100.0	2,950	100.0	221	100.0
Gender										
Male	851	61.6	1,253	62.7	286	61.9	1,873	63.5	149	67.4
Female	522	37.8	734	36.7	173	37.4	1,032	35.0	72	32.6
Missing	8	0.6	13	0.7	3	0.6	45	1.5	0	0.0
Special Education										
Yes	685	49.6	1,371	68.6	385	83.3	2,200	74.6	72	32.6
No	692	50.1	621	31.1	77	16.7	735	24.9	149	67.4
Exited	0	0.0	1	0.1	0	0.0	7	0.2	0	0.0
Exited and placed in 504 <sup>a</sup>	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
504	4	0.3	7	0.4	0	0.0	8	0.3	0	0.0
Ethnicity										
American Indian	5	0.4	10	0.5	1	0.2	18	0.6	1	0.5
Asian/Pacific Islander	17	1.2	27	1.4	6	1.3	50	1.7	2	0.9
African American	782	56.6	1,241	62.1	347	75.1	1,791	60.7	152	68.8
White	491	35.6	601	30.1	79	17.1	801	27.2	58	26.2
Hispanic	74	5.4	104	5.2	25	5.4	234	7.9	8	3.6
Missing	12	0.9	17	0.9	4	0.9	56	1.9	0	0.0
Limited English Proficient										
Yes	3	0.2	3	0.2	1	0.2	13	0.4	1	0.5
No	1,376	99.6	1,992	99.6	460	99.6	2,919	98.9	219	99.1
Exited <sup>b</sup>	2	0.1	5	0.3	1	0.2	18	0.6	1	0.5

<sup>a</sup> A 504 plan is a legal document falling under the provisions of the Rehabilitation Act of 1973 that provides a program of instructional services to assist students with special needs who are in a regular education setting.

<sup>b</sup> LEP Exited indicates students who have exited English language acquisition services.

## **Appendix 1A. MD HSA Classical Item Statistics: Operational Forms**

**Table 1.A 1** Item Statistics, Operational Items: MD HSA Algebra—October 2008 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
R	L	56636	SR	0.80	0.30	-0.18	-0.19	0.30	-0.11	0.1
R	L	54846	SR	0.72	0.25	-0.11	0.25	-0.19	-0.10	0.3
R	L	51542	SR	0.37	0.26	0.26	-0.09	-0.19	-0.14	0.5
R	L	51371	SR	0.48	0.16	0.16	-0.06	-0.09	-0.08	0.4
R	L	79128	CR	0.14	0.49					17.9
R	L	67515	SR	0.40	0.20	-0.12	0.20	-0.06	-0.07	1.2
R	L	79011	SR	0.33	0.15	0.15	0.01	-0.09	-0.10	1.0
R	L	56614	SR	0.70	0.27	-0.17	0.27	-0.14	-0.13	0.2
R	L	43157	SR	0.32	0.19	-0.07	-0.01	-0.11	0.19	0.5
R	L	67525	SPR	0.61	0.43	0.43	-0.36			3.1
R	L	56563	SPR	0.11	0.27	0.27	-0.10			5.8
R	L	79119	CR	0.43	0.59					6.8
R	L	51469	SR	0.46	0.45	-0.12	-0.20	-0.23	0.45	1.0
R	L	54798	SR	0.32	0.13	0.00	-0.02	0.13	-0.13	1.6
R	L	79528	CR	0.32	0.63					12.4
R	L	56566	SPR	0.15	0.33	0.33	-0.10			20.4
R	L	51516	SR	0.39	0.25	-0.22	-0.14	0.25	0.06	5.7
R	L	54802	SR	0.37	0.26	0.26	-0.04	-0.15	-0.11	6.1
R	L	51365	SR	0.56	0.31	0.31	-0.18	-0.14	-0.11	0.6
R	L	54749	SR	0.86	0.34	-0.17	-0.14	-0.22	0.34	0.4
R	L	67536	SR	0.79	0.32	-0.17	-0.19	-0.15	0.32	0.5
R	L	51501	SR	0.68	0.35	-0.21	-0.13	0.35	-0.16	0.5
R	L	51567	SPR	0.28	0.41	0.41	-0.24			9.5
R	L	67543	SR	0.38	0.23	0.00	-0.07	-0.18	0.23	0.9
R	L	106542	SR	0.44	0.33	0.33	-0.15	-0.17	-0.06	0.9
R	L	79033	SR	0.63	0.30	-0.13	-0.16	0.30	-0.12	0.8
R	L	79533	SR	0.36	0.26	-0.03	0.26	-0.15	-0.09	1.2
R	L	67422	CR	0.07	0.37					11.7
R	L	67401	SPR	0.73	0.45	0.45	-0.33			5.4
R	L	67421	SPR	0.56	0.42	0.42	-0.30			5.2
R	L	56604	CR	0.25	0.54					20.2
R	L	67408	SR	0.39	0.30	0.02	0.30	-0.14	-0.19	1.2
R	L	51438	SR	0.45	0.29	-0.12	0.29	-0.12	-0.08	1.5
R	L	67447	SR	0.53	0.24	-0.12	-0.07	0.24	-0.11	1.5
R	L	64257	CR	0.20	0.66					20.4
R	L	50394	SR	0.82	0.37	-0.15	-0.19	-0.18	0.37	1.8
R	L	67418	SR	0.36	0.26	-0.16	0.26	-0.08	0.01	1.9
R	L	54771	SR	0.20	0.22	-0.05	-0.04	-0.05	0.22	2.0
<b>Mean</b>				0.45	0.33	0.05	-0.05	-0.05	0.01	4.6
<b>SD</b>				0.21	0.13	0.23	0.19	0.18	0.19	6.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4=option-total correlation, %Omits=percent of omitted responses

**Table 1.A2** Item Statistics, Operational Items: MD HSA Biology—October 2008 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
R	O	52403	SR	0.79	0.29	-0.12	-0.17	-0.17	0.29	0.1
R	O	68216	SR	0.61	0.29	0.29	-0.18	-0.13	-0.10	0.2
R	O	68162	CR	0.28	0.54					4.9
R	O	108545	SR	0.37	0.28	-0.12	-0.17	-0.03	0.28	0.1
R	O	52734	SR	0.36	0.23	0.23	-0.16	-0.06	-0.10	0.2
R	O	53708	SR	0.46	0.32	-0.15	-0.14	-0.14	0.32	0.6
R	O	53709	SR	0.24	0.10	0.05	0.10	-0.05	-0.11	0.5
R	O	108662	CR	0.20	0.53					14.2
R	O	52592	SR	0.50	0.19	-0.04	-0.16	0.19	-0.05	0.3
R	O	52593	SR	0.50	0.25	0.25	-0.16	-0.15	-0.03	0.4
R	O	79499	SR	0.72	0.23	-0.14	-0.13	0.23	-0.09	0.3
R	O	57027	SR	0.48	0.33	0.33	-0.16	-0.17	-0.09	0.3
R	O	52600	SR	0.26	0.23	0.23	-0.13	-0.09	-0.04	0.4
R	O	79418	SR	0.56	0.30	0.30	-0.17	-0.10	-0.14	0.6
R	O	52736	CR	0.12	0.50					20.4
R	O	55253	SR	0.24	0.18	0.18	-0.02	-0.11	-0.02	0.8
R	O	108592	SR	0.69	0.42	-0.20	-0.20	-0.20	0.42	0.7
R	O	52505	SR	0.30	0.22	-0.01	0.22	-0.15	-0.09	0.8
R	O	52506	SR	0.23	0.19	-0.01	-0.10	-0.05	0.19	0.8
R	O	57029	SR	0.31	0.17	0.17	-0.12	-0.01	-0.03	1.0
R	O	52552	SR	0.34	0.29	-0.09	-0.09	-0.12	0.29	1.2
R	O	56977	CR	0.14	0.54					21.6
R	O	54998	SR	0.49	0.34	0.34	-0.18	-0.13	-0.10	1.4
R	O	54999	SR	0.30	0.19	0.19	-0.02	-0.08	-0.09	1.4
R	O	108569	SR	0.86	0.30	0.30	-0.15	-0.18	-0.11	2.0
R	O	52518	SR	0.18	0.17	0.17	-0.09	-0.05	0.03	2.1
R	O	55012	SR	0.35	0.23	0.23	-0.10	-0.03	-0.13	2.2
R	O	55007	SR	0.43	0.16	0.01	0.16	-0.17	-0.07	0.5
R	O	52408	SR	0.42	0.23	-0.15	-0.08	0.23	-0.05	0.5
R	O	79322	SR	0.22	0.08	0.08	-0.01	-0.05	0.01	0.8
R	O	79323	SR	0.28	0.21	-0.03	-0.08	-0.09	0.21	0.6
R	O	67686	CR	0.23	0.48					8.2
R	O	79316	SR	0.57	0.36	-0.12	-0.16	-0.20	0.36	0.6
R	O	79317	SR	0.58	0.37	-0.17	-0.21	0.37	-0.12	0.6
R	O	53488	SR	0.57	0.33	-0.17	-0.14	0.33	-0.11	0.6
R	O	53508	SR	0.57	0.37	0.37	-0.17	-0.17	-0.17	0.6
R	O	55078	SR	0.70	0.35	-0.11	-0.21	-0.19	0.35	0.6
R	O	67577	SR	0.25	0.12	-0.06	0.12	0.00	-0.02	1.1
R	O	64990	SR	0.76	0.31	0.31	-0.17	-0.18	-0.13	0.6
R	O	79466	SR	0.63	0.23	-0.06	0.23	-0.15	-0.10	0.7
R	O	57120	SR	0.50	0.33	-0.15	-0.14	-0.12	0.33	0.7
R	O	57121	SR	0.33	0.27	0.27	-0.13	-0.06	-0.09	0.8
R	O	57122	SR	0.40	0.23	-0.05	0.23	-0.12	-0.07	1.2

**Table 1.A2** Item Statistics, Operational Items: MD HSA Biology—October 2008 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
R	O	67591	CR	0.10	0.40					24.9
R	O	64728	SR	0.46	0.34	0.34	-0.13	-0.19	-0.10	0.8
R	O	57130	SR	0.59	0.45	0.45	-0.19	-0.23	-0.21	0.9
R	O	57131	SR	0.50	0.36	-0.20	0.36	-0.19	-0.07	1.0
R	O	108546	SR	0.31	0.26	-0.08	0.26	-0.11	-0.07	1.0
R	O	64717	SR	0.42	0.19	0.19	-0.12	-0.12	0.03	1.0
R	O	67639	SR	0.40	0.34	-0.12	0.34	-0.14	-0.12	1.1
R	O	67640	SR	0.47	0.20	-0.02	-0.18	0.20	-0.04	1.1
R	O	67642	SR	0.43	0.28	-0.15	-0.14	0.28	-0.04	1.0
R	O	67573	CR	0.23	0.51					10.8
R	O	65063	SR	0.32	0.24	0.24	-0.02	-0.11	-0.10	3.0
R	O	108540	SR	0.49	0.31	-0.13	-0.13	0.31	-0.11	3.0
<b>Mean</b>				0.42	0.29	0.06	-0.07	-0.05	0.00	2.7
<b>SD</b>				0.18	0.11	0.19	0.15	0.16	0.16	5.3

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses



**Table 1.A3** Item Statistics, Operational Items: MD HSA English—October 2008 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
R	O	130268	CR	0.51	0.49					1.7
R	O	130081	SR	0.71	0.22	-0.10	-0.13	0.22	-0.11	0.2
R	O	130082	SR	0.17	0.18	0.18	-0.06	-0.08	-0.06	0.0
R	O	130083	SR	0.60	0.32	0.32	-0.17	-0.14	-0.16	0.0
R	O	130084	SR	0.73	0.30	-0.20	-0.16	0.30	-0.12	0.3
R	O	130085	SR	0.58	0.32	-0.17	-0.15	-0.16	0.32	0.3
R	O	96175	SR	0.77	0.32	-0.20	-0.23	-0.09	0.32	0.3
R	O	96176	SR	0.82	0.35	0.35	-0.19	-0.24	-0.16	0.1
R	O	96177	SR	0.68	0.26	-0.24	0.26	-0.20	-0.04	0.2
R	O	96178	SR	0.59	0.35	-0.19	0.35	-0.18	-0.20	0.2
R	O	96179	SR	0.53	0.32	-0.14	-0.23	-0.09	0.32	0.3
R	O	96180	SR	0.66	0.31	-0.12	-0.18	-0.20	0.31	0.3
R	O	96181	SR	0.51	0.32	-0.11	0.32	-0.22	-0.15	0.2
R	O	108850	SR	0.49	0.30	-0.20	-0.14	0.30	-0.06	0.7
R	O	108851	SR	0.54	0.29	-0.12	0.29	-0.23	-0.06	0.8
R	O	108854	SR	0.61	0.27	-0.14	-0.21	0.27	-0.04	0.9
R	O	130250	SR	0.70	0.38	-0.18	-0.20	-0.18	0.38	0.9
R	O	108855	CR	0.35	0.54					8.1
R	O	108685	CR	0.47	0.52					2.8
R	O	96027	SR	0.40	0.21	-0.15	-0.14	-0.03	0.21	0.2
R	O	96028	SR	0.52	0.32	0.32	-0.16	-0.14	-0.12	0.3
R	O	96029	SR	0.33	0.22	0.22	-0.11	-0.13	-0.01	0.2
R	O	96147	SR	0.77	0.33	0.33	-0.14	-0.18	-0.18	0.5
R	O	96148	SR	0.74	0.36	-0.18	-0.18	0.36	-0.18	0.5
R	O	96149	SR	0.53	0.35	0.35	-0.13	-0.23	-0.13	0.6
R	O	96150	SR	0.35	0.23	-0.08	-0.08	-0.09	0.23	0.6
R	O	130955	SR	0.46	0.20	0.20	-0.05	-0.13	-0.09	0.6
R	O	132497	SR	0.60	0.30	-0.16	-0.12	0.30	-0.17	0.6
R	O	130956	SR	0.19	0.08	0.08	-0.09	-0.05	0.08	0.7
R	O	130971	SR	0.57	0.40	-0.17	-0.20	-0.18	0.40	0.7
R	O	130972	SR	0.59	0.37	-0.19	-0.18	-0.13	0.37	0.7
R	O	130973	SR	0.21	0.13	-0.13	0.13	0.11	-0.17	0.8
R	O	130200	SR	0.46	0.26	0.26	-0.04	-0.21	-0.15	0.8
R	O	130974	SR	0.72	0.42	0.42	-0.24	-0.23	-0.13	0.7
R	O	130975	SR	0.37	0.21	-0.04	0.21	-0.17	0.00	0.8
R	O	130976	CR	0.39	0.53					10.1
R	O	108712	SR	0.60	0.18	0.18	-0.03	-0.19	-0.06	0.8
R	O	108713	SR	0.54	0.28	-0.09	-0.17	0.28	-0.08	0.9
R	O	108714	SR	0.38	0.20	-0.03	-0.08	0.20	-0.10	1.0
R	O	109730	SR	0.50	0.32	-0.12	-0.12	0.32	-0.17	0.8
R	O	109731	SR	0.45	0.32	-0.12	-0.10	-0.15	0.32	1.1
R	O	130289	SR	0.56	0.41	0.41	-0.20	-0.17	-0.16	0.9
R	O	130291	SR	0.39	0.23	-0.13	0.23	-0.11	0.00	1.1

**Table 1.A3** Item Statistics, Operational Items: MD HSA English—October 2008 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
R	O	96387	SR	0.46	0.26	-0.16	-0.06	0.26	-0.10	1.8
R	O	130265	SR	0.30	0.18	-0.07	0.01	0.18	-0.11	1.8
R	O	108811	SR	0.56	0.24	-0.07	-0.13	0.24	-0.10	2.8
R	O	108812	SR	0.29	0.17	-0.06	-0.05	0.17	-0.04	2.9
R	O	108813	SR	0.26	0.18	-0.09	0.18	-0.06	0.01	3.1
R	O	108817	SR	0.46	0.29	-0.16	0.29	-0.10	-0.10	3.2
R	O	108818	SR	0.41	0.30	-0.15	-0.07	-0.14	0.30	3.3
<b>Mean</b>				0.51	0.30	-0.02	-0.06	-0.03	0.00	1.3
<b>SD</b>				0.16	0.10	0.20	0.17	0.20	0.19	1.8

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A4** Item Statistics, Operational Items: MD HSA Government—October 2008 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
R	O	68093	SR	0.92	0.22	-0.09	0.22	-0.18	-0.09	0.0
R	O	55545	SR	0.44	0.35	-0.20	-0.15	-0.17	0.35	0.2
R	O	58100	SR	0.49	0.22	-0.07	-0.10	0.22	-0.13	0.3
R	O	51766	SR	0.36	0.19	-0.03	-0.11	0.19	-0.08	0.3
R	O	50993	SR	0.56	0.25	0.25	-0.11	-0.19	-0.06	0.4
R	O	68735	CR	0.28	0.48					6.4
R	O	59843	SR	0.26	0.18	0.00	-0.15	0.18	-0.04	0.3
R	O	51210	SR	0.83	0.32	0.32	-0.17	-0.20	-0.13	0.2
R	O	51206	SR	0.47	0.33	0.33	-0.21	-0.13	-0.08	0.4
R	O	60432	CR	0.26	0.55					6.1
R	O	58142	SR	0.48	0.24	-0.11	0.24	-0.14	-0.04	0.5
R	O	79721	SR	0.24	0.06	0.10	-0.12	0.06	-0.05	0.7
R	O	68668	SR	0.18	0.12	0.12	-0.04	-0.11	0.07	0.7
R	O	55704	SR	0.49	0.31	-0.18	0.31	-0.14	-0.12	0.6
R	O	68617	SR	0.52	0.34	-0.13	-0.17	0.34	-0.17	0.7
R	O	55550	CR	0.22	0.64					10.7
R	O	108460	SR	0.62	0.23	-0.04	-0.22	0.23	-0.04	0.5
R	O	79605	SR	0.63	0.29	0.29	-0.14	-0.19	-0.11	0.6
R	O	55503	SR	0.23	0.18	-0.01	-0.10	0.18	-0.04	0.8
R	O	51145	SR	0.17	0.09	0.09	-0.06	-0.19	0.15	0.9
R	O	68558	SR	0.29	0.34	-0.13	-0.08	-0.15	0.34	0.7
R	O	51063	SR	0.54	0.40	0.40	-0.15	-0.21	-0.18	1.0
R	O	51230	CR	0.13	0.57					24.7
R	O	55471	SR	0.25	0.20	0.20	-0.03	-0.15	0.03	2.2
R	O	68630	SR	0.88	0.29	-0.13	-0.15	-0.13	0.29	2.0
R	O	68631	SR	0.38	0.30	0.30	-0.16	-0.13	-0.05	2.1
R	O	51150	SR	0.57	0.42	-0.17	-0.18	-0.19	0.42	2.5
R	O	58113	SR	0.20	0.36	-0.12	-0.09	-0.09	0.36	2.5
R	O	68648	SR	0.62	0.37	-0.10	-0.20	-0.24	0.37	0.6
R	O	53648	SR	0.32	0.28	0.28	-0.12	-0.11	-0.06	0.9
R	O	51735	SR	0.43	0.33	-0.07	0.33	-0.19	-0.16	0.7
R	O	55715	SR	0.67	0.44	-0.21	-0.22	-0.23	0.44	0.6
R	O	55576	CR	0.23	0.55					11.0
R	O	108467	SR	0.39	0.18	0.18	-0.09	-0.04	-0.10	0.8
R	O	51020	SR	0.45	0.30	-0.09	-0.16	0.30	-0.15	0.9
R	O	68516	SR	0.75	0.41	-0.16	0.41	-0.23	-0.21	0.9
R	O	51181	SR	0.34	0.29	-0.07	-0.18	0.29	-0.13	1.0
R	O	64968	SR	0.39	0.21	0.21	-0.12	-0.02	-0.08	1.3
R	O	68655	SR	0.50	0.26	-0.14	0.26	-0.03	-0.18	1.1
R	O	68519	CR	0.07	0.52					14.6
R	O	51809	SR	0.75	0.35	-0.16	-0.21	0.35	-0.12	0.7
R	O	68597	SR	0.46	0.25	0.25	-0.13	-0.10	-0.06	0.8
R	O	60457	SR	0.35	0.19	-0.04	-0.06	0.19	-0.08	0.9

**Table 1.A4** Item Statistics, Operational Items: MD HSA Government—October 2008 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
R	O	65198	SR	0.45	0.30	-0.17	-0.16	-0.03	0.30	0.9
R	O	60454	SR	0.40	0.26	-0.07	0.26	-0.14	-0.08	1.1
R	O	64807	SR	0.48	0.30	-0.14	-0.19	0.30	-0.02	1.1
R	O	58229	SR	0.41	0.38	0.38	-0.18	-0.10	-0.15	1.1
R	O	55662	CR	0.02	0.48					22.7
R	O	65203	SR	0.22	0.36	-0.06	-0.15	-0.10	0.36	1.8
R	O	52206	SR	0.30	0.32	-0.04	-0.13	-0.12	0.32	2.4
R	O	68665	SR	0.46	0.41	-0.11	-0.18	-0.18	0.41	2.3
R	O	50980	CR	0.23	0.58					14.0
R	O	58359	SR	0.56	0.46	-0.18	-0.21	-0.22	0.46	1.7
R	O	65197	SR	0.65	0.43	0.43	-0.20	-0.21	-0.18	1.8
R	O	51761	SR	0.40	0.37	-0.15	0.37	-0.12	-0.14	2.1
R	O	64978	SR	0.12	0.15	0.15	0.03	-0.09	0.01	2.0
R	O	58394	SR	0.33	0.31	-0.06	0.31	-0.15	-0.12	2.2
R	O	55711	SR	0.24	0.27	-0.08	-0.11	-0.03	0.27	2.2
<b>Mean</b>				0.41	0.32	0.02	-0.06	-0.05	0.03	2.8
<b>SD</b>				0.20	0.13	0.19	0.18	0.18	0.21	5.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A5** Item Statistics, Operational Items: MD HSA Algebra—January 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	L	54845	SR	0.80	0.29	0.29	-0.12	-0.18	-0.15	0.1
A	O	79071	SR	0.64	0.38	-0.19	0.38	-0.19	-0.18	0.4
A	O	54732	SR	0.55	0.41	-0.24	0.41	-0.18	-0.15	0.2
A	L	67490	SR	0.31	0.35	0.35	-0.14	-0.10	-0.14	0.8
A	L	50382	CR	0.24	0.68					11.4
A	L	54728	SR	0.32	0.27	-0.15	0.27	-0.01	-0.19	0.4
A	L	54849	SR	0.47	0.36	-0.14	0.36	-0.15	-0.19	1.3
A	L	79139	SR	0.48	0.38	-0.15	-0.14	-0.20	0.38	0.5
A	L	79030	SR	0.54	0.33	-0.12	-0.16	-0.20	0.33	0.6
A	O	51416	SPR	0.41	0.45	0.45	-0.37			4.8
A	O	67526	SPR	0.55	0.38	0.38	-0.31			3.4
A	L	79130	CR	0.21	0.59					21.0
A	O	56612	SR	0.56	0.35	0.35	-0.15	-0.18	-0.13	0.8
A	L	56625	SR	0.54	0.31	-0.11	0.31	-0.13	-0.17	1.0
A	L	79529	CR	0.36	0.64					9.5
A	L	56666	SPR	0.34	0.55	0.55	-0.38			10.3
A	L	79131	SR	0.28	0.23	-0.03	0.23	-0.10	-0.07	3.9
A	O	54809	SR	0.72	0.38	-0.14	-0.17	0.38	-0.24	3.3
A	L	56648	SR	0.66	0.32	-0.15	-0.13	0.32	-0.19	0.7
A	L	51428	SR	0.61	0.36	-0.13	0.36	-0.23	-0.15	0.5
A	O	54878	SR	0.85	0.25	-0.14	-0.16	-0.08	0.25	0.5
A	O	54755	SR	0.52	0.34	-0.22	0.34	-0.13	-0.11	0.6
A	O	56672	SR	0.66	0.30	-0.06	-0.13	-0.22	0.30	0.6
A	L	67510	SPR	0.49	0.45	0.45	-0.36			4.8
A	O	43190	SPR	0.29	0.56	0.56	-0.40			7.5
A	L	51431	SR	0.61	0.39	0.39	-0.14	-0.25	-0.15	0.7
A	O	54660	SR	0.25	0.39	-0.16	-0.18	-0.03	0.39	1.0
A	L	67547	SR	0.43	0.42	-0.20	-0.18	-0.16	0.42	0.8
A	O	54890	SR	0.44	0.31	-0.14	0.31	-0.23	0.00	1.1
A	L	64700	SR	0.71	0.39	-0.16	-0.20	-0.20	0.39	0.9
A	L	50398	CR	0.11	0.57					12.0
A	O	67508	SPR	0.30	0.52	0.52	-0.32			14.0
A	O	51487	CR	0.12	0.64					27.4
A	L	43186	SR	0.51	0.19	0.08	0.19	-0.23	-0.08	1.4
A	L	64699	SR	0.30	0.30	0.30	-0.06	-0.14	-0.09	1.5
A	L	50427	CR	0.17	0.55					15.6
A	L	56477	SR	0.51	0.35	-0.16	-0.15	0.35	-0.11	2.3
A	L	54720	SR	0.32	0.37	-0.16	-0.19	0.37	-0.06	2.2
<b>Mean</b>				0.45	0.40	0.05	-0.04	-0.08	0.00	4.5
<b>SD</b>				0.19	0.12	0.28	0.26	0.20	0.23	6.4

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A6** Item Statistics, Operational Items: MD HSA Algebra—January 2009 Makeup

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
B	L	54845	SR	0.80	0.29	0.29	-0.12	-0.18	-0.15	0.1
B	O	51532	SR	0.67	0.36	-0.22	-0.24	0.36	-0.07	0.2
B	O	51503	SR	0.44	0.33	-0.20	0.33	-0.07	-0.16	0.2
B	L	67490	SR	0.31	0.35	0.35	-0.14	-0.10	-0.14	0.8
B	L	50382	CR	0.24	0.68					11.4
B	L	54728	SR	0.32	0.27	-0.15	0.27	-0.01	-0.19	0.4
B	L	54849	SR	0.47	0.36	-0.14	0.36	-0.15	-0.19	1.3
B	L	79139	SR	0.48	0.38	-0.15	-0.14	-0.20	0.38	0.5
B	L	79030	SR	0.54	0.33	-0.12	-0.16	-0.20	0.33	0.6
B	O	54855	SPR	0.47	0.53	0.53	-0.44			5.1
B	O	51505	SPR	0.54	0.46	0.46	-0.37			5.8
B	L	79130	CR	0.21	0.59					21.0
B	O	54609	SR	0.73	0.36	-0.09	-0.25	-0.22	0.36	0.7
B	L	56625	SR	0.54	0.31	-0.11	0.31	-0.13	-0.17	1.0
B	L	79529	CR	0.36	0.64					9.5
B	L	56666	SPR	0.34	0.55	0.55	-0.38			10.3
B	L	79131	SR	0.28	0.23	-0.03	0.23	-0.10	-0.07	3.9
B	O	56597	SR	0.33	0.29	0.29	-0.15	-0.08	-0.07	2.6
B	L	56648	SR	0.66	0.32	-0.15	-0.13	0.32	-0.19	0.7
B	L	51428	SR	0.61	0.36	-0.13	0.36	-0.23	-0.15	0.5
B	O	54705	SR	0.64	0.41	-0.23	-0.24	0.41	-0.14	0.6
B	O	79029	SR	0.81	0.37	-0.25	-0.15	0.37	-0.18	0.4
B	O	56585	SR	0.20	0.35	-0.14	-0.18	0.01	0.35	0.7
B	L	67510	SPR	0.49	0.45	0.45	-0.36			4.8
B	O	64691	SPR	0.45	0.52	0.52	-0.37			8.1
B	L	51431	SR	0.61	0.39	0.39	-0.14	-0.25	-0.15	0.7
B	O	106631	SR	0.29	0.28	-0.15	-0.17	0.05	0.28	1.1
B	L	67547	SR	0.43	0.42	-0.20	-0.18	-0.16	0.42	0.8
B	O	54906	SR	0.61	0.46	-0.25	0.46	-0.21	-0.18	1.1
B	L	64700	SR	0.71	0.39	-0.16	-0.20	-0.20	0.39	0.9
B	L	50398	CR	0.11	0.57					12.0
B	O	43220	SPR	0.07	0.35	0.35	-0.07			13.9
B	O	67416	CR	0.10	0.55					43.1
B	L	43186	SR	0.51	0.19	0.08	0.19	-0.23	-0.08	1.4
B	L	64699	SR	0.30	0.30	0.30	-0.06	-0.14	-0.09	1.5
B	L	50427	CR	0.17	0.55					15.6
B	L	56477	SR	0.51	0.35	-0.16	-0.15	0.35	-0.11	2.3
B	L	54720	SR	0.32	0.37	-0.16	-0.19	0.37	-0.06	2.2
<b>Mean</b>				0.44	0.40	0.04	-0.08	-0.02	0.00	4.9
<b>SD</b>				0.20	0.11	0.28	0.25	0.23	0.23	8.2

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A7** Item Statistics, Operational Items: MD HSA Biology—January 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	L	52418	SR	0.68	0.39	-0.19	0.39	-0.27	-0.13	0.2
A	O	108521	SR	0.61	0.50	-0.19	0.50	-0.32	-0.22	0.2
A	L	59856	SR	0.39	0.41	-0.20	0.41	-0.20	-0.11	0.3
A	L	59855	SR	0.62	0.43	-0.27	-0.22	-0.12	0.43	0.1
A	L	52671	SR	0.35	0.48	-0.08	-0.29	-0.19	0.48	0.3
A	L	52487	SR	0.49	0.42	-0.17	0.42	-0.23	-0.15	0.2
A	L	52489	SR	0.53	0.44	0.44	-0.22	-0.27	-0.13	0.2
A	O	55048	SR	0.68	0.26	-0.12	-0.14	0.26	-0.14	0.1
A	O	108673	SR	0.42	0.45	-0.29	-0.15	-0.12	0.45	0.2
A	L	55191	CR	0.21	0.81					7.5
A	O	52404	SR	0.72	0.39	-0.25	0.39	-0.15	-0.19	0.2
A	O	52729	SR	0.63	0.36	0.36	-0.15	-0.15	-0.22	0.2
A	L	57020	SR	0.62	0.50	0.50	-0.27	-0.25	-0.19	0.4
A	L	57021	SR	0.49	0.39	-0.25	-0.09	-0.17	0.39	0.5
A	L	108670	CR	0.24	0.79					10.9
A	O	67662	SR	0.51	0.30	-0.21	-0.08	-0.11	0.30	0.4
A	O	68172	SR	0.65	0.44	-0.20	-0.20	-0.24	0.44	0.5
A	L	52682	CR	0.28	0.78					10.8
A	L	57046	SR	0.38	0.24	0.24	-0.05	-0.11	-0.12	0.6
A	L	57047	SR	0.56	0.48	-0.25	-0.23	0.48	-0.18	0.6
A	O	79464	SR	0.40	0.36	0.36	-0.15	-0.16	-0.12	0.7
A	L	68274	CR	0.20	0.74					15.6
A	L	108510	SR	0.73	0.32	-0.21	-0.15	0.32	-0.10	0.9
A	O	79311	SR	0.58	0.53	-0.23	0.53	-0.22	-0.30	0.8
A	O	108523	SR	0.84	0.42	-0.24	-0.22	0.42	-0.19	0.9
A	O	68133	SR	0.73	0.35	-0.19	-0.19	-0.17	0.35	0.9
A	O	52640	SR	0.56	0.39	-0.02	-0.27	0.39	-0.25	1.0
A	O	67675	SR	0.61	0.52	-0.24	-0.26	-0.22	0.52	1.1
A	O	52707	SR	0.55	0.46	-0.14	-0.30	0.46	-0.18	0.5
A	O	79474	SR	0.27	0.57	0.57	-0.19	-0.28	-0.14	0.5
A	L	52509	SR	0.68	0.39	-0.14	-0.26	0.39	-0.17	0.5
A	L	52433	SR	0.52	0.48	0.48	-0.28	-0.14	-0.21	0.6
A	L	52695	CR	0.15	0.77					15.1
A	L	52761	SR	0.74	0.48	-0.22	-0.27	-0.23	0.48	0.5
A	L	52762	SR	0.23	0.23	0.23	-0.15	0.04	-0.17	0.6
A	O	65062	SR	0.72	0.38	-0.28	-0.16	0.38	-0.12	0.5
A	O	65122	SR	0.50	0.33	-0.25	0.33	-0.05	-0.17	0.7
A	L	52573	CR	0.22	0.82					12.2
A	O	67608	SR	0.59	0.43	-0.18	0.43	-0.21	-0.21	0.6
A	L	60553	SR	0.85	0.31	-0.17	-0.15	0.31	-0.16	0.7
A	O	52780	SR	0.53	0.52	-0.25	-0.22	0.52	-0.21	0.8
A	L	64713	SR	0.51	0.43	-0.22	0.43	-0.23	-0.10	0.8
A	L	64714	SR	0.42	0.58	0.58	-0.25	-0.28	-0.16	0.8

**Table 1.A7** Item Statistics, Operational Items: MD HSA Biology—January 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	O	55221	SR	0.58	0.56	-0.19	0.56	-0.21	-0.36	0.7
A	O	60529	SR	0.56	0.37	-0.22	-0.15	0.37	-0.12	0.8
A	O	68253	SR	0.63	0.50	-0.23	-0.21	-0.27	0.50	0.7
A	L	55100	SR	0.57	0.49	-0.21	0.49	-0.28	-0.19	0.8
A	L	55160	SR	0.67	0.45	0.45	-0.21	-0.21	-0.22	0.8
A	L	67604	CR	0.26	0.78					15.0
A	L	68207	SR	0.48	0.46	-0.21	-0.24	0.46	-0.17	1.0
A	L	68209	SR	0.57	0.55	0.55	-0.25	-0.29	-0.21	1.0
A	L	68210	SR	0.52	0.49	-0.22	-0.24	0.49	-0.17	1.0
A	L	52468	SR	0.48	0.51	-0.21	0.51	-0.21	-0.23	1.1
A	L	52469	SR	0.45	0.45	-0.20	0.45	-0.20	-0.16	1.2
A	L	52470	SR	0.60	0.48	-0.21	0.48	-0.22	-0.22	1.1
<b>Mean</b>				0.52	0.48	-0.06	-0.01	-0.03	-0.05	2.1
<b>SD</b>				0.17	0.14	0.28	0.30	0.28	0.26	4.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses



**Table 1.A8** Item Statistics, Operational Items: MD HSA Biology—January 2009 Makeup

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
B	L	52418	SR	0.68	0.39	-0.19	0.39	-0.27	-0.13	0.2
B	O	52493	SR	0.88	0.27	-0.17	-0.16	0.27	-0.11	0.0
B	L	59856	SR	0.39	0.41	-0.20	0.41	-0.20	-0.11	0.3
B	L	59855	SR	0.62	0.43	-0.27	-0.22	-0.12	0.43	0.1
B	L	52671	SR	0.35	0.48	-0.08	-0.29	-0.19	0.48	0.3
B	L	52487	SR	0.49	0.42	-0.17	0.42	-0.23	-0.15	0.2
B	L	52489	SR	0.53	0.44	0.44	-0.22	-0.27	-0.13	0.2
B	O	67659	SR	0.52	0.36	0.36	-0.20	-0.15	-0.14	0.5
B	O	67660	SR	0.48	0.32	-0.19	-0.10	-0.16	0.32	0.3
B	L	55191	CR	0.21	0.81					7.5
B	O	54988	SR	0.43	0.45	-0.13	-0.23	-0.18	0.45	0.4
B	O	79424	SR	0.66	0.37	-0.08	0.37	-0.24	-0.20	0.4
B	L	57020	SR	0.62	0.50	0.50	-0.27	-0.25	-0.19	0.4
B	L	57021	SR	0.49	0.39	-0.25	-0.09	-0.17	0.39	0.5
B	L	108670	CR	0.24	0.79					10.9
B	O	108630	SR	0.36	0.27	-0.20	-0.14	0.00	0.27	1.1
B	O	79435	SR	0.45	0.37	0.37	-0.17	-0.14	-0.13	1.2
B	L	52682	CR	0.28	0.78					10.8
B	L	57046	SR	0.38	0.24	0.24	-0.05	-0.11	-0.12	0.6
B	L	57047	SR	0.56	0.48	-0.25	-0.23	0.48	-0.18	0.6
B	O	52625	SR	0.46	0.31	-0.14	0.31	-0.06	-0.16	1.7
B	L	68274	CR	0.20	0.74					15.6
B	L	108510	SR	0.73	0.32	-0.21	-0.15	0.32	-0.10	0.9
B	O	68192	SR	0.63	0.38	0.38	-0.18	-0.17	-0.15	1.9
B	O	79417	SR	0.52	0.50	0.50	-0.20	-0.24	-0.18	2.1
B	O	52634	SR	0.35	0.48	0.48	-0.21	-0.22	-0.08	1.8
B	O	55137	SR	0.24	0.47	0.47	-0.19	-0.15	-0.05	1.9
B	O	64701	SR	0.44	0.38	-0.15	-0.20	0.38	-0.09	1.9
B	O	79412	SR	0.46	0.30	-0.11	-0.20	-0.06	0.30	1.1
B	O	79472	SR	0.29	0.37	0.37	-0.21	-0.09	-0.07	1.2
B	L	52509	SR	0.68	0.39	-0.14	-0.26	0.39	-0.17	0.5
B	L	52433	SR	0.52	0.48	0.48	-0.28	-0.14	-0.21	0.6
B	L	52695	CR	0.15	0.77					15.1
B	L	52761	SR	0.74	0.48	-0.22	-0.27	-0.23	0.48	0.5
B	L	52762	SR	0.23	0.23	0.23	-0.15	0.04	-0.17	0.6
B	O	65051	SR	0.58	0.47	-0.21	-0.24	-0.18	0.47	1.5
B	O	65139	SR	0.35	0.35	-0.04	-0.13	0.35	-0.22	1.7
B	L	52573	CR	0.22	0.82					12.2
B	O	52705	SR	0.66	0.44	-0.15	-0.23	-0.23	0.44	1.1
B	L	60553	SR	0.85	0.31	-0.17	-0.15	0.31	-0.16	0.7
B	O	65054	SR	0.67	0.45	-0.20	0.45	-0.27	-0.15	1.3
B	L	64713	SR	0.51	0.43	-0.22	0.43	-0.23	-0.10	0.8
B	L	64714	SR	0.42	0.58	0.58	-0.25	-0.28	-0.16	0.8

**Table 1.A8** Item Statistics, Operational Items: MD HSA Biology—January 2009 Makeup

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
B	O	55220	SR	0.41	0.47	0.47	-0.12	-0.23	-0.18	1.4
B	O	52528	SR	0.43	0.36	-0.14	0.36	-0.17	-0.11	1.4
B	O	108517	SR	0.46	0.35	-0.11	0.35	-0.16	-0.18	1.4
B	L	55100	SR	0.57	0.49	-0.21	0.49	-0.28	-0.19	0.8
B	L	55160	SR	0.67	0.45	0.45	-0.21	-0.21	-0.22	0.8
B	L	67604	CR	0.26	0.78					15.0
B	L	68207	SR	0.48	0.46	-0.21	-0.24	0.46	-0.17	1.0
B	L	68209	SR	0.57	0.55	0.55	-0.25	-0.29	-0.21	1.0
B	L	68210	SR	0.52	0.49	-0.22	-0.24	0.49	-0.17	1.0
B	L	52468	SR	0.48	0.51	-0.21	0.51	-0.21	-0.23	1.1
B	L	52469	SR	0.45	0.45	-0.20	0.45	-0.20	-0.16	1.2
B	L	52470	SR	0.60	0.48	-0.21	0.48	-0.22	-0.22	1.1
<b>Mean</b>				0.48	0.46	0.03	-0.03	-0.08	-0.04	2.4
<b>SD</b>				0.17	0.15	0.29	0.28	0.23	0.23	4.0

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A9** Item Statistics, Operational Items: MD HSA English—January 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	O	130211	CR	0.54	0.66					1.9
A	O	130032	SR	0.68	0.30	-0.18	-0.10	-0.19	0.30	0.2
A	O	130033	SR	0.74	0.23	0.23	-0.03	-0.23	-0.13	0.0
A	O	130034	SR	0.34	0.41	0.41	-0.21	-0.16	-0.12	0.2
A	O	130037	SR	0.66	0.31	-0.06	-0.25	-0.14	0.31	0.1
A	O	130035	SR	0.65	0.39	-0.19	-0.16	-0.28	0.39	0.1
A	L	130061	SR	0.54	0.30	0.30	-0.18	-0.20	-0.07	0.5
A	L	130062	SR	0.34	0.44	-0.19	-0.16	-0.15	0.44	0.5
A	L	130063	SR	0.57	0.41	-0.22	-0.22	0.41	-0.19	0.6
A	L	130201	SR	0.52	0.45	-0.17	-0.17	0.45	-0.26	0.7
A	L	130064	SR	0.65	0.36	-0.17	-0.20	0.36	-0.18	0.9
A	L	130065	CR	0.42	0.67					6.6
A	O	135490	CR	0.50	0.66					2.5
A	L	108722	SR	0.36	0.37	0.37	-0.10	-0.23	-0.09	0.4
A	L	108723	SR	0.54	0.40	0.40	-0.18	-0.20	-0.16	0.4
A	L	108724	SR	0.62	0.40	-0.15	0.40	-0.20	-0.22	0.4
A	L	130068	SR	0.76	0.42	0.42	-0.23	-0.22	-0.20	0.5
A	L	130198	SR	0.81	0.40	-0.20	-0.23	0.40	-0.20	0.4
A	L	130202	SR	0.58	0.39	-0.10	0.39	-0.24	-0.20	0.5
A	L	108844	SR	0.54	0.44	-0.13	0.44	-0.24	-0.24	0.5
A	L	108847	SR	0.33	0.35	-0.03	0.35	-0.27	-0.12	0.5
A	L	108848	SR	0.59	0.43	0.43	-0.15	-0.26	-0.23	0.6
A	L	108849	SR	0.68	0.44	-0.21	-0.16	0.44	-0.26	0.5
A	L	108846	SR	0.58	0.47	0.47	-0.28	-0.19	-0.16	0.6
A	L	130212	SR	0.58	0.44	-0.23	0.44	-0.23	-0.14	0.6
A	O	96184	SR	0.52	0.41	-0.22	-0.25	0.41	-0.08	0.6
A	O	96185	SR	0.45	0.27	-0.05	-0.21	0.27	-0.10	0.6
A	O	96182	SR	0.47	0.40	-0.17	-0.18	0.40	-0.15	0.7
A	O	96183	SR	0.50	0.34	-0.23	0.34	-0.16	-0.08	0.7
A	O	96186	SR	0.67	0.46	0.46	-0.26	-0.20	-0.21	0.8
A	O	130089	SR	0.59	0.40	-0.11	-0.20	-0.24	0.40	0.8
A	L	130257	SR	0.60	0.49	0.49	-0.23	-0.24	-0.22	0.9
A	L	108828	SR	0.73	0.43	-0.21	-0.25	0.43	-0.19	0.5
A	L	108831	SR	0.46	0.25	0.25	0.03	-0.28	-0.18	0.6
A	L	108830	SR	0.65	0.42	-0.23	-0.22	-0.18	0.42	0.5
A	L	130204	SR	0.46	0.31	0.31	-0.19	-0.07	-0.12	0.7
A	L	108835	SR	0.71	0.42	-0.19	0.42	-0.25	-0.20	0.5
A	L	108832	SR	0.60	0.51	0.51	-0.26	-0.27	-0.17	0.6
A	L	108829	SR	0.76	0.50	-0.24	-0.26	-0.26	0.50	0.5
A	L	171382	SR	0.35	0.41	0.41	-0.25	-0.11	-0.15	0.5
A	L	130205	SR	0.69	0.45	-0.21	0.45	-0.25	-0.19	0.7
A	L	130206	CR	0.44	0.66					4.8
A	O	130030	SR	0.86	0.36	-0.18	-0.20	0.36	-0.17	1.0

**Table 1.A9** Item Statistics, Operational Items: MD HSA English—January 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	O	130031	SR	0.73	0.44	-0.26	-0.19	-0.21	0.44	1.1
A	O	130142	SR	0.60	0.36	-0.20	-0.15	0.36	-0.15	1.4
A	O	130144	SR	0.53	0.47	-0.21	-0.22	-0.19	0.47	1.4
A	O	130146	SR	0.72	0.45	-0.19	-0.22	-0.24	0.45	1.4
A	O	130147	SR	0.54	0.47	0.47	-0.25	-0.20	-0.18	1.4
A	O	130150	SR	0.71	0.52	-0.24	-0.26	-0.26	0.52	1.4
A	O	130152	SR	0.36	0.39	-0.18	-0.08	-0.19	0.39	1.4
<b>Mean</b>				0.58	0.42	0.01	-0.09	-0.07	-0.01	0.9
<b>SD</b>				0.13	0.10	0.28	0.24	0.26	0.27	1.1

Note: Tabled item position number is based on Form A and varies somewhat on Form B.

Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A10** Item Statistics, Operational Items: MD HSA English—January 2009 Makeup

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
B	O	130281	CR	0.49	0.57					4.1
B	O	130258	SR	0.71	0.15	0.15	-0.06	-0.15	-0.07	0.1
B	O	96120	SR	0.38	0.25	0.25	-0.09	-0.18	-0.03	0.1
B	O	96121	SR	0.67	0.29	-0.17	0.29	-0.19	-0.07	0.3
B	O	96122	SR	0.64	0.24	-0.13	-0.08	0.24	-0.19	0.0
B	O	96123	SR	0.40	0.25	-0.17	-0.16	0.25	-0.03	0.1
B	L	130061	SR	0.54	0.30	0.30	-0.18	-0.20	-0.07	0.5
B	L	130062	SR	0.34	0.44	-0.19	-0.16	-0.15	0.44	0.5
B	L	130063	SR	0.57	0.41	-0.22	-0.22	0.41	-0.19	0.6
B	L	130201	SR	0.52	0.45	-0.17	-0.17	0.45	-0.26	0.7
B	L	130064	SR	0.65	0.36	-0.17	-0.20	0.36	-0.18	0.9
B	L	130065	CR	0.42	0.67					6.6
B	O	108684	CR	0.45	0.61					4.1
B	L	108722	SR	0.36	0.37	0.37	-0.10	-0.23	-0.09	0.4
B	L	108723	SR	0.54	0.40	0.40	-0.18	-0.20	-0.16	0.4
B	L	108724	SR	0.62	0.40	-0.15	0.40	-0.20	-0.22	0.4
B	L	130068	SR	0.76	0.42	0.42	-0.23	-0.22	-0.20	0.5
B	L	130198	SR	0.81	0.40	-0.20	-0.23	0.40	-0.20	0.4
B	L	130202	SR	0.58	0.39	-0.10	0.39	-0.24	-0.20	0.5
B	L	108844	SR	0.54	0.44	-0.13	0.44	-0.24	-0.24	0.5
B	L	108847	SR	0.33	0.35	-0.03	0.35	-0.27	-0.12	0.5
B	L	108848	SR	0.59	0.43	0.43	-0.15	-0.26	-0.23	0.6
B	L	108849	SR	0.68	0.44	-0.21	-0.16	0.44	-0.26	0.5
B	L	108846	SR	0.58	0.47	0.47	-0.28	-0.19	-0.16	0.6
B	L	130212	SR	0.58	0.44	-0.23	0.44	-0.23	-0.14	0.6
B	O	130112	SR	0.37	0.37	-0.12	-0.11	-0.18	0.37	0.9
B	O	130108	SR	0.43	0.38	0.38	-0.20	-0.11	-0.15	1.1
B	O	130117	SR	0.37	0.31	-0.13	-0.17	0.31	-0.05	1.0
B	O	130129	SR	0.46	0.33	-0.19	0.33	-0.14	-0.11	1.1
B	O	130256	SR	0.63	0.31	-0.21	0.31	-0.07	-0.19	1.2
B	L	130257	SR	0.60	0.49	0.49	-0.23	-0.24	-0.22	0.9
B	L	108828	SR	0.73	0.43	-0.21	-0.25	0.43	-0.19	0.5
B	L	108831	SR	0.46	0.25	0.25	0.03	-0.28	-0.18	0.6
B	L	108830	SR	0.65	0.42	-0.23	-0.22	-0.18	0.42	0.5
B	L	130204	SR	0.46	0.31	0.31	-0.19	-0.07	-0.12	0.7
B	L	108835	SR	0.71	0.42	-0.19	0.42	-0.25	-0.20	0.5
B	L	108832	SR	0.60	0.51	0.51	-0.26	-0.27	-0.17	0.6
B	L	108829	SR	0.76	0.50	-0.24	-0.26	-0.26	0.50	0.5
B	L	171382	SR	0.35	0.41	0.41	-0.25	-0.11	-0.15	0.5
B	L	130205	SR	0.69	0.45	-0.21	0.45	-0.25	-0.19	0.7
B	L	130206	CR	0.44	0.66					4.8
B	O	130170	SR	0.61	0.39	-0.18	0.39	-0.23	-0.10	1.1
B	O	130171	SR	0.52	0.18	0.18	-0.06	-0.08	-0.08	1.1

**Table 1.A10** Item Statistics, Operational Items: MD HSA English—January 2009 Makeup

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
B	O	96317	SR	0.38	0.24	-0.19	-0.02	0.24	-0.08	1.5
B	O	96318	SR	0.34	0.31	-0.10	-0.10	-0.14	0.31	1.5
B	O	96319	SR	0.35	0.29	-0.11	-0.17	-0.04	0.29	1.2
B	O	96320	SR	0.37	0.34	0.34	-0.19	-0.20	-0.01	1.2
B	O	96323	SR	0.39	0.31	-0.18	0.31	-0.11	-0.06	1.2
B	O	96324	SR	0.38	0.31	-0.17	0.31	-0.22	-0.01	1.2
B	O	96325	SR	0.37	0.38	0.38	-0.18	-0.10	-0.16	1.2
<b>Mean</b>				0.52	0.38	0.02	-0.01	-0.07	-0.07	1.0
<b>SD</b>				0.14	0.11	0.27	0.25	0.23	0.19	1.2

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A11** Item Statistics, Operational Items: MD HSA Government—January 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	L	79618	SR	0.95	0.20	-0.10	-0.11	0.20	-0.13	0.0
A	O	68606	SR	0.74	0.41	0.41	-0.16	-0.27	-0.20	0.0
A	L	51131	SR	0.83	0.32	-0.16	-0.22	-0.14	0.32	0.0
A	L	51125	SR	0.41	0.38	-0.19	-0.16	0.38	-0.13	0.2
A	O	51225	SR	0.47	0.47	-0.17	-0.35	0.47	-0.11	0.1
A	L	68543	CR	0.31	0.74					7.8
A	L	68043	SR	0.82	0.26	-0.15	-0.17	-0.11	0.26	0.1
A	L	79752	SR	0.28	0.15	0.15	-0.12	-0.06	0.04	0.6
A	L	68739	SR	0.55	0.51	-0.27	-0.24	-0.20	0.51	0.3
A	L	68040	SR	0.47	0.52	-0.19	-0.25	0.52	-0.23	0.6
A	L	68621	CR	0.34	0.71					4.2
A	L	68489	SR	0.68	0.42	0.42	-0.15	-0.27	-0.21	0.2
A	L	68734	SR	0.59	0.45	-0.20	0.45	-0.23	-0.20	0.3
A	L	51058	SR	0.42	0.54	-0.14	-0.27	-0.25	0.54	0.5
A	O	108468	SR	0.69	0.51	-0.26	0.51	-0.30	-0.21	0.4
A	L	68571	CR	0.14	0.70					15.0
A	L	108403	SR	0.57	0.43	-0.23	-0.21	0.43	-0.17	0.4
A	L	51001	SR	0.71	0.45	-0.21	0.45	-0.25	-0.22	0.5
A	L	50868	SR	0.62	0.41	-0.18	0.41	-0.21	-0.20	0.6
A	L	50891	SR	0.51	0.35	-0.24	0.35	-0.22	-0.07	0.6
A	L	68754	SR	0.56	0.50	-0.23	-0.20	-0.26	0.50	0.7
A	L	68690	SR	0.50	0.37	-0.18	0.37	-0.17	-0.21	0.6
A	L	50933	SR	0.53	0.49	0.49	-0.13	-0.23	-0.27	0.8
A	O	108361	CR	0.29	0.80					15.4
A	L	68504	SR	0.70	0.49	0.49	-0.27	-0.23	-0.22	1.8
A	L	68572	SR	0.70	0.49	-0.24	-0.25	0.49	-0.22	2.0
A	L	55689	SR	0.51	0.38	-0.16	0.38	-0.18	-0.12	2.0
A	O	51798	SR	0.48	0.43	-0.19	0.43	-0.23	-0.16	2.0
A	L	58269	SR	0.76	0.30	-0.17	-0.18	-0.17	0.30	0.4
A	O	68055	SR	0.81	0.44	-0.23	-0.23	0.44	-0.23	0.4
A	L	55613	SR	0.61	0.28	-0.20	-0.07	0.28	-0.18	0.5
A	O	58396	SR	0.44	0.52	-0.25	0.52	-0.16	-0.25	0.6
A	L	68583	CR	0.14	0.70					13.7
A	O	68524	SR	0.59	0.33	-0.11	-0.22	0.33	-0.18	0.5
A	L	108473	SR	0.52	0.48	-0.21	-0.19	0.48	-0.24	0.8
A	L	68710	SR	0.62	0.50	-0.22	0.50	-0.30	-0.17	0.7
A	O	58258	SR	0.32	0.39	-0.18	-0.12	-0.16	0.39	0.6
A	L	68065	CR	0.25	0.75					9.1
A	L	68648	SR	0.69	0.46	-0.19	-0.24	-0.28	0.46	0.5
A	L	68584	SR	0.53	0.41	-0.14	-0.24	0.41	-0.16	0.6
A	O	65191	SR	0.49	0.47	0.47	-0.21	-0.27	-0.14	0.7
A	O	60427	SR	0.47	0.26	-0.09	-0.05	0.26	-0.20	0.7
A	L	65158	CR	0.32	0.69					7.1

**Table 1.A11** Item Statistics, Operational Items: MD HSA Government—January 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	L	51092	SR	0.53	0.49	-0.19	0.49	-0.30	-0.15	0.8
A	L	68720	SR	0.71	0.50	-0.26	0.50	-0.23	-0.25	0.8
A	L	64818	SR	0.44	0.44	-0.13	-0.22	0.44	-0.19	1.0
A	L	68785	SR	0.58	0.49	0.49	-0.25	-0.27	-0.14	0.8
A	O	52250	SR	0.34	0.38	-0.10	0.38	-0.15	-0.17	0.8
A	O	64791	SR	0.41	0.51	0.51	-0.23	-0.22	-0.17	1.1
A	L	64822	CR	0.20	0.82					17.1
A	O	67997	SR	0.75	0.47	0.47	-0.26	-0.25	-0.19	1.0
A	O	65192	SR	0.40	0.17	-0.15	0.00	-0.06	0.17	1.0
A	O	67987	SR	0.53	0.50	-0.23	-0.24	0.50	-0.19	1.1
A	O	52209	SR	0.57	0.47	-0.22	-0.25	0.47	-0.18	1.1
A	L	64813	SR	0.48	0.45	0.45	-0.25	-0.18	-0.14	1.3
A	O	55527	SR	0.28	0.39	0.39	-0.22	-0.22	0.05	1.4
A	O	68077	SR	0.53	0.52	-0.19	-0.25	-0.25	0.52	1.7
A	O	65186	SR	0.65	0.48	-0.23	-0.22	0.48	-0.24	1.6
<b>Mean</b>				0.52	0.46	-0.05	-0.03	-0.01	-0.06	2.2
<b>SD</b>				0.18	0.14	0.27	0.29	0.30	0.25	4.0

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses



**Table 1.A12** Item Statistics, Operational Items: MD HSA Government—January 2009 Makeup

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
B	L	79618	SR	0.95	0.20	-0.10	-0.11	0.20	-0.13	0.0
B	O	50870	SR	0.50	0.33	-0.15	0.33	-0.10	-0.19	0.2
B	L	51131	SR	0.83	0.32	-0.16	-0.22	-0.14	0.32	0.0
B	L	51125	SR	0.41	0.38	-0.19	-0.16	0.38	-0.13	0.2
B	O	51151	SR	0.80	0.39	-0.19	-0.19	-0.25	0.39	0.2
B	L	68543	CR	0.31	0.74					7.8
B	L	68043	SR	0.82	0.26	-0.15	-0.17	-0.11	0.26	0.1
B	L	79752	SR	0.28	0.15	0.15	-0.12	-0.06	0.04	0.6
B	L	68739	SR	0.55	0.51	-0.27	-0.24	-0.20	0.51	0.3
B	L	68040	SR	0.47	0.52	-0.19	-0.25	0.52	-0.23	0.6
B	L	68621	CR	0.34	0.71					4.2
B	L	68489	SR	0.68	0.42	0.42	-0.15	-0.27	-0.21	0.2
B	L	68734	SR	0.59	0.45	-0.20	0.45	-0.23	-0.20	0.3
B	L	51058	SR	0.42	0.54	-0.14	-0.27	-0.25	0.54	0.5
B	O	79723	SR	0.31	0.06	-0.02	-0.03	0.06	-0.01	0.4
B	L	68571	CR	0.14	0.70					15.0
B	L	108403	SR	0.57	0.43	-0.23	-0.21	0.43	-0.17	0.4
B	L	51001	SR	0.71	0.45	-0.21	0.45	-0.25	-0.22	0.5
B	L	50868	SR	0.62	0.41	-0.18	0.41	-0.21	-0.20	0.6
B	L	50891	SR	0.51	0.35	-0.24	0.35	-0.22	-0.07	0.6
B	L	68754	SR	0.56	0.50	-0.23	-0.20	-0.26	0.50	0.7
B	L	68690	SR	0.50	0.37	-0.18	0.37	-0.17	-0.21	0.6
B	L	50933	SR	0.53	0.49	0.49	-0.13	-0.23	-0.27	0.8
B	O	68629	CR	0.21	0.74					18.6
B	L	68504	SR	0.70	0.49	0.49	-0.27	-0.23	-0.22	1.8
B	L	68572	SR	0.70	0.49	-0.24	-0.25	0.49	-0.22	2.0
B	L	55689	SR	0.51	0.38	-0.16	0.38	-0.18	-0.12	2.0
B	O	58383	SR	0.36	0.42	-0.18	-0.18	0.42	-0.08	2.7
B	L	58269	SR	0.76	0.30	-0.17	-0.18	-0.17	0.30	0.4
B	O	79585	SR	0.63	0.44	-0.24	0.44	-0.21	-0.15	1.1
B	L	55613	SR	0.61	0.28	-0.20	-0.07	0.28	-0.18	0.5
B	O	58150	SR	0.50	0.39	-0.23	-0.13	0.39	-0.14	1.4
B	L	68583	CR	0.14	0.70					13.7
B	O	55680	SR	0.52	0.25	-0.10	-0.07	0.25	-0.11	1.7
B	L	108473	SR	0.52	0.48	-0.21	-0.19	0.48	-0.24	0.8
B	L	68710	SR	0.62	0.50	-0.22	0.50	-0.30	-0.17	0.7
B	O	68580	SR	0.44	0.43	-0.16	-0.15	-0.18	0.43	1.7
B	L	68065	CR	0.25	0.75					9.1
B	L	68648	SR	0.69	0.46	-0.19	-0.24	-0.28	0.46	0.5
B	L	68584	SR	0.53	0.41	-0.14	-0.24	0.41	-0.16	0.6
B	O	68716	SR	0.46	0.47	-0.17	-0.19	-0.19	0.47	1.6
B	O	68780	SR	0.37	0.26	-0.11	-0.18	0.26	0.02	1.9
B	L	65158	CR	0.32	0.69					7.1

**Table 1.A12** Item Statistics, Operational Items: MD HSA Government—January 2009 Makeup

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
B	L	51092	SR	0.53	0.49	-0.19	0.49	-0.30	-0.15	0.8
B	L	68720	SR	0.71	0.50	-0.26	0.50	-0.23	-0.25	0.8
B	L	64818	SR	0.44	0.44	-0.13	-0.22	0.44	-0.19	1.0
B	L	68785	SR	0.58	0.49	0.49	-0.25	-0.27	-0.14	0.8
B	O	68599	SR	0.40	0.40	-0.18	0.40	-0.07	-0.19	2.5
B	O	60460	SR	0.32	0.28	0.01	-0.13	0.28	-0.11	3.0
B	L	64822	CR	0.20	0.82					17.1
B	O	52243	SR	0.39	0.30	-0.06	-0.17	0.30	-0.08	2.2
B	O	65210	SR	0.31	0.33	-0.09	-0.07	-0.13	0.33	2.3
B	O	65180	SR	0.38	0.40	-0.14	-0.12	-0.15	0.40	2.6
B	O	68007	SR	0.39	0.44	0.44	-0.20	-0.19	-0.07	2.7
B	L	64813	SR	0.48	0.45	0.45	-0.25	-0.18	-0.14	1.3
B	O	51029	SR	0.47	0.44	-0.18	-0.19	-0.15	0.44	2.7
B	O	52241	SR	0.43	0.40	-0.17	-0.20	0.40	-0.08	2.8
B	O	52214	SR	0.63	0.46	-0.20	0.46	-0.21	-0.21	3.1
<b>Mean</b>				0.50	0.44	-0.09	-0.02	-0.01	0.00	2.6
<b>SD</b>				0.18	0.15	0.22	0.27	0.28	0.26	4.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A13** Item Statistics, Operational Items: MD HSA Algebra—April 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
S	L	56636	SR	0.73	0.38	-0.22	-0.24	0.38	-0.12	0.0
S	L	54846	SR	0.64	0.29	-0.15	0.29	-0.24	-0.05	0.6
S	L	51542	SR	0.29	0.23	0.23	0.02	-0.25	-0.14	0.3
S	L	51371	SR	0.43	0.18	0.18	-0.12	-0.10	-0.04	0.5
S	L	79128	CR	0.11	0.53					29.5
S	L	67515	SR	0.38	0.19	-0.12	0.19	-0.05	-0.04	1.6
S	L	79011	SR	0.33	0.13	0.13	-0.01	-0.06	-0.07	1.4
S	L	56614	SR	0.64	0.36	-0.15	0.36	-0.22	-0.17	0.9
S	L	43157	SR	0.29	0.16	-0.02	0.04	-0.15	0.16	0.9
S	L	67525	SPR	0.52	0.40	0.40	-0.26			6.8
S	L	56563	SPR	0.06	0.29	0.29	0.04			11.2
S	L	79119	CR	0.35	0.65					18.4
S	L	51469	SR	0.34	0.46	-0.05	-0.18	-0.23	0.46	1.7
S	L	54798	SR	0.31	0.14	-0.02	0.04	0.14	-0.16	2.0
S	L	79528	CR	0.29	0.67					23.9
S	L	56566	SPR	0.12	0.38	0.38	-0.05			26.2
S	L	51516	SR	0.38	0.23	-0.21	-0.11	0.23	0.09	5.3
S	L	54802	SR	0.30	0.25	0.25	0.03	-0.14	-0.13	5.7
S	L	51365	SR	0.46	0.32	0.32	-0.09	-0.18	-0.06	1.9
S	L	54749	SR	0.76	0.48	-0.22	-0.21	-0.24	0.48	1.6
S	L	67536	SR	0.70	0.36	-0.16	-0.23	-0.11	0.36	1.6
S	L	51501	SR	0.60	0.39	-0.21	-0.11	0.39	-0.16	2.1
S	L	51567	SPR	0.17	0.40	0.40	-0.05			15.9
S	L	67543	SR	0.31	0.26	0.05	-0.06	-0.17	0.26	2.8
S	L	106542	SR	0.36	0.25	0.25	-0.07	-0.13	0.02	2.4
S	L	79033	SR	0.57	0.35	-0.13	-0.17	0.35	-0.10	2.6
S	L	79533	SR	0.32	0.26	-0.01	0.26	-0.08	-0.13	2.6
S	L	67422	CR	0.06	0.35					25.2
S	L	67401	SPR	0.64	0.54	0.54	-0.31			11.5
S	L	67421	SPR	0.39	0.45	0.45	-0.17			12.1
S	L	56604	CR	0.18	0.60					37.2
S	L	67408	SR	0.36	0.22	0.04	0.22	-0.08	-0.10	3.3
S	L	51438	SR	0.41	0.29	-0.08	0.29	-0.10	-0.07	3.4
S	L	67447	SR	0.47	0.24	-0.09	-0.03	0.24	-0.08	3.4
S	L	64257	CR	0.12	0.66					37.9
S	L	50394	SR	0.71	0.47	-0.20	-0.21	-0.16	0.47	3.7
S	L	67418	SR	0.33	0.20	-0.06	0.20	-0.05	0.03	4.1
S	L	54771	SR	0.19	0.17	-0.03	0.04	-0.04	0.17	4.0
<b>Mean</b>				0.38	0.35	0.06	-0.02	-0.04	0.03	8.3
<b>SD</b>				0.19	0.15	0.23	0.18	0.20	0.21	10.6

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A14** Item Statistics, Operational Items: MD HSA Biology—April 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
S	O	52403	SR	0.70	0.36	-0.17	-0.19	-0.19	0.36	0.2
S	O	68216	SR	0.57	0.28	0.28	-0.16	-0.12	-0.11	0.2
S	O	68162	CR	0.25	0.58					11.4
S	O	108545	SR	0.39	0.33	-0.14	-0.19	-0.07	0.33	0.3
S	O	52734	SR	0.36	0.24	0.24	-0.18	-0.05	-0.11	0.2
S	O	53708	SR	0.40	0.33	-0.16	-0.09	-0.18	0.33	0.7
S	O	53709	SR	0.24	0.14	0.05	0.14	-0.06	-0.14	0.6
S	O	108662	CR	0.18	0.65					22.3
S	O	52592	SR	0.44	0.21	-0.04	-0.21	0.21	-0.02	0.6
S	O	52593	SR	0.46	0.33	0.33	-0.20	-0.20	-0.03	0.8
S	O	79499	SR	0.70	0.32	-0.18	-0.15	0.32	-0.14	0.7
S	O	57027	SR	0.42	0.32	0.32	-0.12	-0.16	-0.10	0.8
S	O	52600	SR	0.25	0.24	0.24	-0.17	-0.11	0.01	0.8
S	O	79418	SR	0.48	0.34	0.34	-0.19	-0.14	-0.09	1.0
S	O	52736	CR	0.10	0.59					30.5
S	O	55253	SR	0.24	0.21	0.21	-0.05	-0.09	-0.03	1.0
S	O	108592	SR	0.64	0.44	-0.18	-0.19	-0.23	0.44	1.1
S	O	52505	SR	0.31	0.26	-0.03	0.26	-0.13	-0.11	1.3
S	O	52506	SR	0.23	0.26	-0.05	-0.16	-0.03	0.26	1.3
S	O	57029	SR	0.31	0.19	0.19	-0.12	-0.02	-0.03	1.4
S	O	52552	SR	0.29	0.31	-0.12	-0.06	-0.11	0.31	1.7
S	O	56977	CR	0.14	0.61					30.6
S	O	54998	SR	0.46	0.32	0.32	-0.16	-0.09	-0.09	1.8
S	O	54999	SR	0.29	0.22	0.22	-0.03	-0.09	-0.08	1.8
S	O	108569	SR	0.77	0.41	0.41	-0.23	-0.22	-0.13	2.2
S	O	52518	SR	0.22	0.24	0.24	-0.14	-0.06	0.02	2.3
S	O	55012	SR	0.33	0.25	0.25	-0.10	-0.02	-0.14	2.3
S	O	55007	SR	0.42	0.20	0.01	0.20	-0.19	-0.14	0.5
S	O	52408	SR	0.42	0.25	-0.15	-0.13	0.25	-0.02	0.7
S	O	79322	SR	0.24	0.17	0.17	-0.02	-0.07	-0.07	0.8
S	O	79323	SR	0.26	0.25	-0.10	-0.08	-0.06	0.25	0.7
S	O	67686	CR	0.21	0.58					17.2
S	O	79316	SR	0.53	0.37	-0.16	-0.20	-0.14	0.37	0.8
S	O	79317	SR	0.49	0.39	-0.19	-0.21	0.39	-0.08	1.0
S	O	53488	SR	0.56	0.33	-0.17	-0.16	0.33	-0.10	1.1
S	O	53508	SR	0.50	0.41	0.41	-0.21	-0.18	-0.15	1.0
S	O	55078	SR	0.64	0.43	-0.20	-0.24	-0.17	0.43	1.0
S	O	67577	SR	0.26	0.09	-0.03	0.09	-0.03	0.03	1.4
S	O	64990	SR	0.73	0.36	0.36	-0.18	-0.26	-0.09	1.1
S	O	79466	SR	0.59	0.30	-0.06	0.30	-0.22	-0.10	1.1
S	O	57120	SR	0.45	0.42	-0.16	-0.16	-0.17	0.42	1.5
S	O	57121	SR	0.33	0.30	0.30	-0.12	-0.05	-0.14	1.3
S	O	57122	SR	0.39	0.25	-0.02	0.25	-0.11	-0.13	1.4

**Table 1.A14** Item Statistics, Operational Items: MD HSA Biology—April 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
S	O	67591	CR	0.09	0.55					34.6
S	O	64728	SR	0.43	0.34	0.34	-0.12	-0.21	-0.06	1.4
S	O	57130	SR	0.51	0.46	0.46	-0.22	-0.23	-0.14	1.4
S	O	57131	SR	0.46	0.34	-0.19	0.34	-0.16	-0.03	1.5
S	O	108546	SR	0.30	0.28	-0.08	0.28	-0.08	-0.09	1.6
S	O	64717	SR	0.40	0.25	0.25	-0.16	-0.11	0.02	1.7
S	O	67639	SR	0.38	0.33	-0.13	0.33	-0.12	-0.08	1.7
S	O	67640	SR	0.45	0.26	-0.02	-0.21	0.26	-0.05	1.7
S	O	67642	SR	0.40	0.29	-0.14	-0.12	0.29	-0.04	1.5
S	O	67573	CR	0.22	0.62					21.0
S	O	65063	SR	0.31	0.26	0.26	-0.01	-0.11	-0.13	2.9
S	O	108540	SR	0.45	0.34	-0.10	-0.16	0.34	-0.12	3.0
<b>Mean</b>				0.39	0.33	0.07	-0.07	-0.05	0.01	4.1
<b>SD</b>				0.16	0.12	0.21	0.16	0.17	0.18	8.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A15** Item Statistics, Operational Items: MD HSA English—April 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
S	O	130268	CR	0.49	0.53					4.4
S	O	130081	SR	0.63	0.23	-0.13	-0.10	0.23	-0.12	0.1
S	O	130082	SR	0.19	0.18	0.18	-0.10	-0.12	0.02	0.0
S	O	130083	SR	0.57	0.32	0.32	-0.13	-0.19	-0.14	0.1
S	O	130084	SR	0.71	0.36	-0.24	-0.18	0.36	-0.15	0.3
S	O	130085	SR	0.55	0.35	-0.19	-0.16	-0.16	0.35	0.1
S	O	96175	SR	0.72	0.39	-0.20	-0.25	-0.16	0.39	0.4
S	O	96176	SR	0.75	0.42	0.42	-0.24	-0.25	-0.17	0.2
S	O	96177	SR	0.65	0.31	-0.27	0.31	-0.22	-0.02	0.4
S	O	96178	SR	0.51	0.39	-0.22	0.39	-0.19	-0.17	0.3
S	O	96179	SR	0.51	0.34	-0.15	-0.23	-0.09	0.34	0.3
S	O	96180	SR	0.58	0.38	-0.13	-0.24	-0.22	0.38	0.2
S	O	96181	SR	0.51	0.31	-0.09	0.31	-0.24	-0.12	0.2
S	O	108850	SR	0.48	0.30	-0.22	-0.12	0.30	-0.04	0.9
S	O	108851	SR	0.50	0.29	-0.10	0.29	-0.27	-0.03	1.1
S	O	108854	SR	0.55	0.30	-0.16	-0.19	0.30	-0.06	1.1
S	O	130250	SR	0.61	0.39	-0.18	-0.17	-0.18	0.39	1.3
S	O	108855	CR	0.34	0.65					15.3
S	O	108685	CR	0.43	0.57					7.1
S	O	96027	SR	0.36	0.27	-0.16	-0.17	-0.03	0.27	0.2
S	O	96028	SR	0.50	0.33	0.33	-0.12	-0.17	-0.16	0.4
S	O	96029	SR	0.29	0.19	0.19	-0.12	-0.09	0.03	0.4
S	O	96147	SR	0.67	0.43	0.43	-0.16	-0.26	-0.20	0.7
S	O	96148	SR	0.65	0.39	-0.19	-0.20	0.39	-0.16	0.7
S	O	96149	SR	0.49	0.41	0.41	-0.16	-0.25	-0.12	0.6
S	O	96150	SR	0.33	0.24	-0.03	-0.07	-0.15	0.24	0.6
S	O	130955	SR	0.42	0.22	0.22	-0.01	-0.22	-0.09	0.4
S	O	132497	SR	0.57	0.34	-0.21	-0.12	0.34	-0.18	0.4
S	O	130956	SR	0.19	0.06	0.06	-0.13	-0.03	0.11	0.5
S	O	130971	SR	0.52	0.46	-0.20	-0.22	-0.19	0.46	0.6
S	O	130972	SR	0.56	0.41	-0.21	-0.18	-0.17	0.41	0.5
S	O	130973	SR	0.25	0.10	-0.12	0.10	0.11	-0.13	0.6
S	O	130200	SR	0.43	0.30	0.30	-0.04	-0.23	-0.18	0.6
S	O	130974	SR	0.64	0.42	0.42	-0.25	-0.20	-0.16	0.6
S	O	130975	SR	0.32	0.20	0.01	0.20	-0.19	-0.02	0.6
S	O	130976	CR	0.39	0.65					17.6
S	O	108712	SR	0.52	0.21	0.21	-0.08	-0.22	0.00	0.9
S	O	108713	SR	0.49	0.30	-0.11	-0.16	0.30	-0.07	0.9
S	O	108714	SR	0.38	0.16	-0.01	-0.09	0.16	-0.05	0.9
S	O	109730	SR	0.43	0.35	-0.14	-0.11	0.35	-0.17	1.0
S	O	109731	SR	0.42	0.37	-0.12	-0.13	-0.18	0.37	1.2
S	O	130289	SR	0.49	0.42	0.42	-0.18	-0.16	-0.20	0.9
S	O	130291	SR	0.39	0.23	-0.10	0.23	-0.11	-0.02	1.0

**Table 1.A15** Item Statistics, Operational Items: MD HSA English—April 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
S	O	96387	SR	0.43	0.27	-0.14	-0.06	0.27	-0.12	1.7
S	O	130265	SR	0.27	0.14	0.00	-0.02	0.14	-0.13	1.6
S	O	108811	SR	0.49	0.25	-0.03	-0.12	0.25	-0.17	2.3
S	O	108812	SR	0.29	0.18	-0.10	-0.04	0.18	-0.02	2.3
S	O	108813	SR	0.28	0.11	-0.05	0.11	-0.05	0.03	2.4
S	O	108817	SR	0.43	0.30	-0.14	0.30	-0.09	-0.12	2.5
S	O	108818	SR	0.40	0.33	-0.19	-0.09	-0.11	0.33	2.5
<b>Mean</b>				0.47	0.32	-0.01	-0.06	-0.04	0.01	1.6
<b>SD</b>				0.14	0.13	0.22	0.17	0.21	0.21	3.3

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A16** Item Statistics, Operational Items: MD HSA Government—April 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
S	O	68093	SR	0.90	0.21	-0.09	0.21	-0.17	-0.08	0.0
S	O	55545	SR	0.44	0.47	-0.27	-0.18	-0.21	0.47	0.1
S	O	58100	SR	0.51	0.31	-0.10	-0.15	0.31	-0.18	0.4
S	O	51766	SR	0.40	0.31	-0.06	-0.17	0.31	-0.13	0.5
S	O	50993	SR	0.53	0.27	0.27	-0.16	-0.19	-0.03	0.2
S	O	68735	CR	0.33	0.58					9.1
S	O	59843	SR	0.30	0.28	-0.03	-0.20	0.28	-0.07	0.4
S	O	51210	SR	0.80	0.38	0.38	-0.20	-0.23	-0.17	0.4
S	O	51206	SR	0.49	0.45	0.45	-0.24	-0.18	-0.17	0.4
S	O	60432	CR	0.31	0.68					10.9
S	O	58142	SR	0.52	0.36	-0.17	0.36	-0.18	-0.12	0.6
S	O	79721	SR	0.29	0.23	0.02	-0.16	0.23	-0.09	0.8
S	O	68668	SR	0.22	0.20	0.20	-0.10	-0.10	0.05	0.9
S	O	55704	SR	0.54	0.43	-0.21	0.43	-0.23	-0.13	0.9
S	O	68617	SR	0.51	0.38	-0.16	-0.19	0.38	-0.17	1.3
S	O	55550	CR	0.25	0.75					17.5
S	O	108460	SR	0.59	0.26	-0.06	-0.22	0.26	-0.04	1.1
S	O	79605	SR	0.63	0.37	0.37	-0.18	-0.20	-0.16	1.0
S	O	55503	SR	0.29	0.32	-0.05	-0.19	0.32	-0.06	1.2
S	O	51145	SR	0.20	0.20	0.20	-0.16	-0.19	0.17	1.6
S	O	68558	SR	0.32	0.44	-0.15	-0.12	-0.20	0.44	1.2
S	O	51063	SR	0.59	0.49	0.49	-0.20	-0.27	-0.19	1.6
S	O	51230	CR	0.14	0.75					33.3
S	O	55471	SR	0.29	0.39	0.39	-0.10	-0.21	-0.07	2.2
S	O	68630	SR	0.83	0.38	-0.20	-0.19	-0.17	0.38	2.3
S	O	68631	SR	0.44	0.44	0.44	-0.20	-0.22	-0.12	2.3
S	O	51150	SR	0.58	0.49	-0.19	-0.24	-0.22	0.49	2.6
S	O	58113	SR	0.26	0.50	-0.18	-0.18	-0.12	0.50	2.9
S	O	68648	SR	0.61	0.48	-0.16	-0.23	-0.27	0.48	1.3
S	O	53648	SR	0.38	0.42	0.42	-0.20	-0.16	-0.11	1.9
S	O	51735	SR	0.47	0.47	-0.20	0.47	-0.21	-0.17	1.5
S	O	55715	SR	0.65	0.51	-0.22	-0.22	-0.26	0.51	1.2
S	O	55576	CR	0.24	0.70					18.1
S	O	108467	SR	0.40	0.32	0.32	-0.14	-0.10	-0.12	2.1
S	O	51020	SR	0.45	0.42	-0.13	-0.21	0.42	-0.15	2.1
S	O	68516	SR	0.71	0.44	-0.16	0.44	-0.23	-0.21	2.1
S	O	51181	SR	0.38	0.37	-0.08	-0.23	0.37	-0.16	2.2
S	O	64968	SR	0.42	0.33	0.33	-0.12	-0.08	-0.15	2.4
S	O	68655	SR	0.49	0.32	-0.17	0.32	-0.02	-0.18	2.2
S	O	68519	CR	0.11	0.70					23.4
S	O	51809	SR	0.72	0.42	-0.17	-0.25	0.42	-0.17	1.4
S	O	68597	SR	0.46	0.32	0.32	-0.19	-0.12	-0.04	1.4
S	O	60457	SR	0.39	0.39	-0.10	-0.18	0.39	-0.15	1.7



**Table 1.A16** Item Statistics, Operational Items: MD HSA Government—April 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
S	O	65198	SR	0.45	0.45	-0.23	-0.20	-0.12	0.45	1.6
S	O	60454	SR	0.42	0.37	-0.10	0.37	-0.20	-0.09	1.7
S	O	64807	SR	0.47	0.40	-0.17	-0.23	0.40	-0.08	1.6
S	O	58229	SR	0.43	0.46	0.46	-0.22	-0.15	-0.16	1.7
S	O	55662	CR	0.05	0.65					30.6
S	O	65203	SR	0.22	0.46	-0.13	-0.16	-0.10	0.46	2.5
S	O	52206	SR	0.36	0.47	-0.09	-0.20	-0.19	0.47	3.1
S	O	68665	SR	0.48	0.48	-0.15	-0.17	-0.23	0.48	3.5
S	O	50980	CR	0.24	0.73					21.7
S	O	58359	SR	0.55	0.53	-0.21	-0.22	-0.23	0.53	2.5
S	O	65197	SR	0.64	0.48	0.48	-0.24	-0.24	-0.14	2.6
S	O	51761	SR	0.44	0.48	-0.20	0.48	-0.17	-0.16	2.8
S	O	64978	SR	0.15	0.24	0.24	0.00	-0.12	0.02	2.8
S	O	58394	SR	0.40	0.41	-0.13	0.41	-0.16	-0.14	2.9
S	O	55711	SR	0.31	0.47	-0.14	-0.21	-0.09	0.47	2.9
<b>Mean</b>				0.43	0.43	0.02	-0.08	-0.05	0.04	4.3
<b>SD</b>				0.18	0.14	0.25	0.23	0.23	0.27	7.3

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A17** Item Statistics, Operational Items: MD HSA Algebra—May 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C-N	O	54764	SR	0.75	0.53	-0.37	-0.21	-0.24	0.53	0.1
C-N	L	255110	SR	0.70	0.42	-0.25	0.42	-0.24	-0.15	0.6
C-N	O	43163	SR	0.76	0.39	-0.14	-0.20	-0.26	0.39	0.1
C-N	L	79021	SR	0.40	0.37	0.37	-0.21	-0.17	-0.06	0.5
C-N	L	56385	SR	0.72	0.54	-0.27	-0.23	-0.35	0.54	0.3
C-N	L	54851	SPR	0.46	0.50	0.50	-0.38			7.0
C-N	L	133389	SPR	0.39	0.50	0.50	-0.40			8.1
C-N	O	79117	SR	0.22	0.30	-0.20	0.30	-0.06	-0.04	0.1
C-N	O	135121	SR	0.40	0.31	-0.06	-0.20	0.31	-0.19	0.4
C-N	L	133411	SR	0.44	0.39	0.39	-0.15	-0.18	-0.17	0.4
C-N	L	51423	SR	0.51	0.40	0.40	-0.15	-0.21	-0.20	0.2
C-N	L	136690	SR	0.24	0.41	-0.24	-0.23	0.05	0.41	0.3
C-N	O	223232	SPR	0.30	0.39	0.39	-0.33			2.4
C-N	L	255085	SPR	0.44	0.61	0.61	-0.50			5.6
C-N	O	54700	SR	0.55	0.35	-0.24	-0.23	0.35	-0.05	0.8
C-N	L	135110	SR	0.37	0.38	-0.02	-0.27	-0.18	0.38	1.0
C-N	L	79038	SR	0.49	0.34	-0.13	-0.20	0.34	-0.13	1.2
C-N	L	67534	SR	0.70	0.48	-0.28	-0.19	-0.24	0.48	1.2
C-N	L	136688	SR	0.66	0.35	-0.19	-0.21	0.35	-0.09	0.4
C-N	O	54806	SR	0.63	0.58	-0.34	-0.30	-0.20	0.58	0.2
C-N	L	67530	SR	0.55	0.40	0.40	-0.12	-0.22	-0.23	0.2
C-N	L	255073	SPR	0.26	0.48	0.48	-0.43			2.0
C-N	L	133403	SPR	0.24	0.50	0.50	-0.42			2.7
C-N	L	54621	SR	0.26	0.23	0.23	-0.16	0.06	-0.14	0.4
C-N	O	56783	SR	0.61	0.41	-0.13	-0.24	-0.27	0.41	0.3
C-N	L	54746	SR	0.74	0.54	-0.30	0.54	-0.34	-0.18	0.4
C-N	O	56733	SR	0.66	0.48	-0.27	-0.26	0.48	-0.19	0.3
C-N	O	51404	SR	0.82	0.36	-0.28	-0.17	0.36	-0.12	0.2
C-N	L	135101	SR	0.49	0.46	0.46	-0.14	-0.30	-0.16	0.5
C-N	O	106608	SPR	0.71	0.51	0.51	-0.44			3.9
C-N	L	51562	SR	0.70	0.49	-0.26	0.49	-0.32	-0.15	0.4
C-N	O	43139	SR	0.44	0.37	-0.24	-0.13	-0.22	0.37	0.4
C-N	L	79148	SR	0.68	0.53	0.53	-0.20	-0.32	-0.27	0.5
C-N	L	54823	SR	0.70	0.61	-0.25	-0.27	-0.38	0.61	0.5
C-N	L	255114	SR	0.42	0.41	-0.13	-0.29	0.41	-0.11	0.7
C-N	L	223436	SR	0.64	0.29	-0.14	0.29	-0.10	-0.21	0.2
C-N	O	67479	SR	0.66	0.32	-0.21	-0.18	-0.12	0.32	0.3
C-N	L	43221	SPR	0.44	0.66	0.66	-0.56			7.6
C-N	O	79078	SPR	0.75	0.46	0.46	-0.41			2.2
C-N	O	51521	SPR	0.70	0.64	0.64	-0.59			2.4
C-N	L	43158	SR	0.54	0.41	-0.19	-0.29	-0.17	0.41	0.3
C-N	O	67457	SR	0.59	0.58	-0.24	0.58	-0.30	-0.29	0.4
C-N	L	67484	SR	0.34	0.38	-0.14	-0.17	-0.28	0.38	0.2

**Table 1.A17** Item Statistics, Operational Items: MD HSA Algebra—May 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C-N	O	43195	SR	0.75	0.37	-0.21	-0.20	0.37	-0.16	0.2
C-N	L	67417	SR	0.64	0.33	0.33	-0.24	-0.26	-0.01	0.3
C-N	O	51449	SR	0.62	0.46	-0.19	0.46	-0.27	-0.20	0.4
C-N	L	43201	SR	0.85	0.42	0.42	-0.23	-0.25	-0.19	0.4
C-N	O	56736	SR	0.70	0.35	-0.23	-0.21	0.35	-0.07	0.3
C-N	L	54723	SR	0.47	0.67	-0.49	-0.19	-0.18	0.67	0.3
C-N	L	56687	SR	0.78	0.56	-0.21	-0.31	0.56	-0.35	0.4
C-N	L	56465	SR	0.68	0.40	-0.23	0.40	-0.16	-0.20	0.5
C-N	O	56700	SR	0.80	0.50	-0.27	0.50	-0.29	-0.21	0.5
C-N	O	56506	SR	0.71	0.53	-0.22	-0.37	0.53	-0.19	0.5
<b>Mean</b>				0.57	0.45	0.02	-0.15	-0.06	0.04	1.2
<b>SD</b>				0.17	0.10	0.34	0.29	0.29	0.31	1.9

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A18** Item Statistics, Operational Items: MD HSA Algebra—May 2009 Makeup 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
X	O	67520	SR	0.71	0.47	0.47	-0.26	-0.27	-0.20	0.2
X	L	255110	SR	0.70	0.42	-0.25	0.42	-0.24	-0.15	0.6
X	O	223234	SR	0.56	0.39	-0.21	-0.15	-0.18	0.39	0.2
X	L	79021	SR	0.40	0.37	0.37	-0.21	-0.17	-0.06	0.5
X	L	56385	SR	0.72	0.54	-0.27	-0.23	-0.35	0.54	0.3
X	L	54851	SPR	0.46	0.50	0.50	-0.38			7.0
X	L	133389	SPR	0.39	0.50	0.50	-0.40			8.1
X	O	132837	SR	0.61	0.36	-0.09	-0.16	0.36	-0.26	0.3
X	O	135121	SR	0.40	0.31	-0.06	-0.20	0.31	-0.19	0.4
X	L	133411	SR	0.44	0.39	0.39	-0.15	-0.18	-0.17	0.4
X	L	51423	SR	0.51	0.40	0.40	-0.15	-0.21	-0.20	0.2
X	L	136690	SR	0.24	0.41	-0.24	-0.23	0.05	0.41	0.3
X	O	135096	SPR	0.20	0.30	0.30	-0.17			5.7
X	L	255085	SPR	0.44	0.61	0.61	-0.50			5.6
X	O	54700	SR	0.55	0.35	-0.24	-0.23	0.35	-0.05	0.8
X	L	135110	SR	0.37	0.38	-0.02	-0.27	-0.18	0.38	1.0
X	L	79038	SR	0.49	0.34	-0.13	-0.20	0.34	-0.13	1.2
X	L	67534	SR	0.70	0.48	-0.28	-0.19	-0.24	0.48	1.2
X	L	136688	SR	0.66	0.35	-0.19	-0.21	0.35	-0.09	0.4
X	O	54806	SR	0.63	0.58	-0.34	-0.30	-0.20	0.58	0.2
X	L	67530	SR	0.55	0.40	0.40	-0.12	-0.22	-0.23	0.2
X	L	255073	SPR	0.26	0.48	0.48	-0.43			2.0
X	L	133403	SPR	0.24	0.50	0.50	-0.42			2.7
X	L	54621	SR	0.26	0.23	0.23	-0.16	0.06	-0.14	0.4
X	O	56783	SR	0.61	0.41	-0.13	-0.24	-0.27	0.41	0.3
X	L	54746	SR	0.74	0.54	-0.30	0.54	-0.34	-0.18	0.4
X	O	79066	SR	0.43	0.38	-0.04	-0.29	0.38	-0.17	1.2
X	O	51404	SR	0.82	0.36	-0.28	-0.17	0.36	-0.12	0.2
X	L	135101	SR	0.49	0.46	0.46	-0.14	-0.30	-0.16	0.5
X	O	106608	SPR	0.71	0.51	0.51	-0.44			3.9
X	L	51562	SR	0.70	0.49	-0.26	0.49	-0.32	-0.15	0.4
X	O	67544	SR	0.49	0.66	-0.30	-0.25	-0.30	0.66	0.9
X	L	79148	SR	0.68	0.53	0.53	-0.20	-0.32	-0.27	0.5
X	L	54823	SR	0.70	0.61	-0.25	-0.27	-0.38	0.61	0.5
X	L	255114	SR	0.42	0.41	-0.13	-0.29	0.41	-0.11	0.7
X	L	223436	SR	0.64	0.29	-0.14	0.29	-0.10	-0.21	0.2
X	O	67479	SR	0.66	0.32	-0.21	-0.18	-0.12	0.32	0.3
X	L	43221	SPR	0.44	0.66	0.66	-0.56			7.6
X	O	79078	SPR	0.75	0.46	0.46	-0.41			2.2
X	O	132840	SPR	0.59	0.62	0.62	-0.51			5.8
X	L	43158	SR	0.54	0.41	-0.19	-0.29	-0.17	0.41	0.3
X	O	50443	SR	0.48	0.46	-0.12	-0.27	0.46	-0.17	1.0
X	L	67484	SR	0.34	0.38	-0.14	-0.17	-0.28	0.38	0.2

**Table 1.A18** Item Statistics, Operational Items: MD HSA Algebra—May 2009 Makeup 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
X	O	51576	SR	0.44	0.54	-0.27	0.54	-0.20	-0.19	1.0
X	L	67417	SR	0.64	0.33	0.33	-0.24	-0.26	-0.01	0.3
X	O	79146	SR	0.47	0.44	-0.17	0.44	-0.20	-0.17	1.2
X	L	43201	SR	0.85	0.42	0.42	-0.23	-0.25	-0.19	0.4
X	O	56736	SR	0.70	0.35	-0.23	-0.21	0.35	-0.07	0.3
X	L	54723	SR	0.47	0.67	-0.49	-0.19	-0.18	0.67	0.3
X	L	56687	SR	0.78	0.56	-0.21	-0.31	0.56	-0.35	0.4
X	L	56465	SR	0.68	0.40	-0.23	0.40	-0.16	-0.20	0.5
X	O	56700	SR	0.80	0.50	-0.27	0.50	-0.29	-0.21	0.5
X	O	54815	SR	0.62	0.36	0.36	-0.18	-0.19	-0.16	1.0
<b>Mean</b>				0.55	0.45	0.05	-0.15	-0.06	0.03	1.4
<b>SD</b>				0.16	0.10	0.34	0.28	0.28	0.31	2.0

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A19** Item Statistics, Operational Items: MD HSA Algebra—May 2009 Makeup 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Y	O	54764	SR	0.75	0.53	-0.37	-0.21	-0.24	0.53	0.1
Y	L	255110	SR	0.70	0.42	-0.25	0.42	-0.24	-0.15	0.6
Y	O	43163	SR	0.76	0.39	-0.14	-0.20	-0.26	0.39	0.1
Y	L	79021	SR	0.40	0.37	0.37	-0.21	-0.17	-0.06	0.5
Y	L	56385	SR	0.72	0.54	-0.27	-0.23	-0.35	0.54	0.3
Y	L	54851	SPR	0.46	0.50	0.50	-0.38			7.0
Y	L	133389	SPR	0.39	0.50	0.50	-0.40			8.1
Y	O	79117	SR	0.22	0.30	-0.20	0.30	-0.06	-0.04	0.1
Y	O	135118	SR	0.62	0.65	-0.44	-0.31	0.65	-0.14	0.3
Y	L	133411	SR	0.44	0.39	0.39	-0.15	-0.18	-0.17	0.4
Y	L	51423	SR	0.51	0.40	0.40	-0.15	-0.21	-0.20	0.2
Y	L	136690	SR	0.24	0.41	-0.24	-0.23	0.05	0.41	0.3
Y	O	223232	SPR	0.30	0.39	0.39	-0.33			2.4
Y	L	255085	SPR	0.44	0.61	0.61	-0.50			5.6
Y	O	79534	SR	0.50	0.37	-0.09	0.37	-0.25	-0.17	1.0
Y	L	135110	SR	0.37	0.38	-0.02	-0.27	-0.18	0.38	1.0
Y	L	79038	SR	0.49	0.34	-0.13	-0.20	0.34	-0.13	1.2
Y	L	67534	SR	0.70	0.48	-0.28	-0.19	-0.24	0.48	1.2
Y	L	136688	SR	0.66	0.35	-0.19	-0.21	0.35	-0.09	0.4
Y	O	136691	SR	0.61	0.41	-0.28	-0.17	0.41	-0.15	0.4
Y	L	67530	SR	0.55	0.40	0.40	-0.12	-0.22	-0.23	0.2
Y	L	255073	SPR	0.26	0.48	0.48	-0.43			2.0
Y	L	133403	SPR	0.24	0.50	0.50	-0.42			2.7
Y	L	54621	SR	0.26	0.23	0.23	-0.16	0.06	-0.14	0.4
Y	O	56782	SR	0.65	0.66	0.66	-0.31	-0.43	-0.22	0.6
Y	L	54746	SR	0.74	0.54	-0.30	0.54	-0.34	-0.18	0.4
Y	O	56733	SR	0.66	0.48	-0.27	-0.26	0.48	-0.19	0.3
Y	O	52331	SR	0.55	0.34	-0.20	0.34	-0.25	-0.05	0.5
Y	L	135101	SR	0.49	0.46	0.46	-0.14	-0.30	-0.16	0.5
Y	O	79025	SPR	0.44	0.42	0.42	-0.36			2.5
Y	L	51562	SR	0.70	0.49	-0.26	0.49	-0.32	-0.15	0.4
Y	O	43139	SR	0.44	0.37	-0.24	-0.13	-0.22	0.37	0.4
Y	L	79148	SR	0.68	0.53	0.53	-0.20	-0.32	-0.27	0.5
Y	L	54823	SR	0.70	0.61	-0.25	-0.27	-0.38	0.61	0.5
Y	L	255114	SR	0.42	0.41	-0.13	-0.29	0.41	-0.11	0.7
Y	L	223436	SR	0.64	0.29	-0.14	0.29	-0.10	-0.21	0.2
Y	O	51367	SR	0.60	0.49	-0.18	-0.22	-0.28	0.49	0.8
Y	L	43221	SPR	0.44	0.66	0.66	-0.56			7.6
Y	O	79075	SPR	0.68	0.53	0.53	-0.46			2.7
Y	O	51521	SPR	0.70	0.64	0.64	-0.59			2.4
Y	L	43158	SR	0.54	0.41	-0.19	-0.29	-0.17	0.41	0.3
Y	O	67457	SR	0.59	0.58	-0.24	0.58	-0.30	-0.29	0.4
Y	L	67484	SR	0.34	0.38	-0.14	-0.17	-0.28	0.38	0.2

**Table 1.A19** Item Statistics, Operational Items: MD HSA Algebra—May 2009 Makeup 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Y	O	43195	SR	0.75	0.37	-0.21	-0.20	0.37	-0.16	0.2
Y	L	67417	SR	0.64	0.33	0.33	-0.24	-0.26	-0.01	0.3
Y	O	51449	SR	0.62	0.46	-0.19	0.46	-0.27	-0.20	0.4
Y	L	43201	SR	0.85	0.42	0.42	-0.23	-0.25	-0.19	0.4
Y	O	51578	SR	0.37	0.31	-0.05	-0.12	-0.22	0.31	1.0
Y	L	54723	SR	0.47	0.67	-0.49	-0.19	-0.18	0.67	0.3
Y	L	56687	SR	0.78	0.56	-0.21	-0.31	0.56	-0.35	0.4
Y	L	56465	SR	0.68	0.40	-0.23	0.40	-0.16	-0.20	0.5
Y	O	51368	SR	0.35	0.35	0.35	-0.14	-0.20	-0.03	1.2
Y	O	56506	SR	0.71	0.53	-0.22	-0.37	0.53	-0.19	0.5
<b>Mean</b>				0.54	0.45	0.05	-0.14	-0.08	0.03	1.2
<b>SD</b>				0.17	0.11	0.35	0.30	0.30	0.30	1.8

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A20** Item Statistics, Operational Items: MD HSA Biology—May 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C-N	L	251260	SR	0.66	0.48	-0.27	0.48	-0.27	-0.21	0.0
C-N	L	251261	SR	0.52	0.35	-0.14	0.35	-0.20	-0.16	0.1
C-N	L	56960	SR	0.55	0.21	0.21	-0.13	-0.16	-0.07	0.0
C-N	O	54992	SR	0.56	0.25	-0.08	-0.17	0.25	-0.10	0.0
C-N	L	256550	SR	0.29	0.46	-0.12	0.46	-0.29	-0.09	0.0
C-N	L	256536	SR	0.78	0.40	0.40	-0.21	-0.25	-0.17	0.1
C-N	O	79420	SR	0.33	0.25	0.25	-0.15	-0.17	0.05	0.1
C-N	L	57063	SR	0.42	0.33	-0.15	0.33	-0.17	-0.07	0.2
C-N	L	55107	SR	0.61	0.23	-0.13	0.23	-0.14	-0.16	0.1
C-N	O	135434	SR	0.58	0.50	-0.31	-0.26	0.50	-0.13	0.1
C-N	O	135436	SR	0.51	0.29	-0.06	-0.20	-0.14	0.29	0.2
C-N	L	68215	SR	0.38	0.32	-0.22	-0.26	0.32	0.07	0.1
C-N	O	52752	SR	0.53	0.48	-0.21	-0.23	0.48	-0.24	0.1
C-N	L	215953	SR	0.46	0.46	-0.24	-0.22	-0.20	0.46	0.2
C-N	L	215954	SR	0.66	0.32	0.32	-0.20	-0.11	-0.15	0.2
C-N	L	57023	SR	0.52	0.55	-0.11	-0.44	0.55	-0.14	0.1
C-N	O	79524	SR	0.85	0.42	-0.32	-0.17	-0.19	0.42	0.1
C-N	L	52562	SR	0.49	0.52	-0.30	-0.31	-0.12	0.52	0.1
C-N	L	256478	SR	0.51	0.42	-0.13	0.42	-0.23	-0.21	0.2
C-N	L	256476	SR	0.50	0.43	-0.23	-0.25	-0.18	0.43	0.2
C-N	O	55063	SR	0.55	0.41	-0.23	0.41	-0.17	-0.16	0.3
C-N	L	79491	SR	0.30	0.17	0.17	-0.21	0.10	-0.11	0.4
C-N	O	52669	SR	0.47	0.50	-0.17	-0.17	-0.30	0.50	0.4
C-N	O	55142	SR	0.72	0.46	-0.18	-0.25	-0.27	0.46	0.4
C-N	O	55143	SR	0.47	0.48	-0.21	0.48	-0.33	-0.12	0.4
C-N	L	52410	SR	0.41	0.47	-0.20	-0.22	-0.17	0.47	0.2
C-N	O	68280	SR	0.74	0.38	-0.17	-0.19	-0.23	0.38	0.1
C-N	O	68282	SR	0.70	0.32	0.32	-0.17	-0.17	-0.17	0.1
C-N	O	68289	SR	0.23	0.30	-0.17	0.30	0.12	-0.30	0.2
C-N	L	55207	SR	0.75	0.49	0.49	-0.30	-0.28	-0.19	0.1
C-N	L	218468	SR	0.56	0.36	-0.16	-0.12	0.36	-0.23	0.2
C-N	L	218478	SR	0.32	0.46	0.46	-0.20	-0.27	-0.11	0.1
C-N	L	133046	SR	0.55	0.47	0.47	-0.27	-0.23	-0.14	0.1
C-N	O	60528	SR	0.33	0.34	-0.15	-0.16	0.34	-0.10	0.2
C-N	L	65098	SR	0.80	0.33	-0.13	0.33	-0.24	-0.17	0.1
C-N	L	65097	SR	0.25	0.18	-0.15	-0.03	-0.01	0.18	0.2
C-N	O	55135	SR	0.51	0.44	-0.25	-0.24	0.44	-0.19	0.1
C-N	L	133054	SR	0.52	0.36	-0.07	-0.21	0.36	-0.28	0.1
C-N	O	67576	SR	0.44	0.40	0.40	-0.18	-0.22	-0.16	0.2
C-N	O	67577	SR	0.57	0.47	-0.18	0.47	-0.26	-0.21	0.2
C-N	O	79427	SR	0.30	0.29	0.29	-0.10	-0.23	-0.01	0.1
C-N	L	79449	SR	0.42	0.46	-0.07	0.46	-0.36	-0.15	0.2
C-N	L	215947	SR	0.74	0.32	-0.11	0.32	-0.25	-0.21	0.1



**Table 1.A20** Item Statistics, Operational Items: MD HSA Biology—May 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C-N	L	215968	SR	0.46	0.41	-0.12	-0.22	0.41	-0.19	0.1
C-N	O	65131	SR	0.47	0.39	-0.16	-0.12	0.39	-0.24	0.2
C-N	L	260959	SR	0.73	0.38	-0.18	-0.20	0.38	-0.20	0.2
C-N	L	215978	SR	0.68	0.43	-0.25	0.43	-0.13	-0.27	0.2
C-N	L	133456	SR	0.42	0.35	-0.06	-0.21	-0.21	0.35	0.3
C-N	O	60554	SR	0.46	0.29	0.29	-0.28	-0.01	-0.11	0.3
C-N	L	65093	SR	0.57	0.38	-0.18	0.38	-0.20	-0.14	0.3
C-N	L	64997	SR	0.55	0.50	0.50	-0.22	-0.26	-0.21	0.3
C-N	O	64722	SR	0.73	0.45	-0.17	-0.31	0.45	-0.21	0.1
C-N	O	68302	SR	0.57	0.16	-0.16	-0.16	0.16	-0.05	0.1
C-N	L	256528	SR	0.79	0.47	0.47	-0.24	-0.28	-0.23	0.1
C-N	L	256530	SR	0.50	0.49	-0.20	-0.23	0.49	-0.24	0.1
C-N	L	108585	SR	0.40	0.40	-0.17	0.40	-0.23	-0.11	0.1
C-N	L	65066	SR	0.51	0.35	-0.13	-0.23	-0.13	0.35	0.1
C-N	O	65091	SR	0.60	0.27	0.27	-0.16	-0.11	-0.11	0.2
C-N	O	67616	SR	0.43	0.39	-0.02	-0.30	-0.24	0.39	0.2
C-N	O	67620	SR	0.54	0.56	-0.22	-0.29	-0.27	0.56	0.1
C-N	L	65056	SR	0.60	0.43	-0.31	0.43	-0.18	-0.17	0.2
C-N	L	79469	SR	0.35	0.43	-0.21	-0.27	-0.04	0.43	0.2
C-N	O	53509	SR	0.35	0.22	-0.11	0.22	-0.17	-0.15	0.1
C-N	L	67582	SR	0.39	0.33	-0.12	0.33	-0.16	-0.15	0.2
C-N	O	133038	SR	0.78	0.34	0.34	-0.24	-0.19	-0.10	0.2
C-N	O	133036	SR	0.36	0.36	0.36	-0.09	-0.28	-0.12	0.1
C-N	O	214532	SR	0.48	0.53	-0.26	-0.24	-0.25	0.53	0.2
C-N	L	256487	SR	0.42	0.52	-0.20	-0.28	0.52	-0.22	0.2
C-N	L	256485	SR	0.71	0.45	-0.22	0.45	-0.29	-0.19	0.2
C-N	L	256494	SR	0.55	0.44	-0.26	-0.23	0.44	-0.15	0.2
C-N	L	256496	SR	0.64	0.42	-0.28	-0.22	0.42	-0.16	0.2
C-N	L	256482	SR	0.62	0.46	0.46	-0.35	-0.26	-0.06	0.2
C-N	L	256483	SR	0.65	0.56	-0.23	-0.25	-0.35	0.56	0.2
C-N	O	223427	SR	0.82	0.41	-0.19	-0.30	0.41	-0.15	0.1
C-N	L	192082	SR	0.39	0.46	-0.08	0.46	-0.20	-0.27	0.2
C-N	L	57140	SR	0.40	0.28	0.28	-0.23	-0.22	0.05	0.2
<b>Mean</b>				0.53	0.39	-0.04	-0.05	-0.05	-0.02	0.2
<b>SD</b>				0.15	0.10	0.24	0.28	0.28	0.26	0.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A21** Item Statistics, Operational Items: MD HSA Biology—May 2009 Makeup 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
X	L	251260	SR	0.66	0.48	-0.27	0.48	-0.27	-0.21	0.0
X	L	251261	SR	0.52	0.35	-0.14	0.35	-0.20	-0.16	0.1
X	L	56960	SR	0.55	0.21	0.21	-0.13	-0.16	-0.07	0.0
X	O	54992	SR	0.56	0.25	-0.08	-0.17	0.25	-0.10	0.0
X	L	256550	SR	0.29	0.46	-0.12	0.46	-0.29	-0.09	0.0
X	L	256536	SR	0.78	0.40	0.40	-0.21	-0.25	-0.17	0.1
X	O	68275	SR	0.41	0.46	-0.25	-0.10	0.46	-0.24	0.2
X	L	57063	SR	0.42	0.33	-0.15	0.33	-0.17	-0.07	0.2
X	L	55107	SR	0.61	0.23	-0.13	0.23	-0.14	-0.16	0.1
X	O	135434	SR	0.58	0.50	-0.31	-0.26	0.50	-0.13	0.1
X	O	135436	SR	0.51	0.29	-0.06	-0.20	-0.14	0.29	0.2
X	L	68215	SR	0.38	0.32	-0.22	-0.26	0.32	0.07	0.1
X	O	214554	SR	0.25	0.25	0.25	-0.27	-0.26	0.18	0.2
X	L	215953	SR	0.46	0.46	-0.24	-0.22	-0.20	0.46	0.2
X	L	215954	SR	0.66	0.32	0.32	-0.20	-0.11	-0.15	0.2
X	L	57023	SR	0.52	0.55	-0.11	-0.44	0.55	-0.14	0.1
X	O	79520	SR	0.47	0.40	-0.15	-0.14	-0.22	0.40	0.4
X	L	52562	SR	0.49	0.52	-0.30	-0.31	-0.12	0.52	0.1
X	L	256478	SR	0.51	0.42	-0.13	0.42	-0.23	-0.21	0.2
X	L	256476	SR	0.50	0.43	-0.23	-0.25	-0.18	0.43	0.2
X	O	55063	SR	0.55	0.41	-0.23	0.41	-0.17	-0.16	0.3
X	L	79491	SR	0.30	0.17	0.17	-0.21	0.10	-0.11	0.4
X	O	52669	SR	0.47	0.50	-0.17	-0.17	-0.30	0.50	0.4
X	O	55076	SR	0.59	0.38	-0.23	0.38	-0.18	-0.11	0.4
X	O	55141	SR	0.50	0.48	0.48	-0.19	-0.28	-0.17	0.4
X	L	52410	SR	0.41	0.47	-0.20	-0.22	-0.17	0.47	0.2
X	O	108677	SR	0.33	0.30	0.30	-0.12	-0.20	-0.02	0.4
X	O	108676	SR	0.44	0.25	0.25	0.08	-0.22	-0.21	0.4
X	O	68289	SR	0.23	0.30	-0.17	0.30	0.12	-0.30	0.2
X	L	55207	SR	0.75	0.49	0.49	-0.30	-0.28	-0.19	0.1
X	L	218468	SR	0.56	0.36	-0.16	-0.12	0.36	-0.23	0.2
X	L	218478	SR	0.32	0.46	0.46	-0.20	-0.27	-0.11	0.1
X	L	133046	SR	0.55	0.47	0.47	-0.27	-0.23	-0.14	0.1
X	O	60528	SR	0.33	0.34	-0.15	-0.16	0.34	-0.10	0.2
X	L	65098	SR	0.80	0.33	-0.13	0.33	-0.24	-0.17	0.1
X	L	65097	SR	0.25	0.18	-0.15	-0.03	-0.01	0.18	0.2
X	O	108597	SR	0.54	0.46	-0.21	0.46	-0.24	-0.21	0.2
X	L	133054	SR	0.52	0.36	-0.07	-0.21	0.36	-0.28	0.1
X	O	67576	SR	0.44	0.40	0.40	-0.18	-0.22	-0.16	0.2
X	O	67577	SR	0.57	0.47	-0.18	0.47	-0.26	-0.21	0.2
X	O	68148	SR	0.36	0.35	0.35	-0.04	-0.25	-0.12	0.4
X	L	79449	SR	0.42	0.46	-0.07	0.46	-0.36	-0.15	0.2
X	L	215947	SR	0.74	0.32	-0.11	0.32	-0.25	-0.21	0.1

**Table 1.A21** Item Statistics, Operational Items: MD HSA Biology—May 2009 Makeup 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
X	L	215968	SR	0.46	0.41	-0.12	-0.22	0.41	-0.19	0.1
X	O	67574	SR	0.53	0.49	0.49	-0.18	-0.31	-0.17	0.4
X	L	260959	SR	0.73	0.38	-0.18	-0.20	0.38	-0.20	0.2
X	L	215978	SR	0.68	0.43	-0.25	0.43	-0.13	-0.27	0.2
X	L	133456	SR	0.42	0.35	-0.06	-0.21	-0.21	0.35	0.3
X	O	60554	SR	0.46	0.29	0.29	-0.28	-0.01	-0.11	0.3
X	L	65093	SR	0.57	0.38	-0.18	0.38	-0.20	-0.14	0.3
X	L	64997	SR	0.55	0.50	0.50	-0.22	-0.26	-0.21	0.3
X	O	64722	SR	0.73	0.45	-0.17	-0.31	0.45	-0.21	0.1
X	O	68302	SR	0.57	0.16	-0.16	-0.16	0.16	-0.05	0.1
X	L	256528	SR	0.79	0.47	0.47	-0.24	-0.28	-0.23	0.1
X	L	256530	SR	0.50	0.49	-0.20	-0.23	0.49	-0.24	0.1
X	L	108585	SR	0.40	0.40	-0.17	0.40	-0.23	-0.11	0.1
X	L	65066	SR	0.51	0.35	-0.13	-0.23	-0.13	0.35	0.1
X	O	65128	SR	0.47	0.39	-0.10	0.39	-0.28	-0.13	0.4
X	O	67616	SR	0.43	0.39	-0.02	-0.30	-0.24	0.39	0.2
X	O	67620	SR	0.54	0.56	-0.22	-0.29	-0.27	0.56	0.1
X	L	65056	SR	0.60	0.43	-0.31	0.43	-0.18	-0.17	0.2
X	L	79469	SR	0.35	0.43	-0.21	-0.27	-0.04	0.43	0.2
X	O	60534	SR	0.65	0.28	-0.15	0.28	-0.14	-0.15	0.4
X	L	67582	SR	0.39	0.33	-0.12	0.33	-0.16	-0.15	0.2
X	O	108502	SR	0.61	0.50	0.50	-0.26	-0.25	-0.18	0.7
X	O	108497	SR	0.46	0.34	-0.11	-0.17	0.34	-0.15	0.6
X	O	214522	SR	0.31	0.42	-0.23	-0.06	-0.16	0.42	0.6
X	L	256487	SR	0.42	0.52	-0.20	-0.28	0.52	-0.22	0.2
X	L	256484	SR	0.38	0.18	-0.17	0.18	0.07	-0.14	0.5
X	L	256494	SR	0.55	0.44	-0.26	-0.23	0.44	-0.15	0.2
X	L	256496	SR	0.64	0.42	-0.28	-0.22	0.42	-0.16	0.2
X	L	256482	SR	0.62	0.46	0.46	-0.35	-0.26	-0.06	0.2
X	L	256483	SR	0.65	0.56	-0.23	-0.25	-0.35	0.56	0.2
X	O	223427	SR	0.82	0.41	-0.19	-0.30	0.41	-0.15	0.1
X	L	192082	SR	0.39	0.46	-0.08	0.46	-0.20	-0.27	0.2
X	L	57140	SR	0.40	0.28	0.28	-0.23	-0.22	0.05	0.2
<b>Mean</b>				0.51	0.39	-0.03	-0.03	-0.05	-0.04	0.2
<b>SD</b>				0.14	0.10	0.26	0.28	0.27	0.24	0.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A22** Item Statistics, Operational Items: MD HSA Biology—May 2009 Makeup 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Y	L	251260	SR	0.66	0.48	-0.27	0.48	-0.27	-0.21	0.0
Y	L	251261	SR	0.52	0.35	-0.14	0.35	-0.20	-0.16	0.1
Y	L	56960	SR	0.55	0.21	0.21	-0.13	-0.16	-0.07	0.0
Y	O	54959	SR	0.50	0.43	-0.28	-0.17	0.43	-0.19	0.2
Y	L	256550	SR	0.29	0.46	-0.12	0.46	-0.29	-0.09	0.0
Y	L	256536	SR	0.78	0.40	0.40	-0.21	-0.25	-0.17	0.1
Y	O	79420	SR	0.33	0.25	0.25	-0.15	-0.17	0.05	0.1
Y	L	57063	SR	0.42	0.33	-0.15	0.33	-0.17	-0.07	0.2
Y	L	55107	SR	0.61	0.23	-0.13	0.23	-0.14	-0.16	0.1
Y	O	108499	SR	0.45	0.49	0.49	-0.34	-0.21	-0.13	0.2
Y	O	108495	SR	0.92	0.30	-0.19	0.30	-0.19	-0.13	0.2
Y	L	68215	SR	0.38	0.32	-0.22	-0.26	0.32	0.07	0.1
Y	O	52752	SR	0.53	0.48	-0.21	-0.23	0.48	-0.24	0.1
Y	L	215953	SR	0.46	0.46	-0.24	-0.22	-0.20	0.46	0.2
Y	L	215954	SR	0.66	0.32	0.32	-0.20	-0.11	-0.15	0.2
Y	L	57023	SR	0.52	0.55	-0.11	-0.44	0.55	-0.14	0.1
Y	O	79524	SR	0.85	0.42	-0.32	-0.17	-0.19	0.42	0.1
Y	L	52562	SR	0.49	0.52	-0.30	-0.31	-0.12	0.52	0.1
Y	L	256478	SR	0.51	0.42	-0.13	0.42	-0.23	-0.21	0.2
Y	L	256476	SR	0.50	0.43	-0.23	-0.25	-0.18	0.43	0.2
Y	O	133012	SR	0.38	0.31	-0.19	-0.25	0.31	0.06	0.3
Y	L	79491	SR	0.30	0.17	0.17	-0.21	0.10	-0.11	0.4
Y	O	79401	SR	0.48	0.35	-0.09	-0.25	0.35	-0.23	0.4
Y	O	55142	SR	0.72	0.46	-0.18	-0.25	-0.27	0.46	0.4
Y	O	55143	SR	0.47	0.48	-0.21	0.48	-0.33	-0.12	0.4
Y	L	52410	SR	0.41	0.47	-0.20	-0.22	-0.17	0.47	0.2
Y	O	68280	SR	0.74	0.38	-0.17	-0.19	-0.23	0.38	0.1
Y	O	68282	SR	0.70	0.32	0.32	-0.17	-0.17	-0.17	0.1
Y	O	52764	SR	0.44	0.31	-0.24	-0.03	0.31	-0.21	0.3
Y	L	55207	SR	0.75	0.49	0.49	-0.30	-0.28	-0.19	0.1
Y	L	218468	SR	0.56	0.36	-0.16	-0.12	0.36	-0.23	0.2
Y	L	218478	SR	0.32	0.46	0.46	-0.20	-0.27	-0.11	0.1
Y	L	133046	SR	0.55	0.47	0.47	-0.27	-0.23	-0.14	0.1
Y	O	67683	SR	0.57	0.41	-0.25	0.41	-0.23	-0.08	0.4
Y	L	65098	SR	0.80	0.33	-0.13	0.33	-0.24	-0.17	0.1
Y	L	65097	SR	0.25	0.18	-0.15	-0.03	-0.01	0.18	0.2
Y	O	55135	SR	0.51	0.44	-0.25	-0.24	0.44	-0.19	0.1
Y	L	133054	SR	0.52	0.36	-0.07	-0.21	0.36	-0.28	0.1
Y	O	68260	SR	0.56	0.51	-0.26	0.51	-0.23	-0.22	0.3
Y	O	68261	SR	0.57	0.45	-0.17	-0.30	0.45	-0.21	0.3
Y	O	79427	SR	0.30	0.29	0.29	-0.10	-0.23	-0.01	0.1
Y	L	79449	SR	0.42	0.46	-0.07	0.46	-0.36	-0.15	0.2
Y	L	215947	SR	0.74	0.32	-0.11	0.32	-0.25	-0.21	0.1

**Table 1.A22** Item Statistics, Operational Items: MD HSA Biology—May 2009 Makeup 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Y	L	215968	SR	0.46	0.41	-0.12	-0.22	0.41	-0.19	0.1
Y	O	65131	SR	0.47	0.39	-0.16	-0.12	0.39	-0.24	0.2
Y	L	260959	SR	0.73	0.38	-0.18	-0.20	0.38	-0.20	0.2
Y	L	215978	SR	0.68	0.43	-0.25	0.43	-0.13	-0.27	0.2
Y	L	133456	SR	0.42	0.35	-0.06	-0.21	-0.21	0.35	0.3
Y	O	64993	SR	0.33	0.23	-0.17	-0.10	0.23	0.02	0.5
Y	L	65093	SR	0.57	0.38	-0.18	0.38	-0.20	-0.14	0.3
Y	L	64997	SR	0.55	0.50	0.50	-0.22	-0.26	-0.21	0.3
Y	O	53475	SR	0.76	0.45	-0.18	0.45	-0.27	-0.24	0.2
Y	O	64984	SR	0.60	0.40	-0.24	-0.15	0.40	-0.24	0.2
Y	L	256528	SR	0.79	0.47	0.47	-0.24	-0.28	-0.23	0.1
Y	L	256530	SR	0.50	0.49	-0.20	-0.23	0.49	-0.24	0.1
Y	L	108585	SR	0.40	0.40	-0.17	0.40	-0.23	-0.11	0.1
Y	L	65066	SR	0.51	0.35	-0.13	-0.23	-0.13	0.35	0.1
Y	O	65091	SR	0.60	0.27	0.27	-0.16	-0.11	-0.11	0.2
Y	O	68155	SR	0.45	0.55	-0.17	-0.23	-0.31	0.55	0.4
Y	O	68156	SR	0.74	0.49	0.49	-0.28	-0.24	-0.25	0.2
Y	L	65056	SR	0.60	0.43	-0.31	0.43	-0.18	-0.17	0.2
Y	L	79469	SR	0.35	0.43	-0.21	-0.27	-0.04	0.43	0.2
Y	O	53509	SR	0.35	0.22	-0.11	0.22	-0.17	-0.15	0.1
Y	L	67582	SR	0.39	0.33	-0.12	0.33	-0.16	-0.15	0.2
Y	O	133038	SR	0.78	0.34	0.34	-0.24	-0.19	-0.10	0.2
Y	O	133036	SR	0.36	0.36	0.36	-0.09	-0.28	-0.12	0.1
Y	O	214532	SR	0.48	0.53	-0.26	-0.24	-0.25	0.53	0.2
Y	L	256487	SR	0.42	0.52	-0.20	-0.28	0.52	-0.22	0.2
Y	L	256484	SR	0.38	0.18	-0.17	0.18	0.07	-0.14	0.5
Y	L	256494	SR	0.55	0.44	-0.26	-0.23	0.44	-0.15	0.2
Y	L	256496	SR	0.64	0.42	-0.28	-0.22	0.42	-0.16	0.2
Y	L	256482	SR	0.62	0.46	0.46	-0.35	-0.26	-0.06	0.2
Y	L	256483	SR	0.65	0.56	-0.23	-0.25	-0.35	0.56	0.2
Y	O	52477	SR	0.73	0.30	0.30	-0.10	-0.23	-0.17	0.4
Y	L	192082	SR	0.39	0.46	-0.08	0.46	-0.20	-0.27	0.2
Y	L	57140	SR	0.40	0.28	0.28	-0.23	-0.22	0.05	0.2
<b>Mean</b>				0.53	0.39	-0.04	-0.04	-0.04	-0.04	0.2
<b>SD</b>				0.15	0.10	0.26	0.28	0.28	0.24	0.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A23** Item Statistics, Operational Items: MD HSA English—May 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C-N	L	130284	SR	0.39	0.36	-0.26	-0.11	0.36	-0.08	0.0
C-N	L	108931	SR	0.52	0.36	-0.27	-0.20	-0.04	0.36	0.1
C-N	L	108781	SR	0.43	0.22	0.22	-0.18	-0.06	-0.03	0.1
C-N	L	108928	SR	0.58	0.41	-0.17	0.41	-0.23	-0.19	0.1
C-N	L	108932	SR	0.43	0.43	-0.33	-0.09	0.43	-0.16	0.1
C-N	L	108929	SR	0.74	0.40	-0.25	-0.17	-0.23	0.40	0.1
C-N	O	256450	SR	0.64	0.36	-0.19	-0.08	-0.27	0.36	0.0
C-N	O	256451	SR	0.74	0.30	0.30	-0.18	-0.10	-0.19	0.1
C-N	O	256452	SR	0.91	0.41	-0.21	-0.25	0.41	-0.24	0.0
C-N	O	251142	SR	0.77	0.46	-0.24	-0.25	0.46	-0.24	0.2
C-N	O	251159	SR	0.80	0.48	0.48	-0.28	-0.27	-0.22	0.2
C-N	O	251153	SR	0.70	0.46	-0.17	-0.29	0.46	-0.23	0.3
C-N	O	95560	SR	0.64	0.44	-0.17	-0.23	-0.25	0.44	0.4
C-N	O	95561	SR	0.82	0.46	-0.24	0.46	-0.24	-0.24	0.4
C-N	O	95562	SR	0.70	0.49	-0.28	-0.18	0.49	-0.27	0.5
C-N	O	95564	SR	0.39	0.43	0.43	-0.26	-0.19	-0.13	0.5
C-N	O	130217	SR	0.51	0.31	-0.02	0.31	-0.31	-0.10	0.1
C-N	O	130218	SR	0.48	0.43	-0.23	-0.18	0.43	-0.20	0.2
C-N	O	130219	SR	0.79	0.42	-0.29	-0.17	0.42	-0.20	0.1
C-N	O	130222	SR	0.71	0.24	-0.13	-0.09	0.24	-0.20	0.1
C-N	O	130220	SR	0.74	0.51	-0.27	0.51	-0.33	-0.20	0.1
C-N	O	130221	SR	0.80	0.47	-0.24	0.47	-0.25	-0.28	0.1
C-N	O	130226	SR	0.68	0.50	-0.35	-0.21	0.50	-0.18	0.1
C-N	L	130096	SR	0.80	0.44	-0.21	0.44	-0.28	-0.22	0.1
C-N	L	130097	SR	0.54	0.39	0.39	-0.14	-0.10	-0.28	0.1
C-N	L	130306	SR	0.83	0.39	-0.20	0.39	-0.19	-0.23	0.1
C-N	L	130099	SR	0.65	0.27	-0.18	-0.17	-0.10	0.27	0.1
C-N	L	130100	SR	0.75	0.55	0.55	-0.31	-0.33	-0.22	0.1
C-N	L	130101	SR	0.87	0.36	0.36	-0.25	-0.21	-0.12	0.1
C-N	L	130237	SR	0.70	0.45	-0.17	-0.31	-0.25	0.45	0.2
C-N	L	130303	SR	0.83	0.46	-0.25	0.46	-0.26	-0.24	0.2
C-N	L	214651	SR	0.56	0.42	-0.09	0.42	-0.33	-0.16	0.2
C-N	L	214648	SR	0.63	0.50	0.50	-0.35	-0.22	-0.16	0.2
C-N	L	214652	SR	0.64	0.46	-0.13	0.46	-0.33	-0.26	0.3
C-N	L	214650	SR	0.55	0.48	0.48	-0.25	-0.24	-0.20	0.3
C-N	L	214654	SR	0.63	0.48	-0.22	-0.24	-0.24	0.48	0.3
C-N	O	130049	SR	0.69	0.45	0.45	-0.27	-0.31	-0.13	0.3
C-N	O	130262	SR	0.68	0.38	-0.22	-0.16	0.38	-0.20	0.3
C-N	O	96269	SR	0.62	0.53	0.53	-0.26	-0.32	-0.18	0.4
C-N	O	248197	SR	0.81	0.40	-0.18	-0.25	0.40	-0.24	0.1
C-N	O	248196	SR	0.50	0.36	-0.22	-0.17	-0.11	0.36	0.1
C-N	O	248198	SR	0.73	0.42	0.42	-0.22	-0.24	-0.20	0.1
C-N	L	95644	SR	0.60	0.47	-0.17	-0.23	-0.25	0.47	0.1

**Table 1.A23** Item Statistics, Operational Items: MD HSA English—May 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C-N	L	95645	SR	0.60	0.37	-0.18	-0.24	0.37	-0.19	0.2
C-N	L	95646	SR	0.61	0.44	-0.19	-0.28	-0.18	0.44	0.1
C-N	L	95647	SR	0.59	0.44	-0.09	-0.21	-0.32	0.44	0.1
C-N	L	95648	SR	0.77	0.34	-0.25	-0.14	0.34	-0.24	0.1
C-N	L	95649	SR	0.85	0.44	0.44	-0.23	-0.27	-0.24	0.1
C-N	L	95650	SR	0.62	0.31	0.31	-0.15	-0.25	-0.19	0.2
C-N	L	95651	SR	0.68	0.54	-0.34	-0.27	0.54	-0.20	0.1
C-N	L	95654	SR	0.74	0.43	-0.27	0.43	-0.24	-0.19	0.1
C-N	L	95653	SR	0.72	0.45	-0.23	-0.27	-0.20	0.45	0.1
C-N	L	214695	SR	0.56	0.45	-0.15	0.45	-0.28	-0.21	0.2
C-N	L	256289	SR	0.82	0.47	-0.24	0.47	-0.29	-0.24	0.2
C-N	L	214694	SR	0.82	0.45	-0.23	-0.27	0.45	-0.21	0.1
C-N	L	214692	SR	0.45	0.41	-0.23	-0.21	0.41	-0.08	0.3
C-N	L	214693	SR	0.79	0.52	-0.25	0.52	-0.30	-0.28	0.2
C-N	L	214696	SR	0.81	0.42	-0.24	0.42	-0.25	-0.22	0.2
C-N	O	108758	SR	0.43	0.40	-0.10	0.40	-0.20	-0.19	0.2
C-N	O	108759	SR	0.60	0.36	-0.22	-0.12	-0.19	0.36	0.2
<b>Mean</b>				0.67	0.42	-0.06	-0.04	-0.05	-0.07	0.2
<b>SD</b>				0.13	0.07	0.28	0.30	0.30	0.26	0.1

Note: Tabled item position number is based on Form D and varies somewhat on Forms E-N.

Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A24** Item Statistics, Operational Items: MD HSA English—May 2009 Makeup 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
X	L	130284	SR	0.39	0.36	-0.26	-0.11	0.36	-0.08	0.0
X	L	108931	SR	0.52	0.36	-0.27	-0.20	-0.04	0.36	0.1
X	L	108781	SR	0.43	0.22	0.22	-0.18	-0.06	-0.03	0.1
X	L	108928	SR	0.58	0.41	-0.17	0.41	-0.23	-0.19	0.1
X	L	108932	SR	0.43	0.43	-0.33	-0.09	0.43	-0.16	0.1
X	L	108929	SR	0.74	0.40	-0.25	-0.17	-0.23	0.40	0.1
X	O	256440	SR	0.66	0.48	-0.23	-0.28	0.48	-0.21	0.2
X	O	256441	SR	0.62	0.49	-0.24	-0.27	-0.24	0.49	0.2
X	O	256442	SR	0.69	0.39	-0.18	0.39	-0.26	-0.18	0.2
X	O	251142	SR	0.77	0.46	-0.24	-0.25	0.46	-0.24	0.2
X	O	251159	SR	0.80	0.48	0.48	-0.28	-0.27	-0.22	0.2
X	O	251153	SR	0.70	0.46	-0.17	-0.29	0.46	-0.23	0.3
X	O	108912	SR	0.64	0.39	-0.11	-0.26	-0.22	0.39	0.4
X	O	108914	SR	0.45	0.30	-0.12	-0.11	-0.14	0.30	0.5
X	O	108913	SR	0.36	0.32	-0.20	-0.04	0.32	-0.17	0.6
X	O	130216	SR	0.44	0.35	0.35	-0.19	-0.13	-0.11	0.7
X	O	130217	SR	0.51	0.31	-0.02	0.31	-0.31	-0.10	0.1
X	O	130218	SR	0.48	0.43	-0.23	-0.18	0.43	-0.20	0.2
X	O	130219	SR	0.79	0.42	-0.29	-0.17	0.42	-0.20	0.1
X	O	130222	SR	0.71	0.24	-0.13	-0.09	0.24	-0.20	0.1
X	O	130220	SR	0.74	0.51	-0.27	0.51	-0.33	-0.20	0.1
X	O	130221	SR	0.80	0.47	-0.24	0.47	-0.25	-0.28	0.1
X	O	130226	SR	0.68	0.50	-0.35	-0.21	0.50	-0.18	0.1
X	L	130096	SR	0.80	0.44	-0.21	0.44	-0.28	-0.22	0.1
X	L	130097	SR	0.54	0.39	0.39	-0.14	-0.10	-0.28	0.1
X	L	130306	SR	0.83	0.39	-0.20	0.39	-0.19	-0.23	0.1
X	L	130099	SR	0.65	0.27	-0.18	-0.17	-0.10	0.27	0.1
X	L	130100	SR	0.75	0.55	0.55	-0.31	-0.33	-0.22	0.1
X	L	130101	SR	0.87	0.36	0.36	-0.25	-0.21	-0.12	0.1
X	L	130237	SR	0.70	0.45	-0.17	-0.31	-0.25	0.45	0.2
X	L	130303	SR	0.83	0.46	-0.25	0.46	-0.26	-0.24	0.2
X	L	214651	SR	0.56	0.42	-0.09	0.42	-0.33	-0.16	0.2
X	L	214648	SR	0.63	0.50	0.50	-0.35	-0.22	-0.16	0.2
X	L	214652	SR	0.64	0.46	-0.13	0.46	-0.33	-0.26	0.3
X	L	214650	SR	0.55	0.48	0.48	-0.25	-0.24	-0.20	0.3
X	L	214654	SR	0.63	0.48	-0.22	-0.24	-0.24	0.48	0.3
X	O	96384	SR	0.57	0.44	0.44	-0.10	-0.31	-0.24	0.7
X	O	130987	SR	0.64	0.50	-0.25	-0.22	-0.28	0.50	0.7
X	O	96105	SR	0.61	0.45	0.45	-0.26	-0.20	-0.21	0.7
X	O	248197	SR	0.81	0.40	-0.18	-0.25	0.40	-0.24	0.1
X	O	248196	SR	0.50	0.36	-0.22	-0.17	-0.11	0.36	0.1
X	O	248198	SR	0.73	0.42	0.42	-0.22	-0.24	-0.20	0.1
X	L	95644	SR	0.60	0.47	-0.17	-0.23	-0.25	0.47	0.1



**Table 1.A24** Item Statistics, Operational Items: MD HSA English—May 2009 Makeup 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
X	L	95645	SR	0.60	0.37	-0.18	-0.24	0.37	-0.19	0.2
X	L	95646	SR	0.61	0.44	-0.19	-0.28	-0.18	0.44	0.1
X	L	95647	SR	0.59	0.44	-0.09	-0.21	-0.32	0.44	0.1
X	L	95648	SR	0.77	0.34	-0.25	-0.14	0.34	-0.24	0.1
X	L	95649	SR	0.85	0.44	0.44	-0.23	-0.27	-0.24	0.1
X	L	95650	SR	0.62	0.31	0.31	-0.15	-0.25	-0.19	0.2
X	L	95651	SR	0.68	0.54	-0.34	-0.27	0.54	-0.20	0.1
X	L	95654	SR	0.74	0.43	-0.27	0.43	-0.24	-0.19	0.1
X	L	95653	SR	0.72	0.45	-0.23	-0.27	-0.20	0.45	0.1
X	L	214695	SR	0.56	0.45	-0.15	0.45	-0.28	-0.21	0.2
X	L	256289	SR	0.82	0.47	-0.24	0.47	-0.29	-0.24	0.2
X	L	214694	SR	0.82	0.45	-0.23	-0.27	0.45	-0.21	0.1
X	L	214692	SR	0.45	0.41	-0.23	-0.21	0.41	-0.08	0.3
X	L	214693	SR	0.79	0.52	-0.25	0.52	-0.30	-0.28	0.2
X	L	214696	SR	0.81	0.42	-0.24	0.42	-0.25	-0.22	0.2
X	O	109092	SR	0.71	0.48	-0.27	-0.28	-0.18	0.48	0.6
X	O	109151	SR	0.62	0.32	-0.24	0.32	-0.12	-0.20	0.5
<b>Mean</b>				0.65	0.42	-0.08	-0.04	-0.06	-0.04	0.2
<b>SD</b>				0.13	0.07	0.27	0.29	0.30	0.27	0.2

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A25** Item Statistics, Operational Items: MD HSA English—May 2009 Makeup 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Y	L	130284	SR	0.39	0.36	-0.26	-0.11	0.36	-0.08	0.0
Y	L	108931	SR	0.52	0.36	-0.27	-0.20	-0.04	0.36	0.1
Y	L	108781	SR	0.43	0.22	0.22	-0.18	-0.06	-0.03	0.1
Y	L	108928	SR	0.58	0.41	-0.17	0.41	-0.23	-0.19	0.1
Y	L	108932	SR	0.43	0.43	-0.33	-0.09	0.43	-0.16	0.1
Y	L	108929	SR	0.74	0.40	-0.25	-0.17	-0.23	0.40	0.1
Y	O	256450	SR	0.64	0.36	-0.19	-0.08	-0.27	0.36	0.0
Y	O	256451	SR	0.74	0.30	0.30	-0.18	-0.10	-0.19	0.1
Y	O	256452	SR	0.91	0.41	-0.21	-0.25	0.41	-0.24	0.0
Y	O	251150	SR	0.62	0.29	-0.17	-0.14	0.29	-0.11	0.2
Y	O	256295	SR	0.62	0.52	-0.27	-0.29	-0.21	0.52	0.2
Y	O	256299	SR	0.72	0.46	0.46	-0.26	-0.25	-0.23	0.2
Y	O	95560	SR	0.64	0.44	-0.17	-0.23	-0.25	0.44	0.4
Y	O	95561	SR	0.82	0.46	-0.24	0.46	-0.24	-0.24	0.4
Y	O	95562	SR	0.70	0.49	-0.28	-0.18	0.49	-0.27	0.5
Y	O	95564	SR	0.39	0.43	0.43	-0.26	-0.19	-0.13	0.5
Y	O	96082	SR	0.58	0.45	-0.22	0.45	-0.22	-0.18	0.4
Y	O	96083	SR	0.64	0.40	-0.19	0.40	-0.28	-0.15	0.3
Y	O	96085	SR	0.70	0.47	-0.35	-0.21	0.47	-0.15	0.1
Y	O	96086	SR	0.49	0.54	-0.33	-0.12	-0.27	0.54	0.1
Y	O	96087	SR	0.60	0.45	-0.20	0.45	-0.18	-0.29	0.3
Y	O	96089	SR	0.63	0.48	-0.19	-0.27	-0.27	0.48	0.3
Y	O	96090	SR	0.62	0.42	0.42	-0.15	-0.21	-0.23	0.3
Y	L	130096	SR	0.80	0.44	-0.21	0.44	-0.28	-0.22	0.1
Y	L	130097	SR	0.54	0.39	0.39	-0.14	-0.10	-0.28	0.1
Y	L	130306	SR	0.83	0.39	-0.20	0.39	-0.19	-0.23	0.1
Y	L	130099	SR	0.65	0.27	-0.18	-0.17	-0.10	0.27	0.1
Y	L	130100	SR	0.75	0.55	0.55	-0.31	-0.33	-0.22	0.1
Y	L	130101	SR	0.87	0.36	0.36	-0.25	-0.21	-0.12	0.1
Y	L	130237	SR	0.70	0.45	-0.17	-0.31	-0.25	0.45	0.2
Y	L	130303	SR	0.83	0.46	-0.25	0.46	-0.26	-0.24	0.2
Y	L	214651	SR	0.56	0.42	-0.09	0.42	-0.33	-0.16	0.2
Y	L	214648	SR	0.63	0.50	0.50	-0.35	-0.22	-0.16	0.2
Y	L	214652	SR	0.64	0.46	-0.13	0.46	-0.33	-0.26	0.3
Y	L	214650	SR	0.55	0.48	0.48	-0.25	-0.24	-0.20	0.3
Y	L	214654	SR	0.63	0.48	-0.22	-0.24	-0.24	0.48	0.3
Y	O	130049	SR	0.69	0.45	0.45	-0.27	-0.31	-0.13	0.3
Y	O	130262	SR	0.68	0.38	-0.22	-0.16	0.38	-0.20	0.3
Y	O	96269	SR	0.62	0.53	0.53	-0.26	-0.32	-0.18	0.4
Y	O	243358	SR	0.47	0.44	0.44	-0.24	-0.20	-0.14	0.2
Y	O	243359	SR	0.81	0.26	0.26	-0.08	-0.20	-0.17	0.2
Y	O	243360	SR	0.67	0.55	-0.16	-0.27	-0.35	0.55	0.4
Y	L	95644	SR	0.60	0.47	-0.17	-0.23	-0.25	0.47	0.1

**Table 1.A25** Item Statistics, Operational Items: MD HSA English—May 2009 Makeup 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Y	L	95645	SR	0.60	0.37	-0.18	-0.24	0.37	-0.19	0.2
Y	L	95646	SR	0.61	0.44	-0.19	-0.28	-0.18	0.44	0.1
Y	L	95647	SR	0.59	0.44	-0.09	-0.21	-0.32	0.44	0.1
Y	L	95648	SR	0.77	0.34	-0.25	-0.14	0.34	-0.24	0.1
Y	L	95649	SR	0.85	0.44	0.44	-0.23	-0.27	-0.24	0.1
Y	L	95650	SR	0.62	0.31	0.31	-0.15	-0.25	-0.19	0.2
Y	L	95651	SR	0.68	0.54	-0.34	-0.27	0.54	-0.20	0.1
Y	L	95654	SR	0.74	0.43	-0.27	0.43	-0.24	-0.19	0.1
Y	L	95653	SR	0.72	0.45	-0.23	-0.27	-0.20	0.45	0.1
Y	L	214695	SR	0.56	0.45	-0.15	0.45	-0.28	-0.21	0.2
Y	L	256289	SR	0.82	0.47	-0.24	0.47	-0.29	-0.24	0.2
Y	L	214694	SR	0.82	0.45	-0.23	-0.27	0.45	-0.21	0.1
Y	L	214692	SR	0.45	0.41	-0.23	-0.21	0.41	-0.08	0.3
Y	L	214693	SR	0.79	0.52	-0.25	0.52	-0.30	-0.28	0.2
Y	L	214696	SR	0.81	0.42	-0.24	0.42	-0.25	-0.22	0.2
Y	O	108758	SR	0.43	0.40	-0.10	0.40	-0.20	-0.19	0.2
Y	O	108759	SR	0.60	0.36	-0.22	-0.12	-0.19	0.36	0.2
<b>Mean</b>				0.65	0.42	-0.05	-0.04	-0.10	-0.03	0.2
<b>SD</b>				0.13	0.07	0.29	0.30	0.27	0.29	0.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A26** Item Statistics, Operational Items: MD HSA Government—May 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C-N	O	256350	SR	0.89	0.39	0.39	-0.22	-0.24	-0.19	0.0
C-N	O	108365	SR	0.77	0.39	-0.19	-0.24	0.39	-0.20	0.1
C-N	O	137277	SR	0.95	0.29	-0.19	0.29	-0.15	-0.14	0.0
C-N	O	79575	SR	0.62	0.57	-0.24	-0.38	0.57	-0.19	0.0
C-N	L	50942	SR	0.39	0.19	-0.09	-0.21	0.19	0.08	0.1
C-N	L	50922	SR	0.48	0.37	-0.11	-0.15	-0.23	0.37	0.1
C-N	L	51026	SR	0.60	0.44	-0.25	-0.22	0.44	-0.17	0.1
C-N	L	55485	SR	0.53	0.23	-0.28	-0.01	0.23	-0.06	0.1
C-N	O	50856	SR	0.52	0.37	-0.17	0.37	-0.18	-0.17	0.1
C-N	O	68094	SR	0.55	0.52	0.52	-0.16	-0.33	-0.21	0.1
C-N	L	79702	SR	0.31	0.21	-0.22	-0.03	0.21	-0.07	0.1
C-N	O	55703	SR	0.44	0.28	-0.06	0.28	-0.15	-0.15	0.1
C-N	L	108431	SR	0.59	0.54	-0.23	-0.24	0.54	-0.31	0.1
C-N	O	137331	SR	0.71	0.45	-0.22	-0.23	-0.27	0.45	0.1
C-N	L	50997	SR	0.48	0.37	-0.13	-0.28	0.37	-0.10	0.2
C-N	L	79740	SR	0.65	0.27	-0.15	0.27	-0.12	-0.16	0.1
C-N	L	68752	SR	0.61	0.56	0.56	-0.26	-0.31	-0.26	0.1
C-N	L	68680	SR	0.36	0.27	-0.23	-0.08	0.27	-0.12	0.1
C-N	O	68101	SR	0.67	0.49	-0.29	-0.22	0.49	-0.23	0.1
C-N	L	68622	SR	0.68	0.51	0.51	-0.27	-0.27	-0.25	0.1
C-N	L	52196	SR	0.51	0.46	-0.17	-0.18	0.46	-0.28	0.2
C-N	L	214487	SR	0.46	0.47	-0.21	-0.29	-0.14	0.47	0.2
C-N	L	50927	SR	0.92	0.37	-0.20	-0.20	0.37	-0.21	0.1
C-N	L	79626	SR	0.45	0.25	0.25	-0.09	-0.15	-0.07	0.3
C-N	O	68624	SR	0.76	0.56	-0.29	-0.29	-0.29	0.56	0.2
C-N	O	133476	SR	0.78	0.47	0.47	-0.20	-0.31	-0.24	0.2
C-N	L	133478	SR	0.45	0.22	0.06	-0.14	-0.19	0.22	0.3
C-N	L	68576	SR	0.70	0.50	-0.22	0.50	-0.32	-0.21	0.3
C-N	L	132982	SR	0.69	0.41	0.41	-0.28	-0.21	-0.14	0.1
C-N	O	51233	SR	0.91	0.41	-0.23	-0.23	0.41	-0.22	0.1
C-N	L	58191	SR	0.74	0.50	0.50	-0.27	-0.27	-0.23	0.1
C-N	L	55512	SR	0.32	0.28	-0.14	-0.01	-0.24	0.28	0.2
C-N	L	65212	SR	0.45	0.30	0.30	-0.21	-0.23	-0.06	0.1
C-N	L	108428	SR	0.41	0.34	0.34	-0.23	-0.10	-0.16	0.1
C-N	L	51077	SR	0.64	0.55	0.55	-0.29	-0.26	-0.29	0.1
C-N	L	108415	SR	0.56	0.43	-0.11	-0.23	-0.27	0.43	0.2
C-N	O	68578	SR	0.59	0.57	-0.26	-0.25	-0.30	0.57	0.1
C-N	L	51162	SR	0.83	0.45	-0.25	-0.25	0.45	-0.23	0.1
C-N	L	51163	SR	0.38	0.48	0.48	-0.28	-0.14	-0.18	0.1
C-N	O	68645	SR	0.69	0.33	-0.13	0.33	-0.20	-0.20	0.1
C-N	L	55688	SR	0.43	0.41	-0.20	0.00	-0.30	0.41	0.2
C-N	L	68774	SR	0.41	0.35	0.35	-0.08	-0.26	-0.10	0.2
C-N	O	79561	SR	0.42	0.33	-0.22	-0.10	0.33	-0.13	0.1

**Table 1.A26** Item Statistics, Operational Items: MD HSA Government—May 2009 Primary

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C-N	O	108423	SR	0.63	0.61	-0.31	-0.34	0.61	-0.23	0.2
C-N	L	137315	SR	0.37	0.43	0.43	-0.13	-0.20	-0.21	0.1
C-N	O	79546	SR	0.61	0.51	-0.17	0.51	-0.31	-0.25	0.2
C-N	L	60445	SR	0.62	0.49	-0.17	0.49	-0.38	-0.18	0.2
C-N	L	55481	SR	0.62	0.41	-0.13	-0.30	-0.22	0.41	0.2
C-N	L	108339	SR	0.44	0.42	-0.08	-0.12	-0.37	0.42	0.2
C-N	O	135587	SR	0.28	0.25	-0.14	0.25	-0.08	-0.07	0.2
C-N	L	133483	SR	0.82	0.54	0.54	-0.38	-0.27	-0.20	0.1
C-N	L	256401	SR	0.50	0.55	0.55	-0.25	-0.27	-0.23	0.2
C-N	L	132980	SR	0.26	0.29	0.07	-0.13	-0.23	0.29	0.3
C-N	L	79704	SR	0.48	0.50	-0.19	-0.25	-0.23	0.50	0.2
C-N	O	55599	SR	0.70	0.32	-0.01	0.32	-0.26	-0.25	0.2
C-N	L	256349	SR	0.71	0.44	-0.23	-0.26	0.44	-0.17	0.1
C-N	L	68656	SR	0.53	0.34	-0.16	-0.21	0.34	-0.09	0.3
C-N	L	58284	SR	0.63	0.45	-0.18	-0.29	0.45	-0.19	0.2
C-N	L	79722	SR	0.23	0.26	0.26	-0.27	-0.15	0.16	0.2
C-N	O	52199	SR	0.56	0.37	-0.23	-0.16	0.37	-0.17	0.2
C-N	O	52249	SR	0.48	0.30	-0.14	0.30	-0.21	-0.08	0.1
C-N	L	108402	SR	0.39	0.32	-0.13	0.32	-0.17	-0.09	0.2
C-N	L	256405	SR	0.62	0.37	-0.18	0.37	-0.18	-0.21	0.1
C-N	O	108389	SR	0.52	0.52	-0.26	-0.14	-0.33	0.52	0.2
C-N	L	79731	SR	0.76	0.40	-0.17	-0.25	0.40	-0.21	0.2
C-N	L	58296	SR	0.71	0.49	-0.26	0.49	-0.25	-0.26	0.2
C-N	O	64958	SR	0.53	0.60	-0.27	-0.29	-0.28	0.60	0.2
C-N	L	60444	SR	0.59	0.51	-0.19	-0.22	-0.30	0.51	0.3
C-N	O	55591	SR	0.78	0.44	-0.28	-0.17	-0.29	0.44	0.2
C-N	L	52208	SR	0.27	0.31	0.31	-0.13	-0.13	-0.05	0.2
C-N	O	108418	SR	0.79	0.60	-0.29	-0.34	-0.32	0.60	0.2
C-N	O	53701	SR	0.87	0.48	0.48	-0.27	-0.29	-0.23	0.2
C-N	O	65199	SR	0.24	0.24	-0.22	0.24	0.01	-0.18	0.2
C-N	L	51041	SR	0.37	0.31	0.31	-0.27	-0.30	0.04	0.2
C-N	O	108370	SR	0.76	0.51	-0.29	0.51	-0.28	-0.21	0.2
C-N	L	68084	SR	0.57	0.50	-0.23	-0.31	-0.16	0.50	0.3
C-N	O	108469	SR	0.78	0.50	0.50	-0.25	-0.28	-0.25	0.2
C-N	O	256393	SR	0.86	0.45	-0.25	-0.28	0.45	-0.20	0.2
C-N	O	79709	SR	0.66	0.56	0.56	-0.27	-0.32	-0.26	0.2
C-N	L	256409	SR	0.62	0.43	-0.25	-0.28	-0.17	0.43	0.2
C-N	L	214507	SR	0.63	0.42	-0.14	0.42	-0.23	-0.23	0.2
C-N	O	79545	SR	0.64	0.51	-0.27	-0.25	-0.24	0.51	0.2
<b>Mean</b>				0.58	0.42	-0.02	-0.10	-0.06	-0.01	0.2
<b>SD</b>				0.17	0.11	0.29	0.25	0.30	0.29	0.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A27** Item Statistics, Operational Items: MD HSA Government—May 2009 Makeup 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
X	O	68092	SR	0.80	0.39	-0.19	-0.24	-0.19	0.39	0.0
X	O	256386	SR	0.79	0.33	0.33	-0.22	-0.17	-0.14	0.1
X	O	137277	SR	0.95	0.29	-0.19	0.29	-0.15	-0.14	0.0
X	O	79575	SR	0.62	0.57	-0.24	-0.38	0.57	-0.19	0.0
X	L	50942	SR	0.39	0.19	-0.09	-0.21	0.19	0.08	0.1
X	L	50922	SR	0.48	0.37	-0.11	-0.15	-0.23	0.37	0.1
X	L	51026	SR	0.60	0.44	-0.25	-0.22	0.44	-0.17	0.1
X	L	55485	SR	0.53	0.23	-0.28	-0.01	0.23	-0.06	0.1
X	O	50856	SR	0.52	0.37	-0.17	0.37	-0.18	-0.17	0.1
X	O	68094	SR	0.55	0.52	0.52	-0.16	-0.33	-0.21	0.1
X	L	79702	SR	0.31	0.21	-0.22	-0.03	0.21	-0.07	0.1
X	O	108373	SR	0.47	0.54	-0.19	-0.23	-0.31	0.54	0.1
X	L	108431	SR	0.59	0.54	-0.23	-0.24	0.54	-0.31	0.1
X	O	137331	SR	0.71	0.45	-0.22	-0.23	-0.27	0.45	0.1
X	L	50997	SR	0.48	0.37	-0.13	-0.28	0.37	-0.10	0.2
X	L	79740	SR	0.65	0.27	-0.15	0.27	-0.12	-0.16	0.1
X	L	68752	SR	0.61	0.56	0.56	-0.26	-0.31	-0.26	0.1
X	L	68680	SR	0.36	0.27	-0.23	-0.08	0.27	-0.12	0.1
X	O	68101	SR	0.67	0.49	-0.29	-0.22	0.49	-0.23	0.1
X	L	68622	SR	0.68	0.51	0.51	-0.27	-0.27	-0.25	0.1
X	L	52196	SR	0.51	0.46	-0.17	-0.18	0.46	-0.28	0.2
X	L	214487	SR	0.46	0.47	-0.21	-0.29	-0.14	0.47	0.2
X	L	50927	SR	0.92	0.37	-0.20	-0.20	0.37	-0.21	0.1
X	L	79626	SR	0.45	0.25	0.25	-0.09	-0.15	-0.07	0.3
X	O	68624	SR	0.76	0.56	-0.29	-0.29	-0.29	0.56	0.2
X	O	108382	SR	0.65	0.49	-0.21	0.49	-0.25	-0.28	0.4
X	L	133478	SR	0.45	0.22	0.06	-0.14	-0.19	0.22	0.3
X	L	68576	SR	0.70	0.50	-0.22	0.50	-0.32	-0.21	0.3
X	L	132982	SR	0.69	0.41	0.41	-0.28	-0.21	-0.14	0.1
X	O	51233	SR	0.91	0.41	-0.23	-0.23	0.41	-0.22	0.1
X	L	58191	SR	0.74	0.50	0.50	-0.27	-0.27	-0.23	0.1
X	L	55512	SR	0.32	0.28	-0.14	-0.01	-0.24	0.28	0.2
X	L	65212	SR	0.45	0.30	0.30	-0.21	-0.23	-0.06	0.1
X	L	108428	SR	0.41	0.34	0.34	-0.23	-0.10	-0.16	0.1
X	L	51077	SR	0.64	0.55	0.55	-0.29	-0.26	-0.29	0.1
X	L	108415	SR	0.56	0.43	-0.11	-0.23	-0.27	0.43	0.2
X	O	132981	SR	0.49	0.46	-0.09	0.46	-0.33	-0.16	0.3
X	L	51162	SR	0.83	0.45	-0.25	-0.25	0.45	-0.23	0.1
X	L	51163	SR	0.38	0.48	0.48	-0.28	-0.14	-0.18	0.1
X	O	242069	SR	0.61	0.44	0.44	-0.28	-0.22	-0.11	0.3
X	L	55688	SR	0.43	0.41	-0.20	0.00	-0.30	0.41	0.2
X	L	68774	SR	0.41	0.35	0.35	-0.08	-0.26	-0.10	0.2
X	O	68704	SR	0.49	0.25	-0.16	0.25	-0.03	-0.19	0.3
X	O	79677	SR	0.45	0.45	-0.28	0.45	-0.27	-0.08	0.3

**Table 1.A27** Item Statistics, Operational Items: MD HSA Government—May 2009 Makeup 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
X	L	137315	SR	0.37	0.43	0.43	-0.13	-0.20	-0.21	0.1
X	O	79546	SR	0.61	0.51	-0.17	0.51	-0.31	-0.25	0.2
X	L	60445	SR	0.62	0.49	-0.17	0.49	-0.38	-0.18	0.2
X	L	55481	SR	0.62	0.41	-0.13	-0.30	-0.22	0.41	0.2
X	L	108339	SR	0.44	0.42	-0.08	-0.12	-0.37	0.42	0.2
X	O	79583	SR	0.79	0.44	-0.23	-0.19	-0.27	0.44	0.4
X	L	133483	SR	0.82	0.54	0.54	-0.38	-0.27	-0.20	0.1
X	L	256401	SR	0.50	0.55	0.55	-0.25	-0.27	-0.23	0.2
X	L	132980	SR	0.26	0.29	0.07	-0.13	-0.23	0.29	0.3
X	L	79704	SR	0.48	0.50	-0.19	-0.25	-0.23	0.50	0.2
X	O	55599	SR	0.70	0.32	-0.01	0.32	-0.26	-0.25	0.2
X	L	256349	SR	0.71	0.44	-0.23	-0.26	0.44	-0.17	0.1
X	L	68656	SR	0.53	0.34	-0.16	-0.21	0.34	-0.09	0.3
X	L	58284	SR	0.63	0.45	-0.18	-0.29	0.45	-0.19	0.2
X	L	79722	SR	0.23	0.26	0.26	-0.27	-0.15	0.16	0.2
X	O	108349	SR	0.45	0.27	-0.22	0.06	0.27	-0.25	0.4
X	O	223333	SR	0.74	0.52	-0.23	-0.32	-0.23	0.52	0.4
X	L	108402	SR	0.39	0.32	-0.13	0.32	-0.17	-0.09	0.2
X	L	256405	SR	0.62	0.37	-0.18	0.37	-0.18	-0.21	0.1
X	O	68789	SR	0.59	0.44	-0.24	-0.14	-0.29	0.44	0.4
X	L	79731	SR	0.76	0.40	-0.17	-0.25	0.40	-0.21	0.2
X	L	58296	SR	0.71	0.49	-0.26	0.49	-0.25	-0.26	0.2
X	O	64958	SR	0.53	0.60	-0.27	-0.29	-0.28	0.60	0.2
X	L	60444	SR	0.59	0.51	-0.19	-0.22	-0.30	0.51	0.3
X	O	68004	SR	0.36	0.32	0.32	-0.05	-0.19	-0.19	0.6
X	L	52208	SR	0.27	0.31	0.31	-0.13	-0.13	-0.05	0.2
X	O	108418	SR	0.79	0.60	-0.29	-0.34	-0.32	0.60	0.2
X	O	53701	SR	0.87	0.48	0.48	-0.27	-0.29	-0.23	0.2
X	O	65199	SR	0.24	0.24	-0.22	0.24	0.01	-0.18	0.2
X	L	51041	SR	0.37	0.31	0.31	-0.27	-0.30	0.04	0.2
X	O	256370	SR	0.37	0.27	-0.29	-0.11	0.03	0.27	0.7
X	L	68084	SR	0.57	0.50	-0.23	-0.31	-0.16	0.50	0.3
X	O	108469	SR	0.78	0.50	0.50	-0.25	-0.28	-0.25	0.2
X	O	60430	SR	0.40	0.44	-0.11	-0.24	-0.19	0.44	0.5
X	O	256361	SR	0.42	0.37	0.37	-0.22	-0.17	-0.07	0.6
X	L	256409	SR	0.62	0.43	-0.25	-0.28	-0.17	0.43	0.2
X	L	214507	SR	0.63	0.42	-0.14	0.42	-0.23	-0.23	0.2
X	O	79545	SR	0.64	0.51	-0.27	-0.25	-0.24	0.51	0.2
<b>Mean</b>				0.57	0.41	-0.02	-0.09	-0.09	0.02	0.2
<b>SD</b>				0.17	0.10	0.29	0.26	0.27	0.30	0.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A28** Item Statistics, Operational Items: MD HSA Government—May 2009 Makeup 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Y	O	256350	SR	0.89	0.39	0.39	-0.22	-0.24	-0.19	0.0
Y	O	108365	SR	0.77	0.39	-0.19	-0.24	0.39	-0.20	0.1
Y	O	108388	SR	0.53	0.46	-0.22	-0.31	-0.15	0.46	0.1
Y	O	79562	SR	0.75	0.42	-0.29	-0.18	0.42	-0.16	0.1
Y	L	50942	SR	0.39	0.19	-0.09	-0.21	0.19	0.08	0.1
Y	L	50922	SR	0.48	0.37	-0.11	-0.15	-0.23	0.37	0.1
Y	L	51026	SR	0.60	0.44	-0.25	-0.22	0.44	-0.17	0.1
Y	L	55485	SR	0.53	0.23	-0.28	-0.01	0.23	-0.06	0.1
Y	O	108372	SR	0.54	0.56	0.56	-0.31	-0.32	-0.19	0.0
Y	O	133475	SR	0.57	0.21	-0.22	-0.21	0.21	0.03	0.0
Y	L	79702	SR	0.31	0.21	-0.22	-0.03	0.21	-0.07	0.1
Y	O	55703	SR	0.44	0.28	-0.06	0.28	-0.15	-0.15	0.1
Y	L	108431	SR	0.59	0.54	-0.23	-0.24	0.54	-0.31	0.1
Y	O	58405	SR	0.73	0.54	-0.25	-0.29	-0.29	0.54	0.1
Y	L	50997	SR	0.48	0.37	-0.13	-0.28	0.37	-0.10	0.2
Y	L	79740	SR	0.65	0.27	-0.15	0.27	-0.12	-0.16	0.1
Y	L	68752	SR	0.61	0.56	0.56	-0.26	-0.31	-0.26	0.1
Y	L	68680	SR	0.36	0.27	-0.23	-0.08	0.27	-0.12	0.1
Y	O	51220	SR	0.40	0.20	0.20	-0.25	-0.29	0.11	0.4
Y	L	68622	SR	0.68	0.51	0.51	-0.27	-0.27	-0.25	0.1
Y	L	52196	SR	0.51	0.46	-0.17	-0.18	0.46	-0.28	0.2
Y	L	214487	SR	0.46	0.47	-0.21	-0.29	-0.14	0.47	0.2
Y	L	50927	SR	0.92	0.37	-0.20	-0.20	0.37	-0.21	0.1
Y	L	79626	SR	0.45	0.25	0.25	-0.09	-0.15	-0.07	0.3
Y	O	52290	SR	0.71	0.58	-0.26	0.58	-0.31	-0.30	0.6
Y	O	133476	SR	0.78	0.47	0.47	-0.20	-0.31	-0.24	0.2
Y	L	133478	SR	0.45	0.22	0.06	-0.14	-0.19	0.22	0.3
Y	L	68576	SR	0.70	0.50	-0.22	0.50	-0.32	-0.21	0.3
Y	L	132982	SR	0.69	0.41	0.41	-0.28	-0.21	-0.14	0.1
Y	O	55558	SR	0.86	0.39	-0.14	0.39	-0.28	-0.20	0.2
Y	L	58191	SR	0.74	0.50	0.50	-0.27	-0.27	-0.23	0.1
Y	L	55512	SR	0.32	0.28	-0.14	-0.01	-0.24	0.28	0.2
Y	L	65212	SR	0.45	0.30	0.30	-0.21	-0.23	-0.06	0.1
Y	L	108428	SR	0.41	0.34	0.34	-0.23	-0.10	-0.16	0.1
Y	L	51077	SR	0.64	0.55	0.55	-0.29	-0.26	-0.29	0.1
Y	L	108415	SR	0.56	0.43	-0.11	-0.23	-0.27	0.43	0.2
Y	O	68578	SR	0.59	0.57	-0.26	-0.25	-0.30	0.57	0.1
Y	L	51162	SR	0.83	0.45	-0.25	-0.25	0.45	-0.23	0.1
Y	L	51163	SR	0.38	0.48	0.48	-0.28	-0.14	-0.18	0.1
Y	O	68645	SR	0.69	0.33	-0.13	0.33	-0.20	-0.20	0.1
Y	L	55688	SR	0.43	0.41	-0.20	0.00	-0.30	0.41	0.2
Y	L	68774	SR	0.41	0.35	0.35	-0.08	-0.26	-0.10	0.2
Y	O	79561	SR	0.42	0.33	-0.22	-0.10	0.33	-0.13	0.1
Y	O	108423	SR	0.63	0.61	-0.31	-0.34	0.61	-0.23	0.2



**Table 1.A28** Item Statistics, Operational Items: MD HSA Government—May 2009 Makeup 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Y	L	137315	SR	0.37	0.43	0.43	-0.13	-0.20	-0.21	0.1
Y	O	132965	SR	0.82	0.51	-0.24	-0.33	-0.24	0.51	0.3
Y	L	60445	SR	0.62	0.49	-0.17	0.49	-0.38	-0.18	0.2
Y	L	55481	SR	0.62	0.41	-0.13	-0.30	-0.22	0.41	0.2
Y	L	108339	SR	0.44	0.42	-0.08	-0.12	-0.37	0.42	0.2
Y	O	135587	SR	0.28	0.25	-0.14	0.25	-0.08	-0.07	0.2
Y	L	133483	SR	0.82	0.54	0.54	-0.38	-0.27	-0.20	0.1
Y	L	256401	SR	0.50	0.55	0.55	-0.25	-0.27	-0.23	0.2
Y	L	132980	SR	0.26	0.29	0.07	-0.13	-0.23	0.29	0.3
Y	L	79704	SR	0.48	0.50	-0.19	-0.25	-0.23	0.50	0.2
Y	O	79672	SR	0.46	0.45	-0.13	-0.18	-0.27	0.45	0.6
Y	L	256349	SR	0.71	0.44	-0.23	-0.26	0.44	-0.17	0.1
Y	L	68656	SR	0.53	0.34	-0.16	-0.21	0.34	-0.09	0.3
Y	L	58284	SR	0.63	0.45	-0.18	-0.29	0.45	-0.19	0.2
Y	L	79722	SR	0.23	0.26	0.26	-0.27	-0.15	0.16	0.2
Y	O	52199	SR	0.56	0.37	-0.23	-0.16	0.37	-0.17	0.2
Y	O	52249	SR	0.48	0.30	-0.14	0.30	-0.21	-0.08	0.1
Y	L	108402	SR	0.39	0.32	-0.13	0.32	-0.17	-0.09	0.2
Y	L	256405	SR	0.62	0.37	-0.18	0.37	-0.18	-0.21	0.1
Y	O	108389	SR	0.52	0.52	-0.26	-0.14	-0.33	0.52	0.2
Y	L	79731	SR	0.76	0.40	-0.17	-0.25	0.40	-0.21	0.2
Y	L	58296	SR	0.71	0.49	-0.26	0.49	-0.25	-0.26	0.2
Y	O	68782	SR	0.70	0.57	-0.30	-0.24	-0.33	0.57	0.3
Y	L	60444	SR	0.59	0.51	-0.19	-0.22	-0.30	0.51	0.3
Y	O	55591	SR	0.78	0.44	-0.28	-0.17	-0.29	0.44	0.2
Y	L	52208	SR	0.27	0.31	0.31	-0.13	-0.13	-0.05	0.2
Y	O	137307	SR	0.68	0.50	-0.31	-0.25	0.50	-0.21	0.4
Y	O	108340	SR	0.55	0.66	-0.36	-0.38	0.66	-0.13	0.4
Y	O	135575	SR	0.78	0.57	-0.26	0.57	-0.35	-0.27	0.5
Y	L	51041	SR	0.37	0.31	0.31	-0.27	-0.30	0.04	0.2
Y	O	108370	SR	0.76	0.51	-0.29	0.51	-0.28	-0.21	0.2
Y	L	68084	SR	0.57	0.50	-0.23	-0.31	-0.16	0.50	0.3
Y	O	52253	SR	0.39	0.17	-0.05	0.17	0.03	-0.17	0.6
Y	O	256393	SR	0.86	0.45	-0.25	-0.28	0.45	-0.20	0.2
Y	O	79709	SR	0.66	0.56	0.56	-0.27	-0.32	-0.26	0.2
Y	L	256409	SR	0.62	0.43	-0.25	-0.28	-0.17	0.43	0.2
Y	L	214507	SR	0.63	0.42	-0.14	0.42	-0.23	-0.23	0.2
Y	O	137311	SR	0.66	0.48	-0.19	-0.32	0.48	-0.18	0.7
<b>Mean</b>				0.57	0.41	-0.04	-0.10	-0.05	0.00	0.2
<b>SD</b>				0.16	0.11	0.28	0.26	0.31	0.28	0.1

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A29** Item Statistics, Operational Items: MD HSA Algebra—Summer 2009 Primary 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
P	O	56599	SR	0.60	0.36	-0.15	-0.22	0.36	-0.17	0.2
P	L	67519	SR	0.49	0.42	-0.29	-0.22	0.42	0.00	0.3
P	L	106655	SR	0.34	0.26	-0.07	0.26	-0.12	-0.11	0.5
P	O	54765	SR	0.24	0.27	0.27	-0.07	-0.16	-0.02	0.1
P	L	79018	SR	0.21	0.19	-0.01	-0.13	0.19	-0.07	1.1
P	L	136686	SPR	0.52	0.47	0.47	-0.43			3.1
P	L	255067	SPR	0.38	0.35	0.35	-0.27			5.8
P	O	223238	SR	0.18	0.36	0.02	-0.22	-0.17	0.36	0.4
P	L	51549	SR	0.42	0.12	-0.10	0.01	0.12	-0.07	0.9
P	L	255113	SR	0.47	0.22	0.03	0.22	-0.19	-0.12	0.9
P	O	132827	SR	0.48	0.25	-0.07	-0.16	0.25	-0.12	0.4
P	L	132822	SR	0.48	0.33	-0.15	-0.12	-0.21	0.33	0.6
P	O	67496	SPR	0.43	0.51	0.51	-0.44			7.3
P	O	67495	SPR	0.19	0.36	0.36	-0.24			12.8
P	L	79085	SR	0.58	0.28	-0.09	0.28	-0.14	-0.16	2.2
P	L	56562	SR	0.32	0.51	-0.25	-0.19	-0.11	0.51	2.8
P	O	106549	SR	0.16	0.30	0.30	-0.05	-0.03	-0.17	4.2
P	L	106618	SR	0.34	0.29	-0.17	-0.20	0.29	0.04	3.6
P	O	54875	SR	0.73	0.30	-0.20	0.30	-0.14	-0.08	0.4
P	O	51414	SR	0.36	0.41	0.41	-0.19	-0.16	-0.12	1.1
P	L	255108	SR	0.57	0.33	-0.14	0.33	-0.17	-0.13	0.5
P	O	56545	SPR	0.12	0.35	0.35	-0.25			3.7
P	L	255082	SPR	0.09	0.27	0.27	-0.10			9.2
P	O	79150	SR	0.16	0.09	0.02	0.02	-0.13	0.09	1.2
P	O	67535	SR	0.24	0.19	0.07	-0.12	0.19	-0.11	0.3
P	L	106543	SR	0.32	0.34	0.34	-0.15	-0.11	-0.10	0.9
P	L	132823	SR	0.51	0.32	-0.13	-0.14	0.32	-0.15	0.7
P	O	54763	SR	0.27	0.22	-0.04	-0.15	-0.05	0.22	0.7
P	L	135112	SR	0.34	0.22	-0.06	-0.08	0.22	-0.10	0.9
P	O	67420	SPR	0.26	0.36	0.36	-0.25			11.6
P	L	54658	SR	0.19	0.26	-0.03	-0.07	-0.09	0.26	1.1
P	O	67427	SR	0.51	0.36	-0.17	0.36	-0.18	-0.12	1.0
P	O	79092	SR	0.45	0.30	-0.13	-0.07	-0.16	0.30	1.4
P	L	79037	SR	0.22	0.24	0.24	-0.05	-0.10	-0.07	1.7
P	L	211027	SR	0.45	0.35	-0.13	-0.16	0.35	-0.13	1.8
P	L	67474	SR	0.43	0.31	0.31	-0.11	-0.16	-0.11	0.9
P	L	211050	SR	0.33	0.29	-0.01	-0.19	-0.16	0.29	0.6
P	O	67431	SPR	0.49	0.54	0.54	-0.49			4.1
P	L	50426	SPR	0.25	0.22	0.22	-0.13			5.8
P	L	51443	SPR	0.25	0.39	0.39	-0.28			4.5
P	L	79102	SR	0.29	0.18	-0.07	-0.07	0.18	-0.03	1.0
P	L	64684	SR	0.52	0.39	0.39	-0.17	-0.21	-0.13	0.9
P	O	52344	SR	0.44	0.32	-0.17	0.32	-0.11	-0.11	1.1
P	L	67464	SR	0.38	0.47	-0.28	-0.17	0.47	-0.10	1.1

**Table 1.A29** Item Statistics, Operational Items: MD HSA Algebra—Summer 2009 Primary 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
P	O	67559	SR	0.32	0.14	-0.08	0.14	0.05	-0.16	0.7
P	L	50371	SR	0.48	0.38	-0.19	0.38	-0.15	-0.13	1.4
P	O	43147	SR	0.47	0.26	-0.16	-0.07	0.26	-0.10	0.8
P	L	51398	SR	0.40	0.49	0.49	-0.24	-0.23	-0.09	0.9
P	L	67489	SR	0.37	0.18	-0.06	0.18	-0.02	-0.13	1.1
P	L	56799	SR	0.21	0.33	0.33	-0.07	-0.16	-0.04	1.0
P	O	54673	SR	0.34	0.38	-0.15	-0.19	-0.07	0.38	0.9
P	L	56750	SR	0.25	0.42	0.42	-0.05	-0.19	-0.16	1.2
P	L	54767	SR	0.41	0.36	0.36	-0.14	-0.16	-0.13	1.1
<b>Mean</b>				0.36	0.32	0.08	-0.08	-0.01	-0.02	2.2
<b>SD</b>				0.14	0.10	0.25	0.20	0.21	0.18	2.7

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A30** Item Statistics, Operational Items: MD HSA Algebra—Summer 2009 Primary 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Q	O	56769	SR	0.66	0.35	-0.13	0.35	-0.21	-0.18	0.4
Q	L	67519	SR	0.49	0.42	-0.29	-0.22	0.42	0.00	0.3
Q	L	106655	SR	0.34	0.26	-0.07	0.26	-0.12	-0.11	0.5
Q	O	106621	SR	0.60	0.39	0.39	-0.17	-0.20	-0.21	0.2
Q	L	79018	SR	0.21	0.19	-0.01	-0.13	0.19	-0.07	1.1
Q	L	136686	SPR	0.52	0.47	0.47	-0.43			3.1
Q	L	255067	SPR	0.38	0.35	0.35	-0.27			5.8
Q	O	79123	SR	0.19	0.45	-0.16	-0.08	-0.14	0.45	2.2
Q	L	51549	SR	0.42	0.12	-0.10	0.01	0.12	-0.07	0.9
Q	L	255113	SR	0.47	0.22	0.03	0.22	-0.19	-0.12	0.9
Q	O	54745	SR	0.58	0.29	-0.05	-0.26	-0.10	0.29	0.2
Q	L	132822	SR	0.48	0.33	-0.15	-0.12	-0.21	0.33	0.6
Q	O	132847	SPR	0.57	0.37	0.37	-0.31			4.9
Q	O	135113	SPR	0.07	0.50	0.50	-0.18			13.8
Q	L	79085	SR	0.58	0.28	-0.09	0.28	-0.14	-0.16	2.2
Q	L	56562	SR	0.32	0.51	-0.25	-0.19	-0.11	0.51	2.8
Q	O	67501	SR	0.48	0.43	-0.23	-0.15	0.43	-0.18	2.2
Q	L	106618	SR	0.34	0.29	-0.17	-0.20	0.29	0.04	3.6
Q	O	54690	SR	0.89	0.20	-0.11	0.20	-0.07	-0.12	0.4
Q	O	215925	SR	0.54	0.38	-0.14	-0.20	-0.18	0.38	0.6
Q	L	255108	SR	0.57	0.33	-0.14	0.33	-0.17	-0.13	0.5
Q	O	215934	SPR	0.20	0.36	0.36	-0.17			19.2
Q	L	255082	SPR	0.09	0.27	0.27	-0.10			9.2
Q	O	56785	SR	0.20	0.38	-0.11	-0.14	-0.07	0.38	2.0
Q	O	56649	SR	0.23	0.35	-0.05	-0.16	-0.15	0.35	1.0
Q	L	106543	SR	0.32	0.34	0.34	-0.15	-0.11	-0.10	0.9
Q	L	132823	SR	0.51	0.32	-0.13	-0.14	0.32	-0.15	0.7
Q	O	51479	SR	0.41	0.26	-0.01	-0.15	-0.21	0.26	1.2
Q	L	135112	SR	0.34	0.22	-0.06	-0.08	0.22	-0.10	0.9
Q	O	106569	SPR	0.06	0.46	0.46	-0.07			13.8
Q	L	54658	SR	0.19	0.26	-0.03	-0.07	-0.09	0.26	1.1
Q	O	56764	SR	0.70	0.34	0.34	-0.14	-0.22	-0.14	1.0
Q	O	211043	SR	0.23	0.20	-0.10	0.20	-0.05	0.01	1.8
Q	L	79037	SR	0.22	0.24	0.24	-0.05	-0.10	-0.07	1.7
Q	L	211027	SR	0.45	0.35	-0.13	-0.16	0.35	-0.13	1.8
Q	L	67474	SR	0.43	0.31	0.31	-0.11	-0.16	-0.11	0.9
Q	L	211050	SR	0.33	0.29	-0.01	-0.19	-0.16	0.29	0.6
Q	O	50393	SPR	0.17	0.39	0.39	-0.17			9.3
Q	L	50426	SPR	0.25	0.22	0.22	-0.13			5.8
Q	L	51443	SPR	0.25	0.39	0.39	-0.28			4.5
Q	L	79102	SR	0.29	0.18	-0.07	-0.07	0.18	-0.03	1.0
Q	L	64684	SR	0.52	0.39	0.39	-0.17	-0.21	-0.13	0.9
Q	O	211006	SR	0.16	0.35	-0.15	-0.10	-0.04	0.35	1.4

**Table 1.A30** Item Statistics, Operational Items: MD HSA Algebra—Summer 2009 Primary 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Q	L	67464	SR	0.38	0.47	-0.28	-0.17	0.47	-0.10	1.1
Q	O	56759	SR	0.35	0.37	0.37	-0.11	-0.15	-0.15	1.2
Q	L	50371	SR	0.48	0.38	-0.19	0.38	-0.15	-0.13	1.4
Q	O	43148	SR	0.45	0.36	-0.15	-0.13	0.36	-0.16	1.0
Q	L	51398	SR	0.40	0.49	0.49	-0.24	-0.23	-0.09	0.9
Q	L	67489	SR	0.37	0.18	-0.06	0.18	-0.02	-0.13	1.1
Q	L	56799	SR	0.21	0.33	0.33	-0.07	-0.16	-0.04	1.0
Q	O	43154	SR	0.13	0.22	-0.08	-0.13	0.06	0.22	1.2
Q	L	56750	SR	0.25	0.42	0.42	-0.05	-0.19	-0.16	1.2
Q	L	54767	SR	0.41	0.36	0.36	-0.14	-0.16	-0.13	1.1
<b>Mean</b>				0.37	0.33	0.08	-0.08	-0.02	0.02	2.6
<b>SD</b>				0.17	0.09	0.25	0.18	0.21	0.21	3.8

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A31** Item Statistics, Operational Items: MD HSA Biology—Summer 2009 Primary 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
P	O	52663	SR	0.41	0.27	-0.04	0.27	-0.15	-0.15	0.4
P	L	52490	SR	0.61	0.25	-0.16	-0.13	0.25	-0.10	0.4
P	O	192077	SR	0.20	0.26	0.11	-0.19	-0.19	0.26	0.0
P	O	192084	SR	0.39	0.13	-0.09	-0.05	-0.03	0.13	0.0
P	L	68263	SR	0.13	0.19	-0.15	0.01	0.19	0.02	0.2
P	L	79475	SR	0.19	0.21	-0.07	-0.07	-0.05	0.21	0.1
P	L	256489	SR	0.23	0.12	-0.02	0.12	-0.11	0.01	0.1
P	L	256490	SR	0.42	0.20	-0.10	0.20	-0.08	-0.06	0.7
P	O	79402	SR	0.17	0.00	0.04	0.03	-0.06	0.00	0.2
P	L	136101	SR	0.65	0.26	-0.08	-0.18	0.26	-0.10	0.2
P	O	136099	SR	0.32	0.24	-0.15	0.24	-0.13	0.02	0.4
P	O	79431	SR	0.58	0.30	-0.15	-0.17	0.30	-0.10	0.2
P	L	136123	SR	0.23	0.23	-0.10	0.23	-0.03	-0.08	0.4
P	L	136126	SR	0.54	0.25	-0.05	-0.19	0.25	-0.10	0.4
P	O	67671	SR	0.19	0.14	-0.04	-0.13	0.04	0.14	0.2
P	L	52559	SR	0.29	0.30	0.30	-0.10	-0.18	-0.02	0.4
P	L	251268	SR	0.32	0.18	0.18	0.04	-0.07	-0.19	0.4
P	L	251269	SR	0.48	0.29	-0.16	-0.12	0.29	-0.08	0.4
P	L	52419	SR	0.23	0.24	0.24	-0.12	-0.18	0.07	0.4
P	O	251274	SR	0.30	0.29	0.29	-0.11	-0.18	-0.03	0.2
P	O	251257	SR	0.42	0.36	-0.17	0.36	-0.08	-0.19	0.5
P	O	68244	SR	0.31	0.23	-0.03	-0.16	-0.09	0.23	0.5
P	L	108541	SR	0.17	0.20	-0.03	0.20	-0.07	-0.07	0.7
P	L	108518	SR	0.48	0.41	0.41	-0.20	-0.19	-0.12	0.6
P	O	214541	SR	0.28	0.13	0.01	-0.12	0.13	-0.01	1.1
P	L	133449	SR	0.37	0.12	-0.14	0.12	0.01	0.01	0.6
P	L	133451	SR	0.28	0.02	0.06	0.02	-0.18	0.10	0.5
P	O	55268	SR	0.27	0.36	-0.19	-0.10	0.36	-0.07	0.2
P	O	54964	SR	0.25	0.27	-0.06	-0.13	-0.06	0.27	0.5
P	L	52409	SR	0.18	0.23	-0.07	0.23	-0.12	-0.08	0.4
P	L	135129	SR	0.35	0.21	-0.10	-0.06	-0.07	0.21	0.5
P	L	135130	SR	0.40	0.30	-0.13	-0.14	0.30	-0.09	0.5
P	O	52686	SR	0.27	0.16	-0.01	-0.04	-0.10	0.16	0.4
P	O	256551	SR	0.37	0.18	-0.02	0.18	-0.14	-0.03	0.5
P	O	256522	SR	0.25	0.13	-0.16	0.01	0.13	0.03	0.5
P	L	108586	SR	0.48	0.32	0.32	-0.16	-0.19	-0.08	0.8
P	L	68153	SR	0.62	0.38	0.38	-0.21	-0.19	-0.14	0.4
P	L	68154	SR	0.27	0.26	-0.07	0.26	-0.12	-0.05	0.6
P	L	57000	SR	0.22	0.08	0.08	0.06	-0.08	-0.05	0.5
P	L	136093	SR	0.18	0.02	0.07	-0.05	0.02	-0.02	0.5
P	L	136094	SR	0.39	0.35	-0.10	0.35	-0.16	-0.15	0.5
P	O	52756	SR	0.34	0.25	-0.08	0.25	-0.09	-0.10	1.1
P	O	68197	SR	0.48	0.19	0.19	-0.11	-0.12	-0.02	0.5

**Table 1.A31** Item Statistics, Operational Items: MD HSA Biology—Summer 2009 Primary 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
P	L	108561	SR	0.70	0.37	-0.14	-0.18	-0.21	0.37	0.5
P	O	133051	SR	0.57	0.25	-0.07	0.25	-0.09	-0.17	0.5
P	O	133048	SR	0.36	0.25	-0.07	-0.07	-0.13	0.25	0.5
P	O	52567	SR	0.28	0.16	0.16	0.04	-0.13	-0.11	0.5
P	L	65075	SR	0.50	0.42	-0.18	-0.18	-0.18	0.42	0.6
P	L	55084	SR	0.40	0.25	0.25	-0.16	-0.06	-0.07	0.7
P	L	55085	SR	0.29	0.24	0.24	-0.20	-0.02	-0.03	0.6
P	L	133435	SR	0.39	0.39	0.39	-0.19	-0.13	-0.14	0.5
P	L	52767	SR	0.18	0.30	-0.04	-0.11	0.30	-0.09	0.5
P	L	214567	SR	0.52	0.20	-0.06	-0.10	0.20	-0.10	0.5
P	L	214569	SR	0.40	0.25	-0.09	-0.10	-0.09	0.25	0.5
P	L	108559	SR	0.29	0.19	-0.11	0.19	-0.16	0.07	0.6
P	O	256537	SR	0.26	0.11	0.11	-0.18	-0.12	0.16	0.7
P	O	256539	SR	0.16	0.01	-0.01	0.01	0.05	-0.05	0.4
P	O	52716	SR	0.25	0.07	-0.03	-0.01	0.07	-0.02	0.5
P	L	79291	SR	0.25	0.20	0.20	0.02	-0.17	-0.02	0.6
P	L	79313	SR	0.30	0.24	-0.17	0.24	-0.10	0.03	0.6
P	L	79314	SR	0.23	0.14	-0.05	0.14	-0.03	-0.03	0.5
P	O	65121	SR	0.36	0.27	-0.09	-0.12	0.27	-0.09	0.5
P	L	65052	SR	0.20	0.05	0.01	0.07	-0.12	0.05	0.5
P	O	57188	SR	0.30	0.37	0.37	-0.13	-0.15	-0.10	0.7
P	O	256493	SR	0.25	0.16	-0.16	0.16	0.01	0.01	0.9
P	O	256491	SR	0.29	0.23	0.23	0.00	-0.12	-0.13	0.4
P	L	136137	SR	0.32	0.29	0.00	0.29	-0.17	-0.13	0.5
P	L	136136	SR	0.43	0.29	-0.05	-0.15	-0.15	0.29	0.6
P	L	65058	SR	0.32	0.27	-0.06	0.27	-0.11	-0.10	0.7
P	O	192079	SR	0.24	0.15	0.15	-0.03	-0.06	-0.03	0.5
P	L	253643	SR	0.31	0.26	-0.09	-0.07	-0.10	0.26	0.6
P	O	175495	SR	0.38	0.12	0.12	-0.09	-0.05	0.01	0.5
P	L	215987	SR	0.38	0.21	0.21	-0.05	-0.12	-0.06	0.8
P	L	215988	SR	0.33	0.09	-0.05	-0.01	0.09	-0.02	1.0
P	L	133436	SR	0.17	0.08	0.08	0.11	-0.10	-0.07	1.0
P	O	214538	SR	0.48	0.31	-0.16	-0.13	0.31	-0.11	0.7
<b>Mean</b>				0.34	0.22	0.01	0.00	-0.03	0.00	0.5
<b>SD</b>				0.13	0.10	0.16	0.16	0.15	0.14	0.2

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A32** Item Statistics, Operational Items: MD HSA Biology—Summer 2009 Primary 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Q	O	108599	SR	0.50	0.32	-0.20	-0.12	0.32	-0.12	0.0
Q	L	52490	SR	0.61	0.25	-0.16	-0.13	0.25	-0.10	0.4
Q	O	215944	SR	0.39	0.33	0.33	-0.14	-0.10	-0.15	0.0
Q	O	215957	SR	0.56	0.21	0.21	-0.08	-0.18	-0.09	0.4
Q	L	68263	SR	0.13	0.19	-0.15	0.01	0.19	0.02	0.2
Q	L	79475	SR	0.19	0.21	-0.07	-0.07	-0.05	0.21	0.1
Q	L	256489	SR	0.23	0.12	-0.02	0.12	-0.11	0.01	0.1
Q	L	256490	SR	0.42	0.20	-0.10	0.20	-0.08	-0.06	0.7
Q	O	54987	SR	0.28	0.04	0.04	-0.01	0.00	0.00	0.8
Q	L	136101	SR	0.65	0.26	-0.08	-0.18	0.26	-0.10	0.2
Q	O	136097	SR	0.45	0.17	0.17	0.02	-0.12	-0.11	0.4
Q	O	55044	SR	0.44	0.28	-0.20	0.28	-0.25	0.07	0.8
Q	L	136123	SR	0.23	0.23	-0.10	0.23	-0.03	-0.08	0.4
Q	L	136126	SR	0.54	0.25	-0.05	-0.19	0.25	-0.10	0.4
Q	O	223426	SR	0.19	0.17	-0.19	0.17	0.17	-0.19	1.1
Q	L	52559	SR	0.29	0.30	0.30	-0.10	-0.18	-0.02	0.4
Q	L	251268	SR	0.32	0.18	0.18	0.04	-0.07	-0.19	0.4
Q	L	251269	SR	0.48	0.29	-0.16	-0.12	0.29	-0.08	0.4
Q	L	52419	SR	0.23	0.24	0.24	-0.12	-0.18	0.07	0.4
Q	O	251264	SR	0.30	0.24	-0.02	-0.20	0.24	-0.05	1.1
Q	O	251265	SR	0.44	0.43	0.43	-0.20	-0.16	-0.18	0.8
Q	O	79411	SR	0.25	0.29	-0.14	-0.07	-0.07	0.29	0.8
Q	L	108541	SR	0.17	0.20	-0.03	0.20	-0.07	-0.07	0.7
Q	L	108518	SR	0.48	0.41	0.41	-0.20	-0.19	-0.12	0.6
Q	O	52544	SR	0.42	0.40	0.40	-0.11	-0.18	-0.17	0.8
Q	L	133449	SR	0.37	0.12	-0.14	0.12	0.01	0.01	0.6
Q	L	133451	SR	0.28	0.02	0.06	0.02	-0.18	0.10	0.5
Q	O	52633	SR	0.29	0.06	0.05	-0.05	0.06	-0.12	0.4
Q	O	52680	SR	0.44	0.33	-0.14	-0.15	0.33	-0.14	0.4
Q	L	52409	SR	0.18	0.23	-0.07	0.23	-0.12	-0.08	0.4
Q	L	135129	SR	0.35	0.21	-0.10	-0.06	-0.07	0.21	0.5
Q	L	135130	SR	0.40	0.30	-0.13	-0.14	0.30	-0.09	0.5
Q	O	68232	SR	0.27	0.35	-0.08	-0.17	0.35	-0.13	0.8
Q	O	256527	SR	0.41	0.42	0.42	-0.18	-0.18	-0.15	0.4
Q	O	256525	SR	0.35	0.31	-0.10	-0.06	0.31	-0.19	0.4
Q	L	108586	SR	0.48	0.32	0.32	-0.16	-0.19	-0.08	0.8
Q	L	68153	SR	0.62	0.38	0.38	-0.21	-0.19	-0.14	0.4
Q	L	68154	SR	0.27	0.26	-0.07	0.26	-0.12	-0.05	0.6
Q	L	57000	SR	0.22	0.08	0.08	0.06	-0.08	-0.05	0.5
Q	L	136093	SR	0.18	0.02	0.07	-0.05	0.02	-0.02	0.5
Q	L	136094	SR	0.39	0.35	-0.10	0.35	-0.16	-0.15	0.5
Q	O	68286	SR	0.24	0.22	0.22	-0.11	-0.15	0.01	0.4
Q	O	56957	SR	0.24	0.31	-0.05	0.31	-0.12	-0.13	0.4



**Table 1.A32** Item Statistics, Operational Items: MD HSA Biology—Summer 2009 Primary 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Q	L	108561	SR	0.70	0.37	-0.14	-0.18	-0.21	0.37	0.5
Q	O	55075	SR	0.36	0.17	0.17	-0.04	-0.16	0.00	1.1
Q	O	55077	SR	0.27	0.15	-0.04	-0.04	0.15	-0.08	0.4
Q	O	79489	SR	0.30	0.36	-0.10	-0.08	-0.18	0.36	0.4
Q	L	65075	SR	0.50	0.42	-0.18	-0.18	-0.18	0.42	0.6
Q	L	55084	SR	0.40	0.25	0.25	-0.16	-0.06	-0.07	0.7
Q	L	55085	SR	0.29	0.24	0.24	-0.20	-0.02	-0.03	0.6
Q	L	133435	SR	0.39	0.39	0.39	-0.19	-0.13	-0.14	0.5
Q	L	52767	SR	0.18	0.30	-0.04	-0.11	0.30	-0.09	0.5
Q	L	214567	SR	0.52	0.20	-0.06	-0.10	0.20	-0.10	0.5
Q	L	214569	SR	0.40	0.25	-0.09	-0.10	-0.09	0.25	0.5
Q	L	108559	SR	0.29	0.19	-0.11	0.19	-0.16	0.07	0.6
Q	O	55260	SR	0.34	0.32	-0.23	-0.20	0.06	0.32	1.1
Q	O	55263	SR	0.49	0.34	-0.11	-0.15	0.34	-0.16	0.8
Q	O	67635	SR	0.30	0.31	-0.17	0.31	-0.13	-0.01	1.1
Q	L	79291	SR	0.25	0.20	0.20	0.02	-0.17	-0.02	0.6
Q	L	79313	SR	0.30	0.24	-0.17	0.24	-0.10	0.03	0.6
Q	L	79314	SR	0.23	0.14	-0.05	0.14	-0.03	-0.03	0.5
Q	O	64720	SR	0.38	0.30	-0.15	-0.04	-0.15	0.30	0.8
Q	L	65052	SR	0.20	0.05	0.01	0.07	-0.12	0.05	0.5
Q	O	64735	SR	0.36	0.26	0.01	-0.23	0.26	-0.05	0.8
Q	O	256544	SR	0.55	0.42	-0.14	0.42	-0.23	-0.15	1.1
Q	O	256545	SR	0.44	0.22	-0.09	-0.05	0.22	-0.07	1.1
Q	L	136137	SR	0.32	0.29	0.00	0.29	-0.17	-0.13	0.5
Q	L	136136	SR	0.43	0.29	-0.05	-0.15	-0.15	0.29	0.6
Q	L	65058	SR	0.32	0.27	-0.06	0.27	-0.11	-0.10	0.7
Q	O	57185	SR	0.33	0.30	0.30	-0.12	-0.17	-0.03	0.8
Q	L	253643	SR	0.31	0.26	-0.09	-0.07	-0.10	0.26	0.6
Q	O	175497	SR	0.44	0.15	0.09	-0.19	0.15	-0.10	0.8
Q	L	215987	SR	0.38	0.21	0.21	-0.05	-0.12	-0.06	0.8
Q	L	215988	SR	0.33	0.09	-0.05	-0.01	0.09	-0.02	1.0
Q	L	133436	SR	0.17	0.08	0.08	0.11	-0.10	-0.07	1.0
Q	O	52476	SR	0.55	0.37	-0.17	0.37	-0.20	-0.08	1.5
<b>Mean</b>				0.36	0.25	0.02	-0.01	-0.02	-0.02	0.6
<b>SD</b>				0.13	0.10	0.18	0.17	0.18	0.15	0.3

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A33** Item Statistics, Operational Items: MD HSA English–Summer 2009 Primary 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
P	O	108901	SR	0.73	0.36	-0.20	-0.16	0.36	-0.20	0.3
P	O	108902	SR	0.41	0.22	-0.07	-0.13	0.22	-0.08	0.3
P	O	108903	SR	0.85	0.36	0.36	-0.17	-0.23	-0.19	0.0
P	O	108904	SR	0.72	0.37	0.37	-0.19	-0.17	-0.22	0.0
P	O	108906	SR	0.68	0.28	-0.10	-0.23	-0.13	0.28	0.0
P	O	130270	SR	0.49	0.14	-0.19	0.14	-0.14	0.08	0.0
P	O	256419	SR	0.56	0.23	-0.12	-0.15	0.23	-0.08	0.1
P	O	256420	SR	0.54	0.27	-0.16	-0.16	-0.06	0.27	0.0
P	O	256421	SR	0.68	0.30	-0.17	0.30	-0.12	-0.15	0.1
P	L	251157	SR	0.65	0.43	-0.20	-0.26	-0.18	0.43	0.4
P	L	256300	SR	0.66	0.43	-0.20	0.43	-0.23	-0.21	0.4
P	L	251145	SR	0.56	0.32	-0.17	0.32	-0.11	-0.17	0.9
P	O	96021	SR	0.67	0.28	-0.18	-0.23	0.28	-0.01	0.8
P	O	96022	SR	0.46	0.29	-0.04	0.29	-0.12	-0.19	0.8
P	O	96023	SR	0.36	0.44	-0.18	-0.10	-0.22	0.44	0.8
P	O	96025	SR	0.33	0.24	-0.05	-0.13	0.24	-0.08	0.5
P	L	169262	SR	0.39	0.26	0.26	-0.17	-0.03	-0.13	0.3
P	L	169269	SR	0.49	0.31	-0.12	-0.23	0.31	-0.09	0.3
P	L	169264	SR	0.72	0.43	-0.24	0.43	-0.23	-0.17	0.3
P	L	169267	SR	0.23	0.12	-0.07	0.12	-0.21	0.11	0.2
P	L	169266	SR	0.57	0.35	-0.16	-0.24	0.35	-0.09	0.3
P	L	169268	SR	0.68	0.40	-0.20	-0.21	0.40	-0.19	0.3
P	L	169270	SR	0.33	0.20	-0.10	-0.13	-0.01	0.20	0.3
P	L	243346	SR	0.33	0.27	-0.06	-0.20	-0.04	0.27	0.3
P	L	243345	SR	0.39	0.29	-0.14	0.29	-0.12	-0.07	0.5
P	L	218587	SR	0.29	0.33	-0.15	-0.07	-0.12	0.33	0.6
P	L	251071	SR	0.41	0.42	0.42	-0.16	-0.23	-0.12	0.6
P	L	218582	SR	0.32	0.32	-0.11	-0.08	-0.19	0.32	0.8
P	L	218583	SR	0.34	0.36	-0.11	0.36	-0.19	-0.08	0.8
P	L	218584	SR	0.50	0.38	-0.13	0.38	-0.20	-0.16	0.5
P	L	218589	SR	0.31	0.14	0.08	0.14	-0.13	-0.09	0.7
P	L	214713	SR	0.37	0.25	0.25	-0.07	-0.19	-0.03	0.8
P	L	214714	SR	0.46	0.25	-0.14	0.25	-0.05	-0.16	0.8
P	L	214715	SR	0.43	0.44	-0.12	-0.25	-0.16	0.44	1.0
P	L	214716	SR	0.31	0.31	0.31	-0.12	-0.08	-0.12	1.2
P	L	256291	SR	0.24	0.24	-0.05	-0.11	-0.06	0.24	1.2
P	L	130276	SR	0.33	0.14	0.01	-0.03	0.14	-0.17	1.4
P	L	130140	SR	0.26	0.23	-0.03	-0.03	-0.17	0.23	1.5
P	L	96222	SR	0.30	0.16	-0.08	-0.08	0.16	0.01	1.8
P	O	214660	SR	0.49	0.29	0.29	-0.15	-0.15	-0.07	0.4
P	O	214661	SR	0.53	0.25	-0.09	-0.11	0.25	-0.13	0.4
P	O	214662	SR	0.32	0.20	-0.05	-0.05	0.20	-0.12	0.4
P	L	169248	SR	0.37	0.39	-0.15	-0.15	-0.17	0.39	0.5

**Table 1.A33** Item Statistics, Operational Items: MD HSA English–Summer 2009 Primary 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
P	L	169250	SR	0.58	0.43	-0.16	-0.24	-0.21	0.43	0.3
P	L	169258	SR	0.68	0.35	0.35	-0.28	-0.08	-0.19	0.3
P	L	169254	SR	0.34	0.32	0.32	-0.04	-0.18	-0.14	0.3
P	L	169257	SR	0.47	0.39	-0.10	-0.23	-0.18	0.39	0.3
P	L	169249	SR	0.35	0.29	-0.04	0.29	-0.15	-0.18	0.3
P	L	169251	SR	0.53	0.33	-0.13	-0.25	0.33	-0.14	0.3
P	L	169252	SR	0.36	0.24	-0.09	-0.10	-0.09	0.24	0.5
P	L	169256	SR	0.64	0.46	-0.22	0.46	-0.23	-0.22	0.3
P	L	169260	SR	0.60	0.47	-0.21	-0.22	-0.24	0.47	0.3
P	O	214684	SR	0.53	0.35	-0.14	0.35	-0.21	-0.11	0.4
P	O	214685	SR	0.53	0.31	-0.03	0.31	-0.24	-0.15	0.5
P	O	214687	SR	0.37	0.22	-0.17	0.22	-0.16	0.07	0.4
P	O	256287	SR	0.68	0.36	-0.22	-0.17	0.36	-0.14	0.5
P	O	214688	SR	0.37	0.26	-0.09	-0.05	0.26	-0.17	0.4
P	O	214690	SR	0.48	0.32	-0.15	0.32	-0.19	-0.07	0.4
P	O	109126	SR	0.42	0.28	-0.14	-0.19	-0.04	0.28	0.5
P	O	109127	SR	0.45	0.30	-0.14	0.30	-0.14	-0.08	0.4
<b>Mean</b>				0.47	0.31	-0.06	-0.01	-0.04	0.01	0.5
<b>SD</b>				0.15	0.09	0.17	0.23	0.20	0.22	0.4

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A34** Item Statistics, Operational Items: MD HSA English–Summer 2009 Primary 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Q	O	96238	SR	0.63	0.36	-0.20	-0.16	-0.17	0.36	0.0
Q	O	96240	SR	0.72	0.34	-0.18	-0.18	-0.17	0.34	0.3
Q	O	96241	SR	0.62	0.32	-0.17	0.32	-0.21	-0.10	0.3
Q	O	96242	SR	0.67	0.23	-0.21	0.23	-0.13	0.01	0.0
Q	O	96243	SR	0.53	0.24	-0.03	-0.17	0.24	-0.18	0.0
Q	O	96244	SR	0.20	0.21	0.00	0.21	-0.21	-0.02	0.3
Q	O	256437	SR	0.63	0.35	-0.28	-0.05	-0.15	0.35	0.5
Q	O	256439	SR	0.75	0.41	-0.27	-0.18	0.41	-0.21	0.0
Q	O	256438	SR	0.50	0.26	0.26	-0.15	-0.14	-0.06	0.0
Q	L	251157	SR	0.65	0.43	-0.20	-0.26	-0.18	0.43	0.4
Q	L	256300	SR	0.66	0.43	-0.20	0.43	-0.23	-0.21	0.4
Q	L	251145	SR	0.56	0.32	-0.17	0.32	-0.11	-0.17	0.9
Q	O	130043	SR	0.44	0.33	-0.12	-0.25	-0.05	0.33	1.0
Q	O	130044	SR	0.29	0.26	-0.14	-0.21	0.03	0.26	0.8
Q	O	130047	SR	0.71	0.31	-0.12	0.31	-0.22	-0.12	0.3
Q	O	130045	SR	0.63	0.34	-0.12	-0.18	0.34	-0.20	0.5
Q	L	169262	SR	0.39	0.26	0.26	-0.17	-0.03	-0.13	0.3
Q	L	169269	SR	0.49	0.31	-0.12	-0.23	0.31	-0.09	0.3
Q	L	169264	SR	0.72	0.43	-0.24	0.43	-0.23	-0.17	0.3
Q	L	169267	SR	0.23	0.12	-0.07	0.12	-0.21	0.11	0.2
Q	L	169266	SR	0.57	0.35	-0.16	-0.24	0.35	-0.09	0.3
Q	L	169268	SR	0.68	0.40	-0.20	-0.21	0.40	-0.19	0.3
Q	L	169270	SR	0.33	0.20	-0.10	-0.13	-0.01	0.20	0.3
Q	L	243346	SR	0.33	0.27	-0.06	-0.20	-0.04	0.27	0.3
Q	L	243345	SR	0.39	0.29	-0.14	0.29	-0.12	-0.07	0.5
Q	L	218587	SR	0.29	0.33	-0.15	-0.07	-0.12	0.33	0.6
Q	L	251071	SR	0.41	0.42	0.42	-0.16	-0.23	-0.12	0.6
Q	L	218582	SR	0.32	0.32	-0.11	-0.08	-0.19	0.32	0.8
Q	L	218583	SR	0.34	0.36	-0.11	0.36	-0.19	-0.08	0.8
Q	L	218584	SR	0.50	0.38	-0.13	0.38	-0.20	-0.16	0.5
Q	L	218589	SR	0.31	0.14	0.08	0.14	-0.13	-0.09	0.7
Q	L	214713	SR	0.37	0.25	0.25	-0.07	-0.19	-0.03	0.8
Q	L	214714	SR	0.46	0.25	-0.14	0.25	-0.05	-0.16	0.8
Q	L	214715	SR	0.43	0.44	-0.12	-0.25	-0.16	0.44	1.0
Q	L	214716	SR	0.31	0.31	0.31	-0.12	-0.08	-0.12	1.2
Q	L	256291	SR	0.24	0.24	-0.05	-0.11	-0.06	0.24	1.2
Q	L	130276	SR	0.33	0.14	0.01	-0.03	0.14	-0.17	1.4
Q	L	130140	SR	0.26	0.23	-0.03	-0.03	-0.17	0.23	1.5
Q	L	96222	SR	0.30	0.16	-0.08	-0.08	0.16	0.01	1.8
Q	O	256275	SR	0.47	0.37	-0.21	0.37	-0.26	-0.03	0.0
Q	O	256276	SR	0.79	0.45	-0.19	-0.27	0.45	-0.26	0.0
Q	O	256277	SR	0.66	0.44	-0.17	-0.24	-0.27	0.44	0.0
Q	L	169248	SR	0.37	0.39	-0.15	-0.15	-0.17	0.39	0.5

**Table 1.A34** Item Statistics, Operational Items: MD HSA English–Summer 2009 Primary 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Q	L	169250	SR	0.58	0.43	-0.16	-0.24	-0.21	0.43	0.3
Q	L	169258	SR	0.68	0.35	0.35	-0.28	-0.08	-0.19	0.3
Q	L	169254	SR	0.34	0.32	0.32	-0.04	-0.18	-0.14	0.3
Q	L	169257	SR	0.47	0.39	-0.10	-0.23	-0.18	0.39	0.3
Q	L	169249	SR	0.35	0.29	-0.04	0.29	-0.15	-0.18	0.3
Q	L	169251	SR	0.53	0.33	-0.13	-0.25	0.33	-0.14	0.3
Q	L	169252	SR	0.36	0.24	-0.09	-0.10	-0.09	0.24	0.5
Q	L	169256	SR	0.64	0.46	-0.22	0.46	-0.23	-0.22	0.3
Q	L	169260	SR	0.60	0.47	-0.21	-0.22	-0.24	0.47	0.3
Q	O	214705	SR	0.57	0.41	-0.26	-0.20	0.41	-0.11	0.3
Q	O	214706	SR	0.50	0.48	-0.22	-0.27	-0.14	0.48	0.3
Q	O	214707	SR	0.53	0.34	-0.17	0.34	-0.16	-0.14	0.0
Q	O	214708	SR	0.41	0.32	0.32	-0.07	-0.17	-0.18	0.0
Q	O	214709	SR	0.39	0.40	-0.20	0.40	-0.21	-0.08	0.0
Q	O	214710	SR	0.34	0.28	0.28	-0.23	-0.13	0.05	0.0
Q	O	96281	SR	0.49	0.37	-0.24	-0.12	0.37	-0.20	0.3
Q	O	96280	SR	0.69	0.41	0.41	-0.29	-0.20	-0.15	0.0
<b>Mean</b>				0.48	0.33	-0.07	-0.03	-0.06	0.04	0.4
<b>SD</b>				0.15	0.09	0.19	0.24	0.21	0.24	0.4

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A35** Item Statistics, Operational Items: MD HSA Government—Summer 2009 Primary 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
P	O	223258	SR	0.84	0.31	-0.18	-0.16	-0.19	0.31	0.0
P	O	51122	SR	0.52	0.29	-0.16	0.29	-0.16	-0.07	0.2
P	O	256368	SR	0.27	0.27	0.27	0.05	-0.27	-0.01	0.0
P	L	79635	SR	0.37	0.39	0.39	-0.22	-0.04	-0.20	0.0
P	L	223259	SR	0.28	0.14	-0.10	0.14	-0.03	0.00	0.1
P	L	50912	SR	0.27	0.40	0.40	-0.18	-0.19	-0.04	0.1
P	O	51765	SR	0.25	0.29	-0.07	0.29	-0.11	-0.11	0.2
P	O	58147	SR	0.26	0.31	0.31	-0.08	-0.10	-0.13	0.2
P	O	68032	SR	0.29	0.22	-0.06	-0.02	-0.15	0.22	0.0
P	L	55554	SR	0.30	0.29	0.29	-0.17	-0.07	-0.08	0.0
P	L	214483	SR	0.24	0.23	-0.08	-0.14	0.23	-0.04	0.2
P	L	79543	SR	0.54	0.34	-0.16	0.34	-0.14	-0.18	0.4
P	L	55549	SR	0.34	0.21	0.21	-0.13	-0.16	0.03	0.4
P	L	79610	SR	0.24	0.19	-0.09	-0.17	0.19	0.08	0.2
P	L	223257	SR	0.45	0.32	-0.08	-0.11	0.32	-0.22	0.0
P	L	55572	SR	0.33	0.18	0.12	0.18	-0.20	-0.14	0.0
P	L	137288	SR	0.59	0.31	-0.09	-0.20	0.31	-0.16	0.1
P	O	79617	SR	0.18	0.15	0.15	-0.03	0.06	-0.18	0.4
P	O	79589	SR	0.60	0.30	0.30	-0.20	-0.11	-0.11	0.6
P	L	79654	SR	0.30	0.05	0.09	0.05	-0.18	0.01	0.2
P	L	51059	SR	0.22	0.08	0.03	0.08	-0.10	-0.01	0.4
P	L	58098	SR	0.53	0.34	-0.11	-0.14	-0.22	0.34	0.4
P	L	214578	SR	0.32	0.36	-0.11	-0.18	-0.12	0.36	0.5
P	L	51231	SR	0.65	0.34	-0.21	-0.14	0.34	-0.14	0.6
P	O	256371	SR	0.32	0.32	0.32	-0.10	-0.16	-0.12	0.6
P	L	132972	SR	0.30	0.27	-0.15	-0.11	0.27	-0.02	0.9
P	L	79638	SR	0.29	0.23	0.23	-0.08	-0.15	-0.01	0.6
P	L	79701	SR	0.27	0.25	-0.09	0.25	-0.06	-0.10	0.7
P	O	55469	SR	0.38	0.22	-0.15	0.22	-0.15	0.05	0.2
P	O	68688	SR	0.36	0.21	-0.05	-0.16	0.21	-0.02	0.4
P	O	108397	SR	0.17	0.03	0.08	-0.13	0.00	0.03	0.2
P	L	51235	SR	0.36	0.27	-0.02	-0.12	0.27	-0.18	0.5
P	O	55650	SR	0.46	0.37	-0.13	-0.05	-0.26	0.37	0.4
P	L	68573	SR	0.32	0.17	0.08	0.17	-0.10	-0.16	0.4
P	L	68051	SR	0.40	0.16	0.00	-0.16	0.16	-0.03	0.7
P	L	108430	SR	0.44	0.29	-0.13	0.29	-0.18	-0.05	0.4
P	O	215815	SR	0.66	0.29	-0.12	-0.14	0.29	-0.15	0.2
P	L	256365	SR	0.18	0.16	-0.07	0.05	-0.09	0.16	0.6
P	L	51045	SR	0.26	0.36	-0.14	-0.08	-0.14	0.36	0.8
P	O	68636	SR	0.33	0.17	-0.09	-0.02	0.17	-0.07	0.4
P	O	65178	SR	0.51	0.33	-0.12	-0.17	-0.15	0.33	0.2
P	O	68579	SR	0.33	0.14	0.06	0.14	-0.09	-0.14	0.2
P	L	51721	SR	0.29	-0.01	0.11	-0.01	-0.07	-0.01	0.6

**Table 1.A35** Item Statistics, Operational Items: MD HSA Government—Summer 2009 Primary 1

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
P	L	79679	SR	0.37	0.30	-0.12	-0.12	0.30	-0.09	0.5
P	O	58409	SR	0.24	0.16	-0.12	-0.05	0.01	0.16	0.6
P	L	79737	SR	0.21	0.07	-0.11	0.07	-0.14	0.16	0.5
P	L	108350	SR	0.31	0.27	-0.14	-0.05	-0.10	0.27	0.5
P	L	137302	SR	0.25	0.15	0.15	0.03	-0.12	-0.06	0.5
P	O	55587	SR	0.60	0.35	0.35	-0.20	-0.14	-0.16	0.4
P	O	58388	SR	0.52	0.21	0.21	-0.14	-0.10	-0.03	0.4
P	L	108479	SR	0.46	0.32	-0.10	-0.16	0.32	-0.14	0.4
P	O	137284	SR	0.60	0.41	0.41	-0.21	-0.17	-0.20	0.4
P	L	79670	SR	0.24	0.24	0.24	-0.08	-0.10	-0.04	0.4
P	L	68787	SR	0.36	0.20	0.03	0.20	-0.16	-0.09	0.4
P	O	214513	SR	0.29	0.08	-0.02	-0.10	0.04	0.08	0.2
P	L	68726	SR	0.61	0.32	-0.18	0.32	-0.22	-0.05	0.5
P	O	60451	SR	0.41	0.35	-0.11	-0.17	0.35	-0.15	0.4
P	L	68023	SR	0.29	0.33	0.33	-0.13	-0.13	-0.07	0.7
P	L	79703	SR	0.59	0.41	-0.15	-0.16	-0.24	0.41	0.5
P	L	67996	SR	0.37	0.27	-0.02	-0.17	0.27	-0.11	0.6
P	O	215811	SR	0.59	0.46	-0.17	-0.19	-0.27	0.46	0.2
P	L	214481	SR	0.22	0.25	-0.18	0.25	-0.16	0.07	0.6
P	O	79572	SR	0.27	0.16	-0.02	0.05	-0.19	0.16	0.2
P	O	256364	SR	0.38	0.23	-0.12	-0.19	0.01	0.23	0.4
P	L	215809	SR	0.20	0.14	0.05	0.14	-0.08	-0.11	0.5
P	O	68009	SR	0.26	0.24	0.24	-0.13	-0.11	-0.02	0.2
P	L	214580	SR	0.38	0.28	-0.08	-0.17	0.28	-0.06	0.5
P	O	52257	SR	0.41	0.26	0.26	-0.09	-0.13	-0.10	0.4
P	L	79634	SR	0.31	0.07	-0.10	-0.20	0.07	0.18	0.5
P	L	64952	SR	0.33	-0.01	-0.03	-0.01	-0.07	0.11	0.6
P	L	52248	SR	0.38	0.20	-0.14	-0.10	0.20	0.00	0.6
P	L	214509	SR	0.29	0.27	0.27	-0.16	-0.03	-0.08	0.7
P	L	108444	SR	0.51	0.34	-0.18	0.34	-0.16	-0.11	0.5
P	O	256382	SR	0.54	0.34	-0.13	0.34	-0.18	-0.16	0.4
P	L	79746	SR	0.30	0.34	-0.01	-0.10	-0.23	0.34	0.6
P	L	65174	SR	0.21	0.14	0.14	0.13	-0.20	-0.09	0.7
P	L	256346	SR	0.25	0.14	-0.03	-0.15	0.07	0.14	0.5
P	L	108441	SR	0.52	0.39	0.39	-0.20	-0.20	-0.13	0.5
P	O	51257	SR	0.45	0.31	0.31	-0.17	-0.14	-0.07	0.6
P	L	132967	SR	0.34	0.34	-0.11	-0.15	-0.11	0.34	0.8
P	O	50848	SR	0.22	0.15	0.15	-0.07	-0.05	-0.01	0.4
P	O	256354	SR	0.48	0.31	-0.14	-0.15	-0.10	0.31	0.4
<b>Mean</b>				0.37	0.25	0.02	-0.04	-0.04	0.01	0.4
<b>SD</b>				0.14	0.10	0.18	0.16	0.17	0.17	0.2

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.A36** Item Statistics, Operational Items: MD HSA Government—Summer 2009 Primary 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Q	O	79602	SR	0.71	0.39	-0.20	0.39	-0.23	-0.16	0.3
Q	O	64962	SR	0.50	0.32	-0.17	-0.14	-0.15	0.32	0.0
Q	O	51772	SR	0.51	0.41	-0.19	-0.21	-0.15	0.41	0.0
Q	L	79635	SR	0.37	0.39	0.39	-0.22	-0.04	-0.20	0.0
Q	L	223259	SR	0.28	0.14	-0.10	0.14	-0.03	0.00	0.1
Q	L	50912	SR	0.27	0.40	0.40	-0.18	-0.19	-0.04	0.1
Q	O	79560	SR	0.22	0.24	-0.12	-0.03	-0.09	0.24	0.0
Q	O	108401	SR	0.46	0.33	-0.22	0.33	-0.12	-0.10	0.3
Q	O	68746	SR	0.58	0.38	0.38	-0.21	-0.21	-0.14	0.0
Q	L	55554	SR	0.30	0.29	0.29	-0.17	-0.07	-0.08	0.0
Q	L	214483	SR	0.24	0.23	-0.08	-0.14	0.23	-0.04	0.2
Q	L	79543	SR	0.54	0.34	-0.16	0.34	-0.14	-0.18	0.4
Q	L	55549	SR	0.34	0.21	0.21	-0.13	-0.16	0.03	0.4
Q	L	79610	SR	0.24	0.19	-0.09	-0.17	0.19	0.08	0.2
Q	L	223257	SR	0.45	0.32	-0.08	-0.11	0.32	-0.22	0.0
Q	L	55572	SR	0.33	0.18	0.12	0.18	-0.20	-0.14	0.0
Q	L	137288	SR	0.59	0.31	-0.09	-0.20	0.31	-0.16	0.1
Q	O	52201	SR	0.48	0.42	0.42	-0.17	-0.29	-0.13	0.3
Q	O	52265	SR	0.67	0.33	-0.24	0.33	-0.11	-0.15	0.3
Q	L	79654	SR	0.30	0.05	0.09	0.05	-0.18	0.01	0.2
Q	L	51059	SR	0.22	0.08	0.03	0.08	-0.10	-0.01	0.4
Q	L	58098	SR	0.53	0.34	-0.11	-0.14	-0.22	0.34	0.4
Q	L	214578	SR	0.32	0.36	-0.11	-0.18	-0.12	0.36	0.5
Q	L	51231	SR	0.65	0.34	-0.21	-0.14	0.34	-0.14	0.6
Q	O	79739	SR	0.61	0.49	0.49	-0.29	-0.22	-0.19	0.9
Q	L	132972	SR	0.30	0.27	-0.15	-0.11	0.27	-0.02	0.9
Q	L	79638	SR	0.29	0.23	0.23	-0.08	-0.15	-0.01	0.6
Q	L	79701	SR	0.27	0.25	-0.09	0.25	-0.06	-0.10	0.7
Q	O	256355	SR	0.52	0.29	-0.03	0.29	-0.22	-0.12	0.6
Q	O	55658	SR	0.42	0.28	0.28	-0.14	-0.10	-0.09	0.6
Q	O	65187	SR	0.22	0.19	0.05	-0.14	-0.07	0.19	0.6
Q	L	51235	SR	0.36	0.27	-0.02	-0.12	0.27	-0.18	0.5
Q	O	223261	SR	0.61	0.50	-0.19	-0.29	-0.21	0.50	0.6
Q	L	68573	SR	0.32	0.17	0.08	0.17	-0.10	-0.16	0.4
Q	L	68051	SR	0.40	0.16	0.00	-0.16	0.16	-0.03	0.7
Q	L	108430	SR	0.44	0.29	-0.13	0.29	-0.18	-0.05	0.4
Q	O	55649	SR	0.40	0.33	0.00	-0.22	0.33	-0.20	0.6
Q	L	256365	SR	0.18	0.16	-0.07	0.05	-0.09	0.16	0.6
Q	L	51045	SR	0.26	0.36	-0.14	-0.08	-0.14	0.36	0.8
Q	O	68054	SR	0.37	0.27	0.27	-0.13	-0.05	-0.11	0.9
Q	O	68701	SR	0.64	0.46	-0.21	-0.25	-0.18	0.46	1.2
Q	O	58304	SR	0.37	0.45	-0.12	-0.18	-0.20	0.45	0.6
Q	L	51721	SR	0.29	-0.01	0.11	-0.01	-0.07	-0.01	0.6
Q	L	79679	SR	0.37	0.30	-0.12	-0.12	0.30	-0.09	0.5



**Table 1.A36** Item Statistics, Operational Items: MD HSA Government—Summer 2009 Primary 2

Form	Anchor_Status	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Q	O	52190	SR	0.30	0.06	0.02	0.06	0.00	-0.07	0.6
Q	L	79737	SR	0.21	0.07	-0.11	0.07	-0.14	0.16	0.5
Q	L	108350	SR	0.31	0.27	-0.14	-0.05	-0.10	0.27	0.5
Q	L	137302	SR	0.25	0.15	0.15	0.03	-0.12	-0.06	0.5
Q	O	65209	SR	0.52	0.41	-0.20	-0.26	-0.12	0.41	0.6
Q	O	58251	SR	0.38	0.47	-0.28	-0.17	-0.09	0.47	0.3
Q	L	108479	SR	0.46	0.32	-0.10	-0.16	0.32	-0.14	0.4
Q	O	60448	SR	0.40	0.45	-0.07	-0.23	-0.23	0.45	0.9
Q	L	79670	SR	0.24	0.24	0.24	-0.08	-0.10	-0.04	0.4
Q	L	68787	SR	0.36	0.20	0.03	0.20	-0.16	-0.09	0.4
Q	O	79565	SR	0.45	0.28	-0.13	0.28	-0.12	-0.08	1.2
Q	L	68726	SR	0.61	0.32	-0.18	0.32	-0.22	-0.05	0.5
Q	O	68586	SR	0.50	0.37	-0.14	0.37	-0.24	-0.07	0.9
Q	L	68023	SR	0.29	0.33	0.33	-0.13	-0.13	-0.07	0.7
Q	L	79703	SR	0.59	0.41	-0.15	-0.16	-0.24	0.41	0.5
Q	L	67996	SR	0.37	0.27	-0.02	-0.17	0.27	-0.11	0.6
Q	O	52192	SR	0.62	0.53	-0.33	-0.21	0.53	-0.17	0.9
Q	L	214481	SR	0.22	0.25	-0.18	0.25	-0.16	0.07	0.6
Q	O	50925	SR	0.30	0.15	0.15	0.07	-0.22	-0.04	0.9
Q	O	256414	SR	0.60	0.48	-0.19	-0.26	-0.20	0.48	0.6
Q	L	215809	SR	0.20	0.14	0.05	0.14	-0.08	-0.11	0.5
Q	O	137280	SR	0.36	0.38	-0.16	0.38	-0.20	-0.02	1.2
Q	L	214580	SR	0.38	0.28	-0.08	-0.17	0.28	-0.06	0.5
Q	O	79642	SR	0.29	0.26	-0.24	-0.21	0.09	0.26	1.2
Q	L	79634	SR	0.31	0.07	-0.10	-0.20	0.07	0.18	0.5
Q	L	64952	SR	0.33	-0.01	-0.03	-0.01	-0.07	0.11	0.6
Q	L	52248	SR	0.38	0.20	-0.14	-0.10	0.20	0.00	0.6
Q	L	214509	SR	0.29	0.27	0.27	-0.16	-0.03	-0.08	0.7
Q	L	108444	SR	0.51	0.34	-0.18	0.34	-0.16	-0.11	0.5
Q	O	256398	SR	0.69	0.42	-0.20	-0.19	0.42	-0.20	1.2
Q	L	79746	SR	0.30	0.34	-0.01	-0.10	-0.23	0.34	0.6
Q	L	65174	SR	0.21	0.14	0.14	0.13	-0.20	-0.09	0.7
Q	L	256346	SR	0.25	0.14	-0.03	-0.15	0.07	0.14	0.5
Q	L	108441	SR	0.52	0.39	0.39	-0.20	-0.20	-0.13	0.5
Q	O	256404	SR	0.53	0.39	-0.23	-0.22	0.39	-0.05	0.9
Q	L	132967	SR	0.34	0.34	-0.11	-0.15	-0.11	0.34	0.8
Q	O	108342	SR	0.32	0.34	0.34	-0.13	-0.13	-0.08	0.9
Q	O	256344	SR	0.62	0.47	-0.21	-0.24	-0.21	0.47	0.6
<b>Mean</b>				0.40	0.29	-0.02	-0.04	-0.05	0.04	0.5
<b>SD</b>				0.14	0.12	0.19	0.19	0.20	0.21	0.3

\* Statistics not reported for sample size less than 50 (N < 50)

Note: Anchor\_Status: L=item is common across all forms in this administration, O=item is in 1 or more but not all forms in this administration; P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

## **Appendix 1B. MD HSA Classical Item Statistics: Field Test Items**

**Table 1.B1** Item Statistics, Field Test Items: MD HSA Algebra—January 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	16315	79009	SR	0.75	0.26	-0.10	-0.19	0.26	-0.09	0.3
A	16315	79049	SR	0.35	0.17	-0.05	0.17	-0.05	-0.09	1.2
A	16315	79062	SPR	<b>0.17</b>	0.39	0.39	-0.18			<b>14.3</b>
A	16315	133397	SR	0.45	0.36	0.36	-0.06	-0.21	-0.17	0.9
A	16315	133406	SPR	0.29	0.38	0.38	-0.19			<b>14.2</b>
A	16315	106636	SPR	<b>0.22</b>	0.42	0.42	-0.20			<b>11.6</b>
A	16315	79122	SR	0.48	<b>0.13</b>	-0.10	-0.02	0.13	-0.02	3.3
A	16315	106649	SR	0.39	0.33	-0.04	-0.25	0.33	-0.14	0.8
A	16315	135120	SPR	0.57	0.27	0.27	-0.15			<b>7.2</b>
A	16315	133414	SR	0.28	0.32	<b>0.06</b>	-0.14	-0.20	0.32	0.7
A	16315	106592	SR	0.31	<b>0.10</b>	-0.02	-0.04	0.10	-0.03	1.4
A	16315	133409	SPR	<b>0.08</b>	0.36	0.36	-0.06			<b>10.7</b>
A	16315	106589	SPR	0.31	0.34	0.34	-0.19			<b>10.4</b>
A	16315	106546	SR	0.37	0.25	-0.05	-0.11	-0.10	0.25	1.4
A	16315	106564	SR	0.35	<b>0.10</b>	<b>0.02</b>	0.10	-0.03	-0.07	2.0
<b>Mean</b>				0.36	0.28	0.15	-0.10	0.02	0.00	5.4
<b>SD</b>				0.16	0.11	0.21	0.12	0.19	0.17	5.4

Note: Values in bold are outside of the accepted range. Statistics for items on multiple forms are listed under the first form on which the item appeared. P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.B2** Item Statistics, Field Test Items: MD HSA Biology—January 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	14999	133455	SR	0.71	0.42	-0.21	-0.19	0.42	-0.24	0.1
A	14999	133458	SR	0.58	0.45	-0.17	-0.26	-0.23	0.45	0.1
A	14999	108570	SR	0.65	0.26	-0.17	0.26	-0.18	-0.08	0.1
A	14999	108516	SR	0.39	0.34	-0.12	0.34	-0.21	-0.08	0.3
A	14999	108573	SR	0.44	0.47	-0.19	-0.15	-0.25	0.47	0.1
A	14999	79501	SR	<b>0.23</b>	<b>-0.01</b>	-0.01	-0.07	<b>0.03</b>	<b>0.04</b>	0.3
A	14999	108626	SR	0.46	0.36	-0.27	-0.11	0.36	-0.07	0.4
A	14999	108578	SR	0.72	0.41	0.41	-0.20	-0.23	-0.17	0.3
A	14999	65064	SR	0.35	0.45	0.45	-0.30	-0.11	-0.09	0.4
A	14999	108634	SR	0.69	0.40	0.40	-0.18	-0.22	-0.18	0.4
A	14999	108637	SR	0.53	0.45	-0.15	0.45	-0.21	-0.24	0.5
A	14999	135131	SR	0.47	0.41	-0.22	-0.13	0.41	-0.17	0.6
A	14999	108522	SR	0.26	0.33	-0.10	0.33	-0.13	-0.14	0.7
A	14999	108525	SR	0.43	0.47	-0.16	-0.32	0.47	-0.08	0.8
A	14999	108513	SR	0.62	0.46	-0.20	-0.19	-0.25	0.46	0.7
A	14999	53446	SR	0.47	0.35	0.35	-0.25	-0.07	-0.15	0.6
A	14999	108500	SR	<b>0.22</b>	0.26	0.26	-0.23	-0.02	-0.02	0.6
A	14999	136113	SR	0.38	0.35	0.35	-0.12	-0.12	-0.20	0.7
A	14999	79511	SR	0.37	0.33	-0.14	-0.21	-0.03	0.33	0.7
A	14999	108575	SR	0.51	0.46	-0.21	-0.24	0.46	-0.18	0.6
A	14999	214718	SR	0.63	0.51	-0.23	-0.28	-0.21	0.51	0.6
A	14999	214720	SR	0.40	0.18	-0.15	-0.20	0.18	<b>0.09</b>	0.7
A	14999	108551	SR	0.38	0.43	-0.10	-0.19	-0.20	0.43	0.8
A	14999	79407	SR	0.67	0.52	0.52	-0.22	-0.33	-0.19	0.8
A	14999	79503	SR	0.40	0.41	-0.22	-0.16	-0.10	0.41	0.9
A	14999	79436	SR	0.51	0.51	0.51	-0.21	-0.27	-0.17	0.9
A	14999	79507	SR	0.35	0.43	0.43	-0.02	-0.24	-0.22	0.9
A	14999	108548	SR	0.37	0.19	-0.05	-0.06	0.19	-0.15	1.0
A	14999	108571	SR	0.63	0.47	-0.24	-0.23	0.47	-0.20	1.0
A	14999	65137	SR	0.39	0.43	0.43	-0.18	-0.14	-0.17	1.1
<b>Mean</b>				0.47	0.38	0.03	-0.12	-0.02	0.00	0.6
<b>SD</b>				0.14	0.11	0.28	0.20	0.26	0.26	0.3

Note: Values in bold are outside of the accepted range. Statistics for items on multiple forms are listed under the first form on which the item appeared. P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.B3** Item Statistics, Field Test Items: MD HSA English—January 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	15901	272891	SR	0.62	0.38	-0.19	0.38	-0.26	-0.11	0.3
A	15901	272953	SR	0.51	0.26	-0.09	-0.14	0.26	-0.16	0.2
A	15901	272892	SR	0.45	0.35	0.35	-0.13	-0.17	-0.14	0.6
A	15901	272893	SR	0.27	<b>0.13</b>	-0.15	<b>0.10</b>	0.13	-0.08	0.3
A	15901	272894	SR	<b>0.22</b>	0.17	-0.08	0.17	-0.02	-0.05	0.3
A	15901	272895	SR	0.59	0.37	-0.20	-0.22	0.37	-0.14	0.3
A	15901	272897	SR	0.62	0.40	-0.26	-0.18	-0.12	0.40	0.5
A	15901	272896	SR	0.74	0.32	-0.15	0.32	-0.22	-0.17	0.3
A	15901	272898	SR	0.45	0.31	-0.19	-0.19	-0.02	0.31	0.4
A	15901	251242	SR	0.59	0.32	-0.14	-0.14	0.32	-0.18	2.8
A	15901	251243	SR	0.49	0.37	-0.15	0.37	-0.19	-0.15	3.1
A	15901	251244	SR	0.48	0.29	-0.17	-0.06	0.29	-0.15	3.2
A	15901	251132	SR	0.66	0.32	-0.19	-0.16	-0.12	0.32	0.3
A	15901	251134	SR	0.58	0.28	-0.16	-0.14	0.28	-0.10	0.4
A	15901	251136	SR	0.50	0.24	0.24	-0.16	-0.07	-0.08	0.4
A	15901	251133	SR	0.88	0.35	0.35	-0.18	-0.22	-0.16	0.3
A	15901	251137	SR	0.65	0.26	0.26	-0.09	-0.15	-0.12	0.4
A	15901	251140	SR	0.38	0.22	-0.16	-0.05	-0.11	0.22	0.4
A	15901	251139	SR	0.34	0.29	0.29	-0.19	-0.05	-0.12	0.4
A	15901	251395	SR	0.27	0.31	-0.06	-0.20	-0.08	0.31	0.5
A	15901	108771	SR	0.37	0.22	-0.10	-0.04	0.22	-0.14	0.4
A	15901	108773	SR	0.58	0.35	-0.20	0.35	-0.14	-0.14	0.4
A	15901	108772	SR	0.40	<b>0.12</b>	-0.11	<b>0.01</b>	0.12	-0.03	0.7
A	15901	108770	SR	0.61	0.36	-0.21	-0.13	0.36	-0.18	0.5
A	15901	108768	SR	0.43	0.45	-0.09	-0.22	-0.25	0.45	0.4
A	15901	108769	SR	0.40	0.31	0.31	-0.12	-0.12	-0.12	0.6
<b>Mean</b>				0.50	0.30	-0.05	-0.04	0.00	-0.02	0.7
<b>SD</b>				0.15	0.08	0.20	0.20	0.21	0.20	0.9

Note: Values in bold are outside of the accepted range. Statistics for items on multiple forms are listed under the first form on which the item appeared. P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.B4** Item Statistics, Field Test Items: MD HSA Government—January 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
A	17799	302872	SR	0.35	0.47	-0.16	0.47	-0.33	-0.07	0.2
A	17799	302857	SR	0.29	0.27	-0.14	<b>0.00</b>	-0.16	0.27	0.5
A	17799	302860	SR	0.55	0.36	-0.09	-0.27	0.36	-0.14	0.5
A	17799	60463	SR	0.26	0.17	<b>0.10</b>	-0.17	0.17	-0.20	0.3
A	17799	302869	SR	0.41	0.48	-0.11	0.48	-0.33	-0.17	0.3
A	17799	302873	SR	0.49	0.27	0.27	-0.15	-0.14	-0.07	0.4
A	17799	302862	SR	0.67	0.32	-0.14	-0.17	0.32	-0.17	0.4
A	17799	302868	SR	0.64	0.43	-0.23	0.43	-0.21	-0.20	0.5
A	17799	79622	SR	0.52	0.20	-0.12	0.20	-0.18	-0.02	0.5
A	17799	302870	SR	0.46	0.21	-0.11	-0.08	0.21	-0.07	0.5
A	17799	302871	SR	0.52	0.43	-0.25	-0.15	-0.16	0.43	0.7
A	17799	302867	SR	0.58	0.27	-0.21	-0.12	0.27	-0.04	0.6
A	17799	79666	SR	0.57	0.26	-0.06	-0.16	0.26	-0.12	1.7
A	17799	214510	SR	0.40	0.48	-0.19	-0.17	-0.23	0.48	1.8
A	17799	214514	SR	0.37	0.23	0.23	-0.16	-0.02	-0.11	1.8
A	17799	79659	SR	0.58	0.44	-0.20	-0.26	0.44	-0.17	0.5
A	17799	79744	SR	0.40	0.26	0.26	-0.05	-0.14	-0.16	0.6
A	17799	79576	SR	0.53	0.54	-0.27	-0.27	-0.21	0.54	0.5
A	17799	302866	SR	0.30	0.34	0.34	-0.12	-0.13	-0.14	0.6
A	17799	302855	SR	0.63	0.37	-0.19	-0.22	0.37	-0.11	0.8
A	17799	302859	SR	0.38	0.22	-0.21	-0.09	<b>0.04</b>	0.22	1.0
A	17799	302864	SR	0.62	0.48	-0.24	-0.23	-0.22	0.48	0.6
A	17799	302865	SR	0.32	<b>0.03</b>	<b>0.00</b>	-0.18	0.03	<b>0.11</b>	0.9
A	17799	133480	SR	0.41	0.42	-0.13	0.42	-0.24	-0.12	0.7
A	17799	79611	SR	0.57	0.51	-0.21	-0.27	-0.21	0.51	1.1
A	17799	302861	SR	0.43	0.35	-0.14	-0.20	0.35	-0.06	1.3
A	17799	79595	SR	0.52	0.56	-0.22	-0.23	-0.28	0.56	1.3
A	17799	302863	SR	0.57	0.49	0.49	-0.22	-0.23	-0.21	1.5
A	17799	302858	SR	0.53	0.35	-0.21	0.35	-0.16	-0.07	1.6
A	17799	214486	SR	0.63	0.40	-0.19	0.40	-0.24	-0.13	1.7
<b>Mean</b>				0.48	0.35	-0.08	-0.04	-0.03	0.03	0.8
<b>SD</b>				0.12	0.13	0.20	0.25	0.24	0.26	0.5

Note: Values in bold are outside of the accepted range. Statistics for items on multiple forms are listed under the first form on which the item appeared. P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.B5** Item Statistics, Field Test Items: MD HSA Algebra—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C	8915	268752	SPR	0.54	0.54	0.54	-0.46			<b>5.5</b>
C	8915	260748	SR	0.49	0.36	-0.24	-0.17	0.36	-0.06	0.3
C	8915	282464	SR	0.37	0.31	-0.17	-0.16	-0.03	0.31	0.8
C	8915	263289	SPR	0.42	0.45	0.45	-0.38			4.4
C	8915	260756	SR	0.81	0.33	-0.24	0.33	-0.15	-0.10	0.8
C	8915	282466	SR	0.69	0.48	-0.23	-0.34	0.48	-0.13	0.1
C	8915	268748	SR	0.42	0.58	-0.27	-0.39	-0.07	0.58	0.2
C	8915	268821	SPR	0.45	0.56	0.56	-0.48			4.0
C	8915	268690	SR	0.37	0.41	0.41	-0.22	-0.23	-0.03	0.3
C	8915	282373	SPR	0.36	0.55	0.55	-0.48			3.1
C	8915	257108	SR	0.74	0.42	-0.26	-0.24	0.42	-0.13	0.5
C	8915	268658	SR	0.45	0.33	-0.04	-0.16	0.33	-0.20	0.4
C	8915	282311	SPR	<b>0.18</b>	0.53	0.53	-0.40			4.8
C	8915	268767	SPR	0.76	0.46	0.46	-0.41			3.9
C	8915	268733	SR	0.33	<b>0.10</b>	-0.19	0.10	-0.19	<b>0.16</b>	0.4
C	8915	282379	SR	0.64	0.51	-0.23	-0.17	-0.36	0.51	0.4
D	7083	260751	SPR	0.55	0.60	0.60	-0.54			3.1
D	7083	282303	SR	0.61	0.27	-0.23	0.27	-0.13	-0.01	0.2
D	7083	275457	SR	0.58	0.46	-0.21	-0.24	-0.21	0.46	0.6
D	7083	263286	SPR	0.32	0.52	0.52	-0.44			3.8
D	7083	268770	SR	0.63	0.54	0.54	-0.23	-0.38	-0.13	0.9
D	7083	282380	SR	0.63	0.42	-0.20	0.42	-0.24	-0.17	0.6
D	7083	282351	SR	0.43	0.34	-0.21	0.34	-0.26	-0.05	0.6
D	7083	268727	SPR	0.34	0.48	0.48	-0.40			3.9
D	7083	275469	SR	<b>0.19</b>	0.18	<b>0.13</b>	-0.19	-0.17	0.18	0.4
D	7083	282342	SPR	0.48	0.56	0.56	-0.46			<b>5.2</b>
D	7083	260770	SR	0.50	0.47	0.47	-0.23	-0.20	-0.19	0.5
D	7083	268745	SR	0.68	0.43	0.43	-0.25	-0.23	-0.15	0.4
D	7083	263287	SPR	0.40	0.56	0.56	-0.49			2.6
D	7083	268720	SPR	0.72	0.38	0.38	-0.32			3.1
D	7083	260758	SR	0.50	0.27	-0.18	-0.22	0.27	-0.01	0.4
D	7083	282310	SR	0.40	0.36	0.36	-0.26	-0.15	<b>0.00</b>	0.3
E	6927	268756	SPR	0.63	0.63	0.63	-0.57			3.6
E	6927	263285	SR	0.79	0.45	-0.18	-0.26	-0.26	0.45	0.1
E	6927	268737	SR	0.62	0.51	-0.24	0.51	-0.32	-0.17	0.4
E	6927	263290	SPR	0.46	0.57	0.57	-0.49			4.1
E	6927	263277	SR	0.46	0.38	-0.30	-0.19	0.38	<b>0.03</b>	0.9
E	6927	257146	SR	0.36	0.41	0.41	-0.02	-0.25	-0.21	0.6
E	6927	257115	SR	0.54	0.40	-0.28	-0.17	0.40	-0.17	0.4
E	6927	282323	SPR	0.42	0.55	0.55	-0.49			3.0
E	6927	257109	SR	0.38	0.20	0.20	-0.20	<b>0.01</b>	-0.05	0.4
E	6927	282330	SPR	0.60	0.58	0.58	-0.51			<b>5.1</b>
E	6927	257147	SR	0.36	0.18	-0.19	-0.20	<b>0.11</b>	0.18	0.6

**Table 1.B5** Item Statistics, Field Test Items: MD HSA Algebra—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
E	6927	275461	SR	0.35	0.32	-0.18	0.32	-0.02	-0.17	0.3
E	6927	257116	SPR	0.63	0.60	0.60	-0.55			3.5
E	6927	282360	SPR	0.45	0.51	0.51	-0.43			<b>6.0</b>
E	6927	282368	SR	0.43	0.37	-0.09	-0.26	-0.13	0.37	0.4
E	6927	268753	SR	0.50	0.41	0.41	-0.23	-0.20	-0.09	0.5
F	6935	275473	SPR	0.77	0.40	0.40	-0.36			2.9
F	6935	282348	SR	<b>0.23</b>	0.27	<b>0.08</b>	-0.21	-0.21	0.27	0.6
F	6935	260773	SR	0.36	0.32	-0.09	-0.18	-0.10	0.32	0.8
F	6935	275475	SPR	0.47	0.51	0.51	-0.44			3.5
F	6935	282334	SR	0.82	0.26	-0.23	-0.05	0.26	-0.15	0.4
F	6935	260747	SR	0.26	0.35	-0.03	-0.20	-0.18	0.35	0.2
F	6935	260759	SR	0.52	0.63	-0.39	-0.27	-0.18	0.63	0.3
F	6935	275447	SPR	0.72	0.35	0.35	-0.30			3.0
F	6935	263282	SR	<b>0.21</b>	0.16	-0.14	-0.08	0.16	<b>0.03</b>	0.5
F	6935	282359	SPR	0.60	0.42	0.42	-0.37			2.3
F	6935	260772	SR	0.66	0.48	0.48	-0.26	-0.28	-0.20	0.3
F	6935	257111	SR	0.52	0.41	-0.10	-0.13	0.41	-0.29	0.2
F	6935	257128	SPR	0.75	0.36	0.36	-0.31			2.4
F	6935	268669	SPR	0.78	0.42	0.42	-0.36			2.7
F	6935	275449	SR	0.52	0.32	-0.18	0.32	-0.22	-0.09	0.2
F	6935	268696	SR	0.42	<b>0.13</b>	<b>0.10</b>	-0.25	-0.03	0.13	0.4
G	6846	257119	SPR	0.77	0.54	0.54	-0.49			3.1
G	6846	268677	SR	0.45	0.41	-0.12	-0.30	-0.08	0.41	0.3
G	6846	282383	SR	0.69	0.43	0.43	-0.20	-0.24	-0.21	0.6
G	6846	268698	SPR	0.31	0.49	0.49	-0.42			3.0
G	6846	282382	SR	0.69	0.43	-0.20	-0.25	0.43	-0.19	0.9
G	6846	260767	SR	0.43	0.18	-0.01	-0.19	0.18	-0.05	0.3
G	6846	275450	SR	0.55	0.67	-0.41	-0.27	-0.26	0.67	0.1
G	6846	275464	SPR	0.59	0.47	0.47	-0.40			3.1
G	6846	260742	SR	0.30	0.37	-0.28	0.37	-0.15	<b>0.06</b>	0.4
G	6846	282358	SPR	0.83	0.37	0.37	-0.31			2.5
G	6846	268666	SR	0.51	0.38	0.38	-0.01	-0.33	-0.30	0.4
G	6846	268766	SR	0.53	0.33	-0.01	-0.27	0.33	-0.18	0.4
G	6846	257121	SPR	0.72	0.48	0.48	-0.42			2.8
G	6846	257118	SPR	0.58	0.43	0.43	-0.36			4.1
G	6846	276433	SR	0.59	0.33	0.33	-0.20	-0.25	-0.09	0.3
G	6846	282371	SR	0.59	0.37	-0.15	-0.19	-0.17	0.37	0.4
H	6861	263294	SPR	<b>0.20</b>	0.47	0.47	-0.36			<b>10.4</b>
H	6861	268675	SR	0.53	0.24	-0.16	0.24	-0.15	-0.06	0.1
H	6861	257114	SR	0.42	0.44	-0.22	-0.20	-0.15	0.44	1.0
H	6861	263309	SPR	0.42	0.53	0.53	-0.45			4.8
H	6861	268764	SR	0.52	0.28	-0.02	0.28	-0.28	-0.12	0.7
H	6861	257124	SR	0.56	0.56	0.56	-0.23	-0.27	-0.28	0.6
H	6861	282327	SR	0.37	0.58	-0.32	-0.28	-0.08	0.58	0.3



**Table 1.B5** Item Statistics, Field Test Items: MD HSA Algebra—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
H	6861	257112	SPR	0.72	0.47	0.47	-0.43			2.5
H	6861	275446	SR	0.50	0.46	-0.22	-0.11	-0.32	0.46	0.3
H	6861	263642	SPR	0.64	0.55	0.55	-0.50			3.2
H	6861	268744	SR	0.55	0.49	0.49	-0.29	-0.11	-0.28	0.5
H	6861	268656	SR	0.85	0.41	-0.26	0.41	-0.17	-0.22	0.2
H	6861	263303	SPR	0.32	0.53	0.53	-0.47			2.6
H	6861	260750	SPR	0.61	0.57	0.57	-0.48			<b>7.0</b>
H	6861	282463	SR	<b>0.18</b>	<b>0.01</b>	<b>0.34</b>	-0.20	-0.26	0.01	0.3
H	6861	282319	SR	0.30	0.28	-0.15	-0.23	0.28	<b>0.05</b>	0.3
J	6879	260753	SPR	0.69	0.53	0.53	-0.47			3.4
J	6879	268692	SR	0.54	0.25	-0.12	0.25	-0.15	-0.06	0.4
J	6879	268716	SR	0.34	<b>0.05</b>	-0.21	-0.16	0.05	<b>0.27</b>	0.5
J	6879	268726	SPR	0.35	0.53	0.53	-0.46			3.0
J	6879	260760	SR	0.59	0.43	-0.21	-0.25	0.43	-0.13	0.6
J	6879	282378	SR	0.64	0.43	-0.18	-0.19	-0.28	0.43	0.1
J	6879	257117	SR	0.66	0.58	-0.16	0.58	-0.31	-0.37	0.3
J	6879	275452	SPR	0.74	0.41	0.41	-0.37			2.5
J	6879	282356	SR	0.86	0.45	-0.21	0.45	-0.28	-0.24	0.1
J	6879	275474	SPR	0.57	0.64	0.64	-0.54			<b>7.1</b>
J	6879	260761	SR	0.59	0.47	0.47	-0.16	-0.23	-0.28	0.4
J	6879	282353	SR	0.51	0.48	-0.16	-0.24	-0.24	0.48	0.3
J	6879	263283	SPR	0.26	0.51	0.51	-0.42			2.5
J	6879	282375	SPR	0.75	0.48	0.48	-0.43			2.4
J	6879	275482	SR	0.56	0.41	0.41	-0.10	-0.24	-0.22	0.2
J	6879	260762	SR	0.62	0.47	-0.21	-0.23	-0.24	0.47	0.4
K	6709	260752	SPR	0.72	0.54	0.54	-0.45			4.8
K	6709	268717	SR	0.44	0.40	0.40	-0.18	-0.12	-0.23	0.1
K	6709	263299	SR	0.55	0.30	-0.15	0.30	-0.19	-0.07	0.7
K	6709	282304	SPR	0.25	0.41	0.41	-0.30			<b>5.4</b>
K	6709	268732	SR	0.58	0.40	-0.24	-0.26	0.40	-0.07	0.5
K	6709	263279	SR	0.63	0.52	0.52	-0.30	-0.26	-0.18	1.1
K	6709	282363	SR	0.90	0.35	0.35	-0.17	-0.24	-0.16	0.1
K	6709	275453	SPR	0.61	0.37	0.37	-0.31			3.2
K	6709	263292	SR	0.41	0.21	-0.03	0.21	-0.14	-0.10	0.6
K	6709	275477	SPR	0.29	0.52	0.52	-0.37			<b>7.9</b>
K	6709	268736	SR	0.67	0.51	0.51	-0.22	-0.31	-0.25	0.5
K	6709	282355	SR	0.62	0.45	-0.22	-0.21	-0.23	0.45	0.3
K	6709	268757	SPR	0.55	0.62	0.62	-0.55			4.1
K	6709	257155	SPR	0.69	0.49	0.49	-0.43			3.5
K	6709	275476	SR	0.77	0.42	-0.30	-0.23	0.42	-0.09	0.3
K	6709	260755	SR	0.53	0.47	-0.24	-0.25	-0.24	0.47	0.5
L	12455	260765	SPR	0.44	0.67	0.67	-0.54			<b>8.7</b>
L	12455	268768	SR	0.37	0.32	<b>0.00</b>	0.32	-0.28	-0.14	0.3
L	12455	282370	SR	0.57	0.39	-0.18	0.39	-0.22	-0.13	1.2

**Table 1.B5** Item Statistics, Field Test Items: MD HSA Algebra—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
L	12455	268739	SPR	0.29	0.53	0.53	-0.44			4.0
L	12455	268762	SR	0.42	0.46	-0.21	-0.25	0.46	-0.12	1.0
L	12455	263298	SR	0.54	0.53	0.53	-0.33	-0.30	-0.04	0.4
L	12455	268822	SR	0.69	0.57	-0.37	-0.26	0.57	-0.22	0.5
L	12455	275481	SPR	0.50	0.42	0.42	-0.35			3.3
L	12455	257136	SR	0.39	<b>0.13</b>	-0.14	0.13	-0.18	<b>0.15</b>	0.9
L	12455	275480	SPR	0.43	0.63	0.63	-0.50			<b>9.9</b>
L	12455	268664	SR	0.61	0.58	0.58	-0.26	-0.32	-0.25	0.9
L	12455	282376	SR	0.28	0.30	-0.15	-0.03	-0.13	0.30	0.6
L	12455	275441	SPR	0.31	0.53	0.53	-0.43			3.8
L	12455	263281	SPR	0.78	0.41	0.41	-0.33			3.8
L	12455	268755	SR	0.44	0.31	-0.18	-0.08	0.31	-0.19	0.5
L	12455	260743	SR	0.49	0.52	-0.25	-0.19	-0.23	0.52	0.7
M	6559	268686	SPR	0.37	0.57	0.57	-0.48			3.8
M	6559	257110	SR	0.72	0.38	-0.16	-0.32	0.38	-0.06	0.1
M	6559	260763	SR	0.67	0.58	0.58	-0.30	-0.34	-0.21	0.5
M	6559	275448	SPR	<b>0.21</b>	0.43	0.43	-0.29			<b>6.0</b>
M	6559	257122	SR	0.31	0.48	0.48	-0.27	-0.17	-0.12	0.9
M	6559	275468	SR	0.44	0.40	-0.13	-0.19	-0.18	0.40	0.3
M	6559	268769	SR	0.56	0.54	-0.22	-0.30	-0.23	0.54	0.7
M	6559	260754	SPR	0.49	0.35	0.35	-0.29			3.4
M	6559	260768	SR	0.44	0.36	0.36	-0.18	-0.12	-0.16	0.3
M	6559	268729	SPR	0.71	0.54	0.54	-0.47			2.5
M	6559	268735	SR	0.38	0.40	-0.25	-0.11	-0.16	0.40	0.5
M	6559	282366	SR	0.49	0.52	-0.22	-0.27	-0.23	0.52	0.4
M	6559	263304	SPR	0.53	0.50	0.50	-0.42			3.4
M	6559	263295	SPR	0.76	0.52	0.52	-0.45			4.4
M	6559	268763	SR	0.53	0.27	-0.10	0.27	-0.20	-0.05	0.4
M	6559	268679	SR	0.57	0.34	0.34	-0.19	-0.11	-0.17	0.4
N	6592	268721	SPR	0.38	0.53	0.53	-0.41			<b>5.2</b>
N	6592	282372	SR	0.74	0.22	0.22	-0.26	<b>0.03</b>	-0.09	0.1
N	6592	275456	SR	0.40	0.40	-0.14	-0.14	-0.21	0.40	0.8
N	6592	275460	SPR	0.68	0.50	0.50	-0.45			2.1
N	6592	282381	SR	0.61	0.50	-0.32	-0.22	-0.17	0.50	0.6
N	6592	263280	SR	0.65	0.57	-0.29	-0.27	-0.28	0.57	0.2
N	6592	263291	SR	0.44	0.32	0.32	-0.07	-0.27	-0.14	0.4
N	6592	268673	SPR	0.86	0.30	0.30	-0.25			1.8
N	6592	282361	SR	0.70	0.40	0.40	-0.21	-0.17	-0.22	0.1
N	6592	257120	SPR	0.66	0.42	0.42	-0.36			2.6
N	6592	257130	SR	0.81	0.37	-0.23	0.37	-0.17	-0.18	0.5
N	6592	282346	SR	0.63	0.44	-0.23	-0.19	-0.25	0.44	0.3
N	6592	275444	SPR	<b>0.19</b>	0.38	0.38	-0.23			<b>5.7</b>
N	6592	275439	SPR	0.53	0.36	0.36	-0.29			3.3
N	6592	268724	SR	0.41	0.30	-0.23	-0.07	0.30	-0.15	0.3

**Table 1.B5** Item Statistics, Field Test Items: MD HSA Algebra—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
N	6592	268765	SR	0.42	0.16	-0.14	-0.17	0.16	<b>0.11</b>	0.4
<b>Mean</b>				0.53	0.43	0.18	-0.22	-0.08	0.05	1.8
<b>SD</b>				0.16	0.12	0.34	0.24	0.24	0.28	2.0

Note: Values in bold are outside of the accepted range. Statistics for items on multiple forms are listed under the first form on which the item appeared. P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.B6** Item Statistics, Field Test Items: MD HSA Biology—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C	6363	296122	SR	0.72	0.29	-0.22	-0.04	0.29	-0.18	0.1
C	6363	279521	SR	0.62	0.34	<b>0.06</b>	-0.12	-0.34	0.34	0.2
C	6363	279532	SR	0.44	0.42	-0.14	-0.28	0.42	-0.12	0.3
C	6363	260077	SR	0.52	0.45	-0.20	-0.28	0.45	-0.12	0.3
C	6363	271013	SR	0.57	0.50	-0.36	-0.20	-0.12	0.50	0.1
C	6363	271014	SR	0.83	0.35	-0.22	-0.22	0.35	-0.11	0.1
C	6363	271111	SR	0.72	0.43	-0.20	-0.30	0.43	-0.14	0.3
C	6363	282461	SR	0.75	0.36	-0.15	0.36	-0.22	-0.18	0.3
C	6363	271024	SR	0.70	0.41	-0.29	0.41	-0.22	-0.09	0.1
C	11283	271022	SR	0.51	0.36	-0.15	-0.15	-0.19	0.36	0.2
C	6363	279631	SR	0.75	0.25	-0.13	-0.12	-0.15	0.25	0.1
C	6363	279637	SR	0.39	0.35	-0.05	0.35	-0.10	-0.26	0.2
C	6363	271078	SR	0.51	0.44	-0.11	0.44	-0.25	-0.24	0.2
C	6363	271081	SR	0.39	0.47	-0.11	-0.23	-0.25	0.47	0.2
C	6363	279640	SR	0.74	0.39	0.39	-0.19	-0.26	-0.15	0.3
C	6363	279560	SR	0.58	0.45	-0.25	0.45	-0.25	-0.16	0.2
C	6363	279684	SR	0.40	0.40	0.40	-0.26	-0.12	-0.10	0.3
C	6363	279561	SR	0.47	0.48	-0.20	-0.14	-0.28	0.48	0.3
C	6363	279644	SR	0.59	0.35	-0.14	0.35	-0.13	-0.24	0.2
C	6363	286615	SR	0.53	0.39	-0.16	-0.16	0.39	-0.23	0.3
C	6363	271028	SR	0.64	0.42	0.42	-0.11	-0.26	-0.25	0.3
C	6363	271019	SR	0.41	0.49	-0.16	-0.38	0.49	-0.03	0.3
C	6363	271016	SR	0.57	0.38	0.38	-0.21	-0.18	-0.14	0.3
D	5161	282415	SR	0.72	0.44	-0.20	-0.35	-0.10	0.44	0.0
D	5161	282412	SR	0.47	0.30	-0.12	-0.18	0.30	-0.09	0.1
D	5161	282410	SR	0.59	0.41	-0.17	-0.30	0.41	-0.15	0.1
D	5161	297527	SR	0.88	0.26	-0.10	-0.12	0.26	-0.20	0.0
D	5161	279849	SR	<b>0.92</b>	0.27	0.27	-0.13	-0.12	-0.20	0.0
D	5161	279534	SR	0.44	0.32	-0.12	-0.06	-0.22	0.32	0.0
D	5161	297092	SR	0.54	0.32	-0.14	-0.13	0.32	-0.16	0.3
D	5161	260076	SR	0.42	0.44	-0.15	-0.22	0.44	-0.20	0.3
D	5161	271153	SR	0.41	0.51	0.51	-0.29	-0.17	-0.16	0.1
D	5161	271159	SR	0.30	0.41	-0.15	0.41	-0.15	-0.15	0.1
D	5161	271131	SR	0.63	0.46	-0.22	-0.23	0.46	-0.22	0.2
D	5161	271106	SR	0.66	0.50	-0.22	0.50	-0.29	-0.24	0.1
D	5161	270998	SR	0.69	0.45	-0.23	-0.25	0.45	-0.21	0.1
D	10081	270996	SR	0.82	0.39	-0.16	0.39	-0.31	-0.13	0.2
D	5161	271144	SR	0.62	0.40	-0.18	-0.25	0.40	-0.13	0.2
D	5161	279594	SR	0.77	0.33	-0.18	-0.13	-0.22	0.33	0.1
D	5161	279596	SR	0.41	0.22	-0.19	0.22	-0.14	<b>0.08</b>	0.1
D	5161	279598	SR	0.67	0.28	0.28	-0.15	-0.19	-0.10	0.1
D	5161	271070	SR	0.63	0.44	0.44	-0.21	-0.22	-0.25	0.1
D	5161	297528	SR	0.32	<b>-0.19</b>	-0.08	<b>0.27</b>	-0.19	-0.04	0.2

**Table 1.B6** Item Statistics, Field Test Items: MD HSA Biology—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
D	5161	282399	SR	0.70	0.47	0.47	-0.24	-0.28	-0.22	0.2
D	5161	271001	SR	0.29	0.35	0.35	-0.19	-0.06	-0.22	0.1
D	5161	271000	SR	0.63	0.46	-0.23	0.46	-0.29	-0.14	0.2
E	5100	279696	SR	0.46	0.28	<b>0.01</b>	-0.29	0.28	-0.14	0.2
E	5100	279703	SR	0.53	0.46	-0.17	-0.30	0.46	-0.15	0.0
E	5100	279694	SR	0.57	0.31	-0.18	-0.12	-0.14	0.31	0.1
E	5100	271100	SR	0.71	0.34	-0.12	-0.26	0.34	-0.12	0.2
E	5100	271088	SR	0.40	0.35	-0.16	0.35	-0.21	-0.07	0.1
E	5100	271089	SR	0.60	0.45	0.45	-0.23	-0.14	-0.26	0.1
E	5100	282423	SR	0.79	0.42	-0.20	-0.31	0.42	-0.14	0.3
E	5100	279554	SR	0.70	0.44	0.44	-0.20	-0.25	-0.23	0.3
E	5100	271095	SR	0.54	0.52	-0.16	0.52	-0.27	-0.27	0.1
E	5100	271143	SR	0.62	0.43	-0.22	-0.24	0.43	-0.16	0.2
E	5100	271125	SR	0.44	<b>-0.14</b>	<b>0.21</b>	<b>0.00</b>	-0.14	-0.10	0.1
E	5100	260079	SR	0.56	0.54	-0.29	-0.18	-0.28	0.54	0.2
E	5100	296120	SR	0.76	0.43	-0.22	0.43	-0.26	-0.20	0.2
E	5100	296119	SR	0.67	0.46	0.46	-0.21	-0.29	-0.21	0.2
E	5100	297096	SR	0.64	0.56	-0.25	-0.32	-0.25	0.56	0.3
E	5100	256514	SR	0.32	<b>0.13</b>	-0.16	<b>0.15</b>	-0.19	0.13	0.1
E	5100	256517	SR	0.87	0.30	-0.18	0.30	-0.17	-0.14	0.2
E	5100	256549	SR	0.65	0.33	0.33	-0.24	-0.15	-0.08	0.1
E	5100	279584	SR	0.59	0.52	0.52	-0.24	-0.26	-0.26	0.1
E	5100	279852	SR	0.79	0.42	-0.19	-0.27	0.42	-0.21	0.1
E	5100	279578	SR	0.44	0.40	-0.17	-0.09	0.40	-0.26	0.3
E	5100	263176	SR	<b>0.91</b>	0.30	0.30	-0.17	-0.14	-0.17	0.2
E	5100	263177	SR	0.44	0.52	-0.27	0.52	-0.24	-0.16	0.2
F	5111	270986	SR	0.36	0.28	-0.34	0.28	<b>0.06</b>	-0.07	0.1
F	5111	270990	SR	0.58	0.32	-0.21	-0.16	0.32	-0.10	0.0
F	5111	270988	SR	0.27	0.20	-0.02	-0.18	-0.11	0.20	0.0
F	5111	271115	SR	0.63	0.42	-0.22	-0.22	0.42	-0.21	0.1
F	5111	279590	SR	0.60	0.40	0.40	-0.30	-0.16	-0.09	0.1
F	5111	279853	SR	0.41	0.45	-0.30	-0.13	0.45	-0.13	0.0
F	5111	271116	SR	0.89	0.29	0.29	-0.13	-0.23	-0.10	0.2
F	5111	288201	SR	0.69	0.46	-0.18	0.46	-0.25	-0.26	0.3
F	5111	271097	SR	0.66	0.37	-0.18	-0.14	-0.26	0.37	0.1
F	5111	271098	SR	0.48	0.53	-0.32	-0.18	0.53	-0.19	0.1
F	5111	263139	SR	0.50	0.32	-0.23	0.32	-0.08	-0.24	0.1
F	5111	282425	SR	0.38	0.49	-0.07	0.49	-0.27	-0.27	0.1
F	5111	271073	SR	0.51	0.43	0.43	-0.15	-0.31	-0.15	0.1
F	5111	271076	SR	0.37	0.35	0.35	<b>0.03</b>	-0.27	-0.20	0.1
F	5111	282441	SR	0.68	0.41	0.41	-0.21	-0.22	-0.20	0.2
F	5111	271121	SR	0.62	0.43	-0.16	-0.17	0.43	-0.30	0.1
F	5111	256513	SR	<b>0.93</b>	0.24	-0.12	-0.17	-0.12	0.24	0.1
F	5111	256515	SR	0.46	0.51	-0.14	-0.37	-0.19	0.51	0.1

**Table 1.B6** Item Statistics, Field Test Items: MD HSA Biology—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
F	5111	263152	SR	0.47	0.23	0.23	<b>0.04</b>	-0.20	-0.21	0.2
F	5111	271052	SR	0.56	0.33	-0.29	0.33	-0.23	<b>0.05</b>	0.2
F	5111	279545	SR	0.56	0.44	0.44	-0.14	-0.31	-0.23	0.2
F	5111	279547	SR	0.56	0.51	-0.30	-0.27	-0.15	0.51	0.2
F	5111	279541	SR	0.55	0.32	-0.17	-0.13	0.32	-0.19	0.4
G	5102	271141	SR	0.65	0.32	-0.22	-0.19	0.32	-0.07	0.1
G	5102	271036	SR	0.72	0.36	-0.18	0.36	-0.19	-0.20	0.1
G	5102	271039	SR	0.56	0.49	0.49	-0.28	-0.28	-0.14	0.1
G	5102	263104	SR	0.42	0.35	-0.15	-0.13	-0.18	0.35	0.1
G	5102	271044	SR	0.89	0.27	-0.06	0.27	-0.22	-0.14	0.0
G	5102	271046	SR	0.27	0.22	-0.21	-0.14	<b>0.08</b>	0.22	0.1
G	5102	279604	SR	0.48	0.55	0.55	-0.24	-0.26	-0.23	0.2
G	5102	271031	SR	0.73	0.38	-0.21	-0.23	0.38	-0.16	0.3
G	5102	279605	SR	0.51	0.44	0.44	-0.26	-0.29	-0.04	0.1
G	5102	279603	SR	0.69	0.40	-0.15	-0.28	-0.22	0.40	0.0
G	5102	282438	SR	0.60	0.45	-0.27	-0.25	-0.11	0.45	0.0
G	5102	282426	SR	0.65	0.39	-0.22	-0.20	0.39	-0.15	0.0
G	5102	271091	SR	0.69	0.41	0.41	-0.27	-0.15	-0.21	0.2
G	5102	271094	SR	0.58	0.50	-0.24	-0.30	-0.19	0.50	0.2
G	5102	271058	SR	0.29	<b>0.10</b>	-0.28	<b>0.26</b>	-0.27	0.10	0.2
G	5102	297534	SR	0.61	0.31	-0.13	-0.16	0.31	-0.21	0.1
G	5102	297532	SR	0.60	0.48	-0.23	-0.25	0.48	-0.23	0.1
G	5102	297533	SR	0.64	0.37	-0.25	-0.14	-0.18	0.37	0.0
G	5102	271071	SR	0.55	0.32	-0.14	-0.22	0.32	-0.08	0.3
G	5102	271120	SR	0.62	0.36	-0.18	-0.16	0.36	-0.18	0.1
G	5102	279623	SR	0.72	0.35	-0.26	0.35	-0.16	-0.16	0.1
G	5102	263184	SR	0.71	0.40	-0.15	-0.28	0.40	-0.17	0.1
G	5102	263149	SR	0.71	0.48	-0.26	-0.30	0.48	-0.20	0.1
H	5093	279701	SR	<b>0.91</b>	0.25	-0.12	-0.09	-0.19	0.25	0.0
H	5093	279705	SR	0.77	0.28	-0.13	-0.16	0.28	-0.15	0.0
H	5093	279707	SR	0.81	0.32	-0.14	0.32	-0.22	-0.16	0.0
H	5093	279606	SR	0.32	0.17	0.17	-0.16	<b>0.06</b>	-0.11	0.1
H	5093	270991	SR	0.75	0.34	-0.11	-0.18	-0.24	0.34	0.0
H	5093	270992	SR	0.74	0.37	-0.26	-0.15	-0.15	0.37	0.1
H	5093	279690	SR	0.54	0.47	-0.21	-0.25	-0.19	0.47	0.2
H	5093	263106	SR	0.67	0.27	-0.12	0.27	-0.18	-0.13	0.2
H	5093	308455	SR	<b>0.95</b>	0.24	-0.12	-0.11	0.24	-0.17	0.0
H	5093	308456	SR	0.51	0.49	-0.17	-0.30	-0.19	0.49	0.1
H	5093	271057	SR	0.61	0.47	-0.28	-0.25	-0.15	0.47	0.0
H	5093	271104	SR	0.58	0.50	-0.24	-0.24	-0.23	0.50	0.1
H	5093	286698	SR	0.34	0.43	-0.16	-0.16	0.43	-0.17	0.1
H	5093	286699	SR	0.48	0.44	0.44	-0.34	-0.13	-0.13	0.1
H	5093	271148	SR	0.53	0.42	-0.25	-0.12	-0.22	0.42	0.2
H	5093	260068	SR	0.89	0.33	-0.16	-0.16	-0.22	0.33	0.1

**Table 1.B6** Item Statistics, Field Test Items: MD HSA Biology—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
H	5093	260069	SR	0.85	0.38	-0.21	0.38	-0.23	-0.18	0.2
H	5093	260070	SR	0.66	0.38	-0.08	-0.28	0.38	-0.20	0.1
H	5093	271030	SR	0.52	0.47	-0.21	-0.33	0.47	-0.12	0.2
H	5093	263110	SR	0.85	0.35	-0.26	0.35	-0.17	-0.11	0.1
H	5093	271114	SR	0.73	0.37	-0.25	-0.19	0.37	-0.13	0.1
H	5093	271003	SR	0.85	0.39	-0.23	-0.21	-0.20	0.39	0.2
H	5093	270999	SR	0.62	0.33	0.33	-0.27	-0.20	<b>0.02</b>	0.2
J	5027	264050	SR	0.59	0.34	-0.31	0.34	-0.10	-0.11	0.1
J	5027	264053	SR	0.78	0.46	0.46	-0.34	-0.22	-0.14	0.0
J	5027	264051	SR	0.31	0.21	-0.03	-0.12	0.21	-0.15	0.0
J	5027	271127	SR	0.69	0.38	-0.14	0.38	-0.16	-0.27	0.0
J	5027	271011	SR	<b>0.94</b>	0.24	0.24	-0.13	-0.14	-0.14	0.0
J	5027	271015	SR	<b>0.93</b>	0.20	-0.05	0.20	-0.08	-0.18	0.0
J	5027	279618	SR	0.62	0.44	-0.13	-0.27	0.44	-0.26	0.2
J	5027	282442	SR	0.62	0.45	-0.19	-0.30	0.45	-0.16	0.1
J	5027	279607	SR	0.74	0.37	-0.18	-0.22	-0.17	0.37	0.1
J	5027	279602	SR	0.72	0.42	-0.24	0.42	-0.22	-0.19	0.1
J	5027	270994	SR	0.48	0.21	-0.04	0.21	<b>0.08</b>	-0.27	0.0
J	5027	297095	SR	0.50	0.33	-0.27	0.33	-0.26	<b>0.01</b>	0.1
J	5027	271077	SR	0.38	0.26	0.26	-0.23	-0.01	-0.23	0.0
J	5027	271080	SR	0.49	0.22	-0.14	0.22	-0.03	-0.18	0.1
J	5027	271055	SR	0.76	0.43	-0.25	-0.26	0.43	-0.17	0.2
J	5027	263162	SR	0.58	0.49	-0.21	0.49	-0.22	-0.26	0.1
J	5027	263163	SR	0.68	0.20	-0.13	0.20	-0.07	-0.12	0.1
J	5027	263164	SR	0.47	0.46	-0.24	-0.23	-0.19	0.46	0.1
J	5027	271053	SR	0.80	0.40	-0.22	0.40	-0.25	-0.17	0.1
J	5027	279611	SR	0.57	0.27	-0.02	-0.16	0.27	-0.23	0.1
J	5027	282445	SR	<b>0.24</b>	0.22	-0.08	0.22	-0.09	-0.06	0.1
J	5027	271021	SR	0.63	0.42	0.42	-0.17	-0.30	-0.17	0.1
J	5027	271017	SR	0.49	0.46	-0.18	-0.22	-0.23	0.46	0.1
K	4996	282400	SR	0.52	0.47	-0.15	-0.20	-0.29	0.47	0.1
K	4996	282401	SR	0.26	0.19	-0.20	<b>0.02</b>	0.19	-0.05	0.1
K	4996	282405	SR	0.46	0.33	0.33	0.00	-0.19	-0.30	0.1
K	4996	271124	SR	0.56	0.49	-0.11	-0.35	-0.26	0.49	0.0
K	4996	279536	SR	0.75	0.38	0.38	-0.14	-0.27	-0.17	0.0
K	4996	279539	SR	0.62	0.46	-0.21	0.46	-0.28	-0.16	0.1
K	4996	271105	SR	0.51	0.47	-0.13	-0.25	-0.29	0.47	0.2
K	4996	271101	SR	0.69	0.36	-0.21	-0.11	0.36	-0.21	0.3
K	4996	263127	SR	0.30	<b>-0.03</b>	-0.21	-0.03	0.23	-0.10	0.1
K	4996	263128	SR	0.78	0.35	-0.19	-0.18	-0.18	0.35	0.1
K	4996	279678	SR	0.68	0.44	-0.17	-0.26	-0.25	0.44	0.0
K	4996	271069	SR	0.50	0.35	-0.21	-0.21	0.35	-0.09	0.1
K	4996	271150	SR	0.74	0.47	0.47	-0.22	-0.33	-0.20	0.1
K	4996	271149	SR	0.58	0.33	-0.14	-0.14	-0.21	0.33	0.1

**Table 1.B6** Item Statistics, Field Test Items: MD HSA Biology—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
K	4996	282451	SR	0.64	0.43	-0.19	0.43	-0.30	-0.18	0.2
K	4996	279593	SR	0.36	0.38	-0.22	0.38	-0.11	-0.13	0.1
K	4996	279589	SR	0.49	0.40	-0.12	-0.24	0.40	-0.18	0.1
K	4996	279591	SR	0.62	0.48	-0.23	0.48	-0.27	-0.20	0.2
K	4996	279636	SR	0.79	0.28	0.28	-0.09	-0.24	-0.14	0.1
K	4996	279639	SR	0.37	0.41	-0.10	-0.19	-0.25	0.41	0.3
K	4996	263153	SR	0.45	0.47	-0.19	-0.26	-0.17	0.47	0.1
K	4996	279570	SR	0.73	0.29	0.29	-0.22	-0.13	-0.13	0.1
K	4996	279572	SR	0.32	0.41	-0.24	-0.22	0.41	-0.05	0.1
L	4989	282392	SR	0.82	0.30	-0.16	0.30	-0.25	-0.09	0.1
L	4989	282456	SR	0.25	0.26	-0.29	0.26	<b>0.02</b>	-0.04	0.1
L	4989	282393	SR	0.89	0.32	-0.20	-0.15	0.32	-0.19	0.0
L	4989	282428	SR	<b>0.21</b>	<b>0.10</b>	<b>0.07</b>	-0.24	-0.01	0.10	0.0
L	4989	279566	SR	0.59	0.28	-0.15	-0.17	-0.07	0.28	0.1
L	4989	279568	SR	0.61	0.35	0.35	-0.17	-0.23	-0.13	0.2
L	4989	279573	SR	0.46	<b>0.08</b>	0.08	-0.28	-0.15	<b>0.21</b>	0.1
L	4989	279654	SR	0.32	0.18	-0.17	-0.05	0.18	-0.07	0.2
L	4989	279625	SR	0.64	0.32	-0.13	-0.14	0.32	-0.21	0.1
L	4989	279621	SR	0.52	0.35	-0.10	0.35	-0.20	-0.17	0.3
L	4989	271027	SR	0.55	0.38	-0.19	0.38	-0.25	-0.09	0.1
L	4989	288372	SR	0.58	0.45	0.45	-0.21	-0.27	-0.17	0.1
L	4989	271074	SR	0.51	0.38	-0.16	-0.13	-0.25	0.38	0.2
L	4989	271075	SR	0.50	0.51	-0.20	-0.31	0.51	-0.21	0.1
L	4989	271042	SR	0.48	0.54	-0.30	-0.20	-0.23	0.54	0.2
L	4989	271136	SR	0.59	0.32	-0.12	-0.18	0.32	-0.16	0.1
L	4989	271135	SR	0.43	0.43	-0.27	-0.23	-0.08	0.43	0.1
L	4989	271137	SR	0.52	0.40	-0.15	0.40	-0.24	-0.22	0.0
L	4989	271155	SR	0.69	0.18	0.18	-0.05	-0.07	-0.16	0.1
L	4989	288200	SR	0.41	0.46	-0.27	-0.13	0.46	-0.17	0.1
L	4989	260073	SR	0.67	0.44	-0.27	-0.22	-0.17	0.44	0.2
L	4989	286617	SR	0.47	0.30	-0.23	0.30	-0.03	-0.15	0.2
L	4989	288373	SR	<b>0.24</b>	0.36	<b>0.09</b>	-0.22	-0.28	0.36	0.1
M	4920	282420	SR	0.70	0.35	0.35	-0.14	-0.27	-0.10	0.1
M	4920	282388	SR	0.26	0.24	-0.08	-0.14	0.24	-0.16	0.0
M	4920	282458	SR	0.79	0.33	-0.18	-0.16	0.33	-0.19	0.0
M	4920	271107	SR	0.53	0.40	-0.17	-0.21	-0.18	0.40	0.1
M	4920	263156	SR	0.58	0.36	-0.15	0.36	-0.15	-0.29	0.1
M	4920	263161	SR	0.88	0.31	-0.14	-0.11	-0.23	0.31	0.1
M	4920	279586	SR	0.47	0.40	-0.21	-0.17	-0.16	0.40	0.3
M	4920	279612	SR	0.58	0.46	-0.25	-0.18	0.46	-0.24	0.2
M	4920	271023	SR	0.56	0.58	-0.36	-0.32	-0.12	0.58	0.1
M	4920	279652	SR	0.67	0.33	-0.05	0.33	-0.14	-0.29	0.1
M	4920	271099	SR	0.57	0.49	-0.22	-0.18	-0.33	0.49	0.2
M	4920	271147	SR	0.83	0.37	-0.15	0.37	-0.29	-0.10	0.1



**Table 1.B6** Item Statistics, Field Test Items: MD HSA Biology—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
M	4920	271029	SR	0.45	0.41	-0.29	-0.08	0.41	-0.17	0.2
M	4920	256518	SR	0.89	0.25	-0.16	0.25	-0.14	-0.12	0.0
M	4920	256519	SR	<b>0.08</b>	<b>0.04</b>	<b>0.10</b>	0.04	-0.15	-0.11	0.1
M	4920	256520	SR	0.56	0.22	-0.15	0.22	-0.13	-0.02	0.2
M	4920	297529	SR	0.58	0.53	0.53	-0.22	-0.38	-0.15	0.1
M	4920	297531	SR	0.44	0.33	-0.07	-0.29	0.33	-0.18	0.1
M	4920	271063	SR	0.42	0.24	-0.11	-0.21	-0.03	0.24	0.1
M	4920	263129	SR	0.64	0.49	-0.25	-0.27	-0.21	0.49	0.1
M	4920	263130	SR	0.42	0.29	-0.02	0.29	-0.13	-0.23	0.2
N	8488	282453	SR	0.72	0.35	0.35	-0.23	-0.17	-0.13	0.2
N	8488	282455	SR	0.76	0.45	-0.19	-0.31	0.45	-0.19	0.1
N	8488	282386	SR	0.73	0.42	-0.20	-0.21	0.42	-0.24	0.1
N	8488	279641	SR	0.74	0.29	-0.15	0.29	-0.17	-0.14	0.0
N	8488	263179	SR	0.64	0.51	-0.24	-0.24	-0.28	0.51	0.1
N	8488	263167	SR	0.48	0.53	-0.28	-0.22	0.53	-0.24	0.1
N	8488	282430	SR	0.51	0.42	-0.22	0.42	-0.23	-0.11	0.3
N	8488	279848	SR	0.28	0.18	-0.02	-0.22	0.18	<b>0.08</b>	0.3
N	8488	263180	SR	0.35	0.27	0.27	-0.06	-0.17	-0.18	0.2
N	8488	263181	SR	0.72	0.44	-0.28	-0.16	0.44	-0.22	0.2
N	8488	279653	SR	0.67	0.36	-0.17	-0.29	0.36	-0.06	0.2
N	8488	279649	SR	0.71	0.17	-0.02	0.17	-0.20	-0.14	0.2
N	8488	263119	SR	0.64	0.48	0.48	-0.17	-0.24	-0.29	0.3
N	8488	263117	SR	0.84	0.42	0.42	-0.23	-0.24	-0.20	0.4
N	8488	279657	SR	0.50	0.49	-0.24	-0.22	-0.19	0.49	0.4
N	8488	264041	SR	0.37	<b>-0.05</b>	-0.05	<b>0.25</b>	-0.21	-0.02	0.3
N	8488	264033	SR	0.37	0.35	-0.14	0.35	-0.17	-0.10	0.2
N	8488	264040	SR	0.48	0.45	-0.16	-0.17	-0.25	0.45	0.2
N	8488	279638	SR	0.47	0.32	-0.06	-0.22	-0.20	0.32	0.3
N	8488	279630	SR	0.39	0.23	0.23	-0.14	-0.21	<b>0.04</b>	0.3
N	8488	279633	SR	0.64	0.44	0.44	-0.24	-0.23	-0.20	0.3
N	8488	263151	SR	0.29	<b>0.10</b>	-0.17	0.10	<b>0.11</b>	-0.08	0.4
N	8488	263150	SR	0.58	0.53	0.53	-0.32	-0.24	-0.18	0.4
<b>Mean</b>				0.58	0.37	-0.06	-0.06	-0.03	-0.02	0.1
<b>SD</b>				0.17	0.12	0.24	0.25	0.27	0.25	0.1

Note: Values in bold are outside of the accepted range. Statistics for items on multiple forms are listed under the first form on which the item appeared. P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.B7** Item Statistics, Field Test Items: MD HSA English—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C	10217	285438	SR	0.69	0.42	0.42	-0.27	-0.21	-0.17	0.0
C	10217	285433	SR	0.72	0.30	-0.17	0.30	-0.18	-0.14	0.0
C	10217	285437	SR	0.80	0.35	-0.16	-0.25	0.35	-0.16	0.0
C	10217	285439	SR	0.61	0.46	-0.27	0.46	-0.14	-0.26	0.1
C	10217	285434	SR	0.89	0.31	-0.17	-0.21	0.31	-0.15	0.0
C	10217	285436	SR	0.84	0.29	-0.19	-0.15	-0.13	0.29	0.0
C	10217	288641	SR	0.37	0.36	-0.25	-0.18	-0.03	0.36	0.3
C	10217	288640	SR	0.76	0.42	0.42	-0.31	-0.20	-0.14	0.2
C	10217	288638	SR	0.68	0.35	-0.27	-0.14	0.35	-0.17	0.3
C	10217	288644	SR	0.66	0.23	-0.19	-0.21	0.23	-0.05	0.2
C	10217	288642	SR	0.81	0.39	-0.21	0.39	-0.23	-0.18	0.1
C	10217	288639	SR	<b>0.22</b>	<b>0.05</b>	0.05	-0.09	<b>0.11</b>	-0.15	0.2
C	10217	288643	SR	0.49	0.43	-0.25	0.43	-0.21	-0.13	0.2
C	10217	288664	SR	0.48	0.40	-0.17	-0.21	0.40	-0.18	0.2
C	10217	285544	SR	0.74	0.50	-0.26	0.50	-0.27	-0.24	0.3
C	10217	223295	SR	0.53	0.27	0.27	-0.12	-0.16	-0.08	0.2
C	10217	223296	SR	0.34	0.20	<b>0.01</b>	-0.15	-0.09	0.20	0.2
C	10217	223293	SR	0.65	0.44	-0.26	-0.22	0.44	-0.19	0.2
C	10217	223294	SR	0.58	0.43	0.43	-0.22	-0.27	-0.19	0.2
C	10217	251243	SR	0.61	0.45	-0.22	0.45	-0.23	-0.20	0.2
C	10217	251242	SR	0.69	0.42	-0.17	-0.18	0.42	-0.29	0.2
C	10217	251244	SR	0.60	0.38	-0.23	-0.13	0.38	-0.21	0.2
C	10217	251168	SR	0.52	0.21	-0.19	-0.21	<b>0.08</b>	0.21	0.5
C	10217	281432	SR	0.67	0.37	-0.24	0.37	-0.22	-0.10	0.4
C	10217	281426	SR	0.74	0.51	0.51	-0.27	-0.30	-0.20	0.4
C	10217	281425	SR	0.71	0.47	-0.19	0.47	-0.28	-0.24	0.3
C	10217	281430	SR	0.40	0.32	-0.21	-0.24	-0.03	0.32	0.3
C	10217	281428	SR	0.67	0.32	-0.16	0.32	-0.15	-0.19	0.3
C	10217	281431	SR	0.58	0.32	-0.25	-0.15	0.32	-0.09	0.5
C	10217	281433	SR	0.62	0.44	0.44	-0.17	-0.31	-0.18	0.3
C	10217	281434	SR	0.42	0.30	<b>0.09</b>	-0.26	-0.23	0.30	0.4
D	5186	273031	SR	0.78	0.31	0.31	-0.19	-0.18	-0.13	0.1
D	5186	273034	SR	0.74	0.25	-0.13	-0.17	-0.14	0.25	0.0
D	5186	273032	SR	0.31	0.19	-0.27	<b>0.08</b>	<b>0.01</b>	0.19	0.1
D	5186	273035	SR	0.52	0.37	0.37	-0.27	-0.12	-0.11	0.0
D	5186	273036	SR	0.40	0.35	0.35	-0.30	-0.07	-0.04	0.0
D	5186	273037	SR	0.78	0.38	-0.18	-0.27	0.38	-0.14	0.2
D	5186	261683	SR	0.71	0.43	-0.16	0.43	-0.28	-0.20	0.2
D	5186	261684	SR	0.80	0.47	-0.20	-0.26	-0.29	0.47	0.1
D	5186	261685	SR	0.84	0.45	-0.27	0.45	-0.23	-0.21	0.2
D	5186	261687	SR	0.85	0.42	-0.23	-0.28	0.42	-0.16	0.2
D	5186	261688	SR	0.53	0.37	0.37	-0.30	-0.25	-0.07	0.2
D	5186	261690	SR	0.55	0.23	-0.24	<b>0.01</b>	0.23	-0.20	0.2

**Table 1.B7** Item Statistics, Field Test Items: MD HSA English—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
D	5186	261691	SR	0.34	0.21	-0.17	-0.22	0.21	<b>0.05</b>	0.3
D	5186	261692	SR	0.70	0.37	-0.14	0.37	-0.25	-0.20	0.3
D	5186	285545	SR	0.83	0.48	0.48	-0.28	-0.24	-0.24	0.3
D	5186	281347	SR	0.70	0.23	-0.19	-0.20	0.23	-0.07	0.1
D	5186	281345	SR	0.81	0.40	-0.22	-0.22	-0.21	0.40	0.0
D	5186	281348	SR	0.42	0.31	-0.12	0.31	-0.14	-0.21	0.1
D	5186	281349	SR	0.84	0.29	-0.20	-0.12	0.29	-0.15	0.0
D	5186	251081	SR	0.58	0.28	-0.05	0.28	-0.22	-0.23	0.0
D	5186	251082	SR	0.67	0.51	0.51	-0.26	-0.23	-0.29	0.0
D	5186	251083	SR	0.75	0.43	-0.24	-0.19	-0.25	0.43	0.1
D	5186	209817	SR	0.82	0.38	-0.24	0.38	-0.19	-0.23	0.3
D	5186	285499	SR	0.74	0.37	-0.21	-0.20	0.37	-0.16	0.2
D	5186	285501	SR	0.76	0.45	-0.24	-0.23	-0.27	0.45	0.1
D	5186	285502	SR	0.72	0.36	-0.25	-0.24	0.36	-0.09	0.1
D	5186	285506	SR	0.41	0.41	-0.21	-0.10	-0.28	0.41	0.2
D	5186	285507	SR	0.45	0.41	0.41	-0.15	-0.26	-0.14	0.2
D	5186	285508	SR	0.33	0.22	-0.24	0.22	-0.25	<b>0.12</b>	0.3
D	5186	285509	SR	0.28	0.21	-0.19	<b>0.08</b>	-0.23	0.21	0.2
D	5186	285510	SR	0.60	0.30	0.30	-0.10	-0.23	-0.18	0.2
E	5090	257138	SR	0.36	0.31	<b>0.05</b>	0.31	-0.32	-0.09	0.0
E	5090	257142	SR	0.84	0.35	-0.14	-0.23	0.35	-0.19	0.0
E	5090	257143	SR	0.56	0.33	0.33	-0.27	-0.20	-0.02	0.1
E	5090	257139	SR	<b>0.91</b>	0.27	-0.16	-0.10	-0.19	0.27	0.0
E	5090	257140	SR	0.52	0.40	-0.08	0.40	-0.36	-0.13	0.0
E	5090	257141	SR	0.53	0.31	-0.20	-0.10	-0.15	0.31	0.0
E	5090	281350	SR	0.64	0.30	-0.16	0.30	-0.14	-0.13	0.3
E	5090	281353	SR	0.37	0.24	-0.25	-0.33	0.24	<b>0.07</b>	0.2
E	5090	281356	SR	0.64	0.33	-0.15	-0.15	0.33	-0.21	0.1
E	5090	281351	SR	0.58	0.34	-0.25	0.34	-0.14	-0.07	0.1
E	5090	281352	SR	0.46	0.34	-0.10	0.34	-0.30	-0.24	0.1
E	5090	281355	SR	0.49	0.31	0.31	-0.18	-0.18	-0.03	0.3
E	5090	281357	SR	0.83	0.47	-0.23	-0.22	-0.30	0.47	0.2
E	5090	281359	SR	0.50	0.44	0.44	-0.14	-0.21	-0.26	0.2
E	5090	285622	SR	0.71	0.40	-0.14	-0.28	-0.17	0.40	0.3
E	5090	281413	SR	0.45	0.48	-0.18	-0.24	-0.21	0.48	0.1
E	5090	281409	SR	<b>0.19</b>	<b>0.06</b>	-0.15	<b>0.21</b>	0.06	-0.25	0.1
E	5090	281406	SR	0.42	0.34	-0.15	0.34	-0.29	-0.07	0.2
E	5090	302874	SR	0.60	0.32	-0.07	0.32	-0.23	-0.21	0.1
E	5090	251078	SR	0.50	0.29	0.29	-0.12	-0.10	-0.16	0.2
E	5090	251079	SR	0.56	0.24	-0.10	-0.19	-0.13	0.24	0.1
E	5090	251080	SR	0.84	0.41	-0.22	0.41	-0.26	-0.17	0.2
E	5090	251169	SR	0.82	0.49	-0.25	-0.27	0.49	-0.25	0.5
E	5090	272938	SR	0.66	0.27	-0.16	-0.21	0.27	-0.02	0.2
E	5090	272936	SR	0.57	0.39	-0.27	0.39	-0.20	-0.11	0.3

**Table 1.B7** Item Statistics, Field Test Items: MD HSA English—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
E	5090	272939	SR	0.55	0.38	-0.22	-0.29	0.38	-0.08	0.3
E	5090	272935	SR	0.85	0.41	-0.26	0.41	-0.21	-0.18	0.3
E	5090	272932	SR	0.84	0.47	-0.19	0.47	-0.29	-0.26	0.2
E	5090	272933	SR	0.61	0.30	-0.28	-0.02	-0.22	0.30	0.3
E	5090	272930	SR	0.41	0.27	-0.17	0.27	-0.04	-0.23	0.2
E	5090	272931	SR	0.59	0.37	-0.16	-0.21	0.37	-0.13	0.2
F	5121	257149	SR	0.88	0.28	0.28	-0.21	-0.16	-0.07	0.1
F	5121	257151	SR	<b>0.95</b>	0.33	-0.19	0.33	-0.16	-0.20	0.0
F	5121	257152	SR	0.88	0.39	-0.23	-0.26	-0.16	0.39	0.0
F	5121	257154	SR	0.71	0.35	-0.10	-0.23	0.35	-0.22	0.0
F	5121	257153	SR	0.65	0.48	0.48	-0.24	-0.23	-0.29	0.0
F	5121	257150	SR	0.67	0.47	-0.28	-0.24	0.47	-0.19	0.1
F	5121	272861	SR	0.54	0.45	-0.24	-0.19	-0.23	0.45	0.2
F	5121	272862	SR	0.80	0.36	-0.19	-0.23	0.36	-0.16	0.1
F	5121	272864	SR	0.77	0.27	-0.15	-0.16	-0.12	0.27	0.2
F	5121	272865	SR	0.80	0.39	0.39	-0.17	-0.22	-0.24	0.2
F	5121	272866	SR	0.77	0.34	-0.17	0.34	-0.23	-0.19	0.1
F	5121	285599	SR	0.55	0.18	-0.26	0.18	-0.09	<b>0.04</b>	0.1
F	5121	285600	SR	0.66	0.25	-0.23	-0.25	0.25	<b>0.02</b>	0.1
F	5121	285601	SR	0.64	0.39	-0.21	-0.16	-0.27	0.39	0.1
F	5121	272875	SR	0.63	0.29	0.29	-0.12	-0.24	-0.12	0.3
F	5121	281407	SR	0.59	0.28	-0.15	-0.08	0.28	-0.20	0.1
F	5121	281414	SR	0.63	0.27	0.27	-0.21	0.00	-0.21	0.2
F	5121	281410	SR	0.79	0.30	0.30	-0.23	-0.09	-0.14	0.1
F	5121	281412	SR	0.40	0.28	<b>0.01</b>	-0.17	-0.21	0.28	0.2
F	5121	281767	SR	0.49	0.23	-0.16	-0.11	0.23	-0.09	0.1
F	5121	281766	SR	0.63	<b>0.15</b>	0.15	-0.03	-0.14	-0.05	0.0
F	5121	281765	SR	0.57	0.44	-0.17	-0.24	0.44	-0.21	0.1
F	5121	251170	SR	0.64	0.42	0.42	-0.27	-0.23	-0.12	0.4
F	5121	261668	SR	0.69	0.42	-0.21	-0.21	0.42	-0.22	0.2
F	5121	261663	SR	0.54	0.28	-0.16	0.28	-0.20	-0.07	0.3
F	5121	261664	SR	0.76	0.42	-0.25	0.42	-0.15	-0.25	0.2
F	5121	261665	SR	0.73	0.41	-0.18	-0.22	-0.25	0.41	0.2
F	5121	261667	SR	<b>0.18</b>	<b>-0.04</b>	<b>0.19</b>	-0.04	-0.04	-0.19	0.2
F	5121	288685	SR	0.35	0.20	-0.29	<b>0.03</b>	0.20	-0.17	0.5
F	5121	261669	SR	0.53	0.33	0.33	-0.32	-0.06	-0.08	0.3
F	5121	261670	SR	0.62	0.32	-0.19	0.32	-0.10	-0.24	0.3
G	5188	261656	SR	0.41	0.31	-0.17	-0.17	0.31	-0.07	0.0
G	5188	261652	SR	0.76	0.48	0.48	-0.30	-0.23	-0.24	0.0
G	5188	261653	SR	0.83	0.43	-0.21	0.43	-0.26	-0.22	0.0
G	5188	261654	SR	0.49	0.34	0.34	-0.08	-0.27	-0.11	0.1
G	5188	261655	SR	0.78	0.51	-0.30	-0.20	-0.31	0.51	0.1
G	5188	261657	SR	0.85	0.41	-0.18	0.41	-0.28	-0.20	0.1
G	5188	285455	SR	0.54	0.48	0.48	-0.24	-0.23	-0.22	0.2

**Table 1.B7** Item Statistics, Field Test Items: MD HSA English—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
G	5188	285456	SR	0.80	0.34	-0.26	0.34	-0.18	-0.08	0.1
G	5188	285462	SR	0.72	0.48	-0.22	-0.30	-0.25	0.48	0.1
G	5188	285458	SR	0.63	0.36	-0.27	0.36	-0.24	-0.03	0.1
G	5188	285457	SR	0.76	0.40	-0.17	-0.23	-0.24	0.40	0.2
G	5188	285465	SR	0.84	0.36	-0.24	-0.10	0.36	-0.24	0.2
G	5188	285463	SR	0.71	0.44	-0.20	-0.31	-0.20	0.44	0.1
G	5188	285464	SR	0.66	0.41	-0.19	0.41	-0.21	-0.23	0.2
G	5188	272868	SR	0.61	0.33	0.33	-0.13	-0.28	-0.03	0.3
G	5188	285524	SR	0.70	0.32	-0.17	-0.15	-0.19	0.32	0.1
G	5188	285526	SR	0.81	0.30	0.30	-0.07	-0.21	-0.22	0.1
G	5188	285529	SR	0.50	0.50	0.50	-0.18	-0.28	-0.25	0.2
G	5188	285531	SR	0.36	0.17	<b>0.06</b>	0.17	-0.24	-0.05	0.3
G	5188	257144	SR	0.52	0.39	-0.27	-0.13	-0.20	0.39	0.2
G	5188	257145	SR	0.64	0.33	0.33	-0.26	-0.29	-0.07	0.1
G	5188	256976	SR	0.77	0.46	0.46	-0.24	-0.27	-0.21	0.1
G	5188	209824	SR	0.53	0.34	0.34	-0.25	-0.05	-0.19	0.4
G	5188	272848	SR	0.73	0.28	0.28	-0.10	-0.19	-0.17	0.2
G	5188	272849	SR	0.77	0.42	-0.21	-0.23	0.42	-0.24	0.1
G	5188	272853	SR	0.82	0.41	-0.17	-0.25	-0.24	0.41	0.1
G	5188	272854	SR	0.33	<b>0.10</b>	0.10	-0.03	-0.15	<b>0.06</b>	0.2
G	5188	272850	SR	0.63	0.41	-0.20	-0.19	-0.21	0.41	0.2
G	5188	272852	SR	0.74	0.51	-0.30	-0.27	0.51	-0.21	0.2
G	5188	272855	SR	0.84	0.46	-0.22	0.46	-0.29	-0.22	0.1
G	5188	272856	SR	0.48	0.44	0.44	-0.12	-0.29	-0.28	0.2
H	5076	281758	SR	0.80	0.40	-0.18	0.40	-0.27	-0.19	0.0
H	5076	288693	SR	0.45	<b>0.09</b>	-0.13	-0.10	<b>0.06</b>	0.09	0.0
H	5076	288694	SR	0.81	0.39	-0.20	-0.25	-0.19	0.39	0.0
H	5076	281760	SR	0.73	0.23	-0.19	0.23	-0.10	-0.08	0.0
H	5076	281761	SR	0.61	0.17	0.17	-0.18	-0.05	-0.04	0.0
H	5076	281757	SR	0.55	<b>0.04</b>	-0.18	-0.14	0.04	<b>0.07</b>	0.0
H	5076	264670	SR	0.54	0.33	-0.19	-0.13	-0.22	0.33	0.0
H	5076	288652	SR	0.67	0.22	-0.19	-0.04	0.22	-0.24	0.0
H	5076	264668	SR	<b>0.22</b>	<b>-0.15</b>	<b>0.17</b>	-0.15	-0.03	-0.02	0.2
H	5076	264669	SR	0.43	<b>0.06</b>	<b>0.08</b>	-0.12	-0.05	0.06	0.1
H	5076	264674	SR	0.63	0.32	-0.19	-0.13	0.32	-0.17	0.1
H	5076	264675	SR	0.57	0.37	-0.07	-0.19	0.37	-0.28	0.2
H	5076	288870	SR	0.90	0.40	0.40	-0.22	-0.24	-0.20	0.1
H	5076	264672	SR	0.72	0.43	-0.15	0.43	-0.32	-0.17	0.1
H	5076	272943	SR	0.65	0.35	-0.22	0.35	-0.17	-0.12	0.3
H	5076	281334	SR	0.28	<b>0.13</b>	-0.19	<b>0.11</b>	0.13	-0.20	0.0
H	5076	281336	SR	0.35	0.16	-0.05	0.16	<b>0.03</b>	-0.19	0.0
H	5076	281338	SR	0.72	0.35	-0.12	-0.21	-0.21	0.35	0.0
H	5076	281343	SR	0.80	0.23	-0.13	0.23	-0.14	-0.13	0.1
H	5076	256268	SR	0.71	0.36	-0.17	0.36	-0.21	-0.20	0.0

**Table 1.B7** Item Statistics, Field Test Items: MD HSA English—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
H	5076	256266	SR	0.68	0.49	-0.23	-0.26	-0.25	0.49	0.1
H	5076	256267	SR	0.83	0.46	-0.24	-0.22	0.46	-0.28	0.0
H	5076	209822	SR	0.77	0.33	-0.19	0.33	-0.20	-0.15	0.3
H	5076	281386	SR	0.39	<b>0.04</b>	<b>0.15</b>	0.04	-0.24	-0.12	0.2
H	5076	281388	SR	0.66	0.49	-0.23	-0.30	-0.23	0.49	0.2
H	5076	281390	SR	0.63	0.39	-0.25	-0.24	0.39	-0.13	0.3
H	5076	281389	SR	0.62	0.30	-0.17	0.30	-0.26	-0.08	0.2
H	5076	281385	SR	0.81	0.42	-0.22	0.42	-0.27	-0.19	0.2
H	5076	281387	SR	0.85	0.38	-0.21	-0.23	0.38	-0.19	0.2
H	5076	281391	SR	0.56	0.44	-0.24	-0.19	0.44	-0.22	0.2
H	5076	281392	SR	0.73	0.38	0.38	-0.11	-0.27	-0.27	0.2
J	4993	272919	SR	0.50	0.41	-0.16	0.41	-0.06	-0.29	0.1
J	4993	273030	SR	0.46	0.41	-0.28	-0.09	-0.25	0.41	0.0
J	4993	272922	SR	0.87	0.37	-0.19	-0.23	0.37	-0.19	0.0
J	4993	272920	SR	0.47	0.22	-0.02	-0.21	-0.08	0.22	0.1
J	4993	272921	SR	0.30	0.46	<b>0.08</b>	0.46	-0.52	<b>0.01</b>	0.0
J	4993	272923	SR	0.81	0.41	-0.25	-0.13	0.41	-0.27	0.0
J	4993	318476	SR	0.79	0.27	-0.15	-0.24	0.27	-0.07	0.2
J	4993	281365	SR	0.74	0.30	-0.12	0.30	-0.19	-0.19	0.2
J	4993	281367	SR	0.63	0.30	0.30	-0.18	-0.18	-0.05	0.1
J	4993	281363	SR	0.63	0.34	-0.02	-0.17	-0.31	0.34	0.3
J	4993	281364	SR	0.66	0.30	-0.26	0.30	-0.05	-0.23	0.3
J	4993	281362	SR	0.30	0.37	-0.19	-0.25	-0.06	0.37	0.3
J	4993	281366	SR	0.40	0.41	-0.18	-0.21	-0.23	0.41	0.2
J	4993	281368	SR	0.37	0.27	-0.17	-0.09	0.27	-0.11	0.2
J	4993	272944	SR	0.66	0.50	-0.23	-0.25	-0.25	0.50	0.3
J	4993	281341	SR	0.62	0.54	-0.33	-0.21	-0.27	0.54	0.2
J	4993	281337	SR	0.51	0.41	0.41	-0.21	-0.22	-0.16	0.1
J	4993	281335	SR	0.66	0.41	-0.22	0.41	-0.18	-0.22	0.2
J	4993	281339	SR	0.53	0.29	0.29	-0.07	-0.23	-0.15	0.1
J	4993	256418	SR	0.67	0.17	0.17	<b>0.01</b>	-0.15	-0.18	0.1
J	4993	256264	SR	0.50	0.34	-0.09	-0.15	0.34	-0.20	0.2
J	4993	256265	SR	0.60	0.37	-0.19	0.37	-0.23	-0.14	0.2
J	4993	251167	SR	0.79	0.45	-0.24	-0.25	0.45	-0.22	0.5
J	4993	285447	SR	0.71	0.40	-0.10	0.40	-0.23	-0.28	0.2
J	4993	285452	SR	0.40	0.39	-0.14	-0.31	-0.01	0.39	0.2
J	4993	285441	SR	0.30	<b>0.08</b>	0.08	-0.23	-0.08	<b>0.22</b>	0.2
J	4993	285445	SR	<b>0.92</b>	0.44	-0.25	0.44	-0.24	-0.22	0.2
J	4993	285440	SR	0.55	<b>0.00</b>	-0.01	-0.07	0.00	<b>0.10</b>	0.2
J	4993	285443	SR	0.42	0.40	-0.19	-0.22	0.40	-0.12	0.2
J	4993	285446	SR	<b>0.16</b>	0.18	<b>0.09</b>	0.18	-0.03	-0.20	0.2
J	4993	285453	SR	0.72	0.46	0.46	-0.24	-0.25	-0.23	0.2
K	4902	261648	SR	0.81	0.41	-0.32	-0.13	-0.19	0.41	0.1
K	4902	261649	SR	0.69	0.43	-0.15	0.43	-0.29	-0.21	0.0

**Table 1.B7** Item Statistics, Field Test Items: MD HSA English—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
K	4902	261651	SR	0.85	0.39	-0.22	-0.20	-0.24	0.39	0.0
K	4902	261662	SR	0.82	0.38	-0.23	-0.20	0.38	-0.20	0.0
K	4902	261650	SR	0.71	0.43	-0.18	-0.22	0.43	-0.25	0.1
K	4902	261661	SR	0.41	0.25	0.25	-0.16	<b>0.01</b>	-0.19	0.1
K	4902	272836	SR	0.63	0.44	-0.29	0.44	-0.20	-0.15	0.2
K	4902	272843	SR	0.83	0.40	-0.18	-0.25	-0.21	0.40	0.2
K	4902	272838	SR	0.57	0.42	-0.14	0.42	-0.21	-0.28	0.2
K	4902	272845	SR	0.77	0.38	-0.13	-0.22	0.38	-0.25	0.1
K	4902	272839	SR	0.85	0.44	0.44	-0.29	-0.21	-0.21	0.1
K	4902	272840	SR	0.74	0.41	-0.21	-0.28	0.41	-0.15	0.4
K	4902	272844	SR	0.81	0.40	-0.24	0.40	-0.24	-0.18	0.2
K	4902	272847	SR	0.41	0.18	-0.22	-0.24	<b>0.05</b>	0.18	0.2
K	4902	272942	SR	0.84	0.49	-0.23	-0.28	-0.27	0.49	0.4
K	4902	288646	SR	0.33	0.15	-0.03	-0.02	0.15	-0.15	0.1
K	4902	288647	SR	0.46	<b>0.05</b>	-0.21	-0.13	<b>0.10</b>	0.05	0.1
K	4902	288648	SR	0.79	0.23	-0.07	0.23	-0.20	-0.13	0.1
K	4902	288650	SR	0.55	0.48	-0.21	-0.19	0.48	-0.32	0.1
K	4902	261658	SR	0.37	0.21	<b>0.03</b>	-0.18	0.21	-0.22	0.0
K	4902	261659	SR	0.76	0.42	-0.21	0.42	-0.27	-0.18	0.1
K	4902	261660	SR	0.86	0.42	0.42	-0.26	-0.24	-0.19	0.1
K	4902	251173	SR	0.77	0.51	-0.24	-0.26	-0.30	0.51	0.3
K	4902	285470	SR	0.58	0.40	-0.17	-0.18	-0.21	0.40	0.1
K	4902	285467	SR	0.45	0.37	-0.25	-0.20	-0.06	0.37	0.1
K	4902	285471	SR	0.41	0.28	-0.04	0.28	-0.27	-0.12	0.2
K	4902	285466	SR	0.68	0.46	-0.24	-0.23	0.46	-0.22	0.1
K	4902	285473	SR	0.33	0.20	-0.27	0.20	-0.03	-0.02	0.1
K	4902	285469	SR	0.59	0.40	-0.21	-0.29	-0.13	0.40	0.1
K	4902	285472	SR	0.45	0.30	-0.17	-0.25	0.30	<b>0.00</b>	0.1
K	4902	285475	SR	0.64	0.36	0.36	-0.20	-0.14	-0.19	0.1
L	4870	251229	SR	0.81	0.39	-0.27	0.39	-0.18	-0.17	0.0
L	4870	251231	SR	0.51	0.28	-0.18	-0.03	-0.16	0.28	0.1
L	4870	251232	SR	0.43	0.22	-0.10	0.22	-0.23	-0.03	0.0
L	4870	251233	SR	0.55	0.35	-0.25	-0.23	0.35	-0.05	0.1
L	4870	256290	SR	0.55	0.45	-0.10	-0.40	0.45	-0.10	0.0
L	4870	251230	SR	0.36	0.28	0.28	-0.19	-0.12	-0.01	0.0
L	4870	264682	SR	0.68	0.39	0.39	-0.21	-0.25	-0.12	0.3
L	4870	264677	SR	0.51	0.28	-0.21	<b>0.07</b>	-0.32	0.28	0.1
L	4870	264678	SR	0.46	0.35	-0.12	-0.24	0.35	-0.15	0.1
L	4870	264681	SR	0.69	0.28	0.28	-0.18	-0.24	-0.03	0.1
L	4870	264683	SR	0.52	0.38	-0.26	-0.12	0.38	-0.20	0.2
L	4870	264684	SR	0.63	0.30	-0.18	0.30	-0.21	-0.09	0.2
L	4870	288672	SR	<b>0.11</b>	<b>0.01</b>	-0.13	0.01	<b>0.17</b>	-0.17	0.2
L	4870	264685	SR	0.75	0.36	-0.15	-0.13	0.36	-0.28	0.2
L	4870	272873	SR	0.89	0.46	-0.25	0.46	-0.26	-0.25	0.4

**Table 1.B7** Item Statistics, Field Test Items: MD HSA English—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
L	4870	285518	SR	0.49	0.25	0.25	-0.25	-0.10	<b>0.04</b>	0.0
L	4870	285521	SR	0.31	0.28	-0.30	0.28	-0.19	<b>0.12</b>	0.1
L	4870	285515	SR	0.74	0.33	-0.14	-0.17	-0.24	0.33	0.1
L	4870	285523	SR	0.54	<b>0.09</b>	-0.18	0.09	<b>0.07</b>	-0.18	0.0
L	4870	256262	SR	0.37	0.16	-0.20	<b>0.08</b>	-0.19	0.16	0.0
L	4870	256417	SR	0.69	<b>0.10</b>	0.10	<b>0.05</b>	-0.11	-0.16	0.1
L	4870	256263	SR	0.70	0.40	-0.20	0.40	-0.20	-0.21	0.1
L	4870	318477	SR	0.79	0.29	0.29	-0.26	-0.24	0.00	0.4
L	4870	285478	SR	0.36	0.29	<b>0.04</b>	-0.22	-0.20	0.29	0.0
L	4870	285480	SR	0.69	0.17	<b>0.03</b>	-0.18	-0.18	0.17	0.2
L	4870	285476	SR	<b>0.20</b>	0.24	-0.04	-0.09	0.24	-0.12	0.1
L	4870	285477	SR	0.35	0.28	-0.13	-0.15	0.28	-0.03	0.1
L	4870	285481	SR	0.32	<b>0.11</b>	<b>0.12</b>	-0.12	-0.16	0.11	0.2
L	4870	285483	SR	<b>0.21</b>	<b>0.15</b>	0.15	-0.09	-0.04	<b>0.00</b>	0.2
L	4870	285486	SR	0.45	0.29	-0.25	0.29	-0.17	-0.01	0.1
L	4870	285487	SR	0.74	0.47	0.47	-0.27	-0.26	-0.23	0.2
M	4873	108752	SR	0.90	0.34	0.34	-0.24	-0.16	-0.16	0.0
M	4873	108754	SR	0.74	0.34	-0.30	-0.09	0.34	-0.10	0.1
M	4873	108757	SR	0.64	0.40	-0.10	-0.28	-0.20	0.40	0.1
M	4873	108756	SR	0.56	0.32	-0.25	0.32	-0.24	-0.02	0.0
M	4873	108753	SR	0.80	0.35	-0.16	0.35	-0.26	-0.14	0.0
M	4873	108755	SR	0.72	0.39	-0.20	-0.20	0.39	-0.23	0.1
M	4873	281323	SR	0.87	0.32	-0.19	-0.14	0.32	-0.19	0.1
M	4873	281325	SR	0.57	0.17	<b>0.04</b>	0.17	-0.21	-0.23	0.1
M	4873	281328	SR	0.35	0.21	-0.15	0.21	-0.25	<b>0.10</b>	0.1
M	4873	281331	SR	0.72	0.43	-0.24	0.43	-0.26	-0.19	0.1
M	4873	281329	SR	0.50	<b>0.13</b>	0.13	-0.29	-0.15	<b>0.12</b>	0.1
M	4873	281330	SR	0.65	0.28	-0.12	-0.21	0.28	-0.17	0.2
M	4873	281332	SR	0.41	0.46	-0.18	0.46	-0.30	-0.12	0.1
M	4873	281333	SR	0.45	0.27	0.27	-0.23	-0.15	-0.05	0.2
M	4873	272876	SR	0.78	0.46	0.46	-0.26	-0.21	-0.26	0.3
M	4873	285514	SR	0.58	0.42	-0.15	0.42	-0.15	-0.31	0.0
M	4873	285517	SR	0.76	0.40	0.40	-0.23	-0.27	-0.15	0.1
M	4873	285519	SR	0.85	0.28	0.28	-0.19	-0.06	-0.23	0.1
M	4873	285615	SR	0.58	0.53	-0.22	-0.28	-0.28	0.53	0.1
M	4873	281764	SR	0.73	0.23	-0.12	-0.13	0.23	-0.15	0.0
M	4873	281762	SR	0.58	0.38	0.38	-0.22	-0.20	-0.13	0.1
M	4873	281763	SR	0.86	0.44	-0.23	-0.24	-0.25	0.44	0.1
M	4873	318478	SR	0.65	0.41	-0.14	-0.19	-0.28	0.41	0.3
M	4873	285489	SR	0.71	0.47	0.47	-0.28	-0.22	-0.25	0.2
M	4873	285488	SR	0.82	0.45	-0.25	0.45	-0.27	-0.21	0.2
M	4873	285491	SR	0.60	0.43	0.43	-0.16	-0.27	-0.20	0.3
M	4873	285494	SR	0.61	0.51	-0.21	0.51	-0.23	-0.32	0.3
M	4873	285612	SR	0.65	0.38	-0.21	-0.25	0.38	-0.10	0.4



**Table 1.B7** Item Statistics, Field Test Items: MD HSA English—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
M	4873	285495	SR	<b>0.21</b>	<b>0.07</b>	0.07	-0.25	<b>0.20</b>	-0.16	0.3
M	4873	285492	SR	0.68	0.43	-0.32	-0.13	-0.26	0.43	0.3
M	4873	285498	SR	0.49	0.51	0.51	-0.22	-0.28	-0.20	0.3
N	4858	109131	SR	0.52	0.31	0.31	-0.22	-0.08	-0.18	0.1
N	4858	109134	SR	0.75	0.43	-0.23	0.43	-0.23	-0.22	0.0
N	4858	109135	SR	0.30	<b>0.09</b>	-0.20	<b>0.01</b>	<b>0.02</b>	0.09	0.1
N	4858	109136	SR	0.60	0.36	-0.23	-0.14	0.36	-0.21	0.1
N	4858	109133	SR	0.69	0.41	0.41	-0.29	-0.22	-0.17	0.0
N	4858	109132	SR	0.54	0.39	0.39	-0.27	-0.23	-0.06	0.0
N	4858	281393	SR	<b>0.93</b>	0.33	-0.17	-0.22	-0.16	0.33	0.1
N	4858	281398	SR	0.64	<b>0.15</b>	0.15	-0.09	-0.19	-0.02	0.0
N	4858	281403	SR	0.72	0.34	-0.19	-0.16	-0.23	0.34	0.1
N	4858	281397	SR	0.66	0.52	-0.42	0.52	-0.20	-0.16	0.1
N	4858	281396	SR	0.69	0.46	-0.22	-0.23	-0.32	0.46	0.1
N	4858	281402	SR	0.76	0.40	-0.27	-0.23	0.40	-0.17	0.1
N	4858	281404	SR	0.37	<b>0.05</b>	-0.22	0.05	<b>0.14</b>	-0.13	0.1
N	4858	281405	SR	0.74	0.32	0.32	-0.11	-0.26	-0.17	0.1
N	4858	272878	SR	0.75	0.41	-0.20	-0.25	0.41	-0.19	0.2
N	4858	285617	SR	0.28	<b>-0.10</b>	<b>0.02</b>	<b>0.19</b>	-0.10	-0.15	0.1
N	4858	285532	SR	0.65	0.42	-0.16	-0.24	-0.23	0.42	0.2
N	4858	285535	SR	0.54	0.42	-0.24	0.42	-0.22	-0.15	0.1
N	4858	285536	SR	0.70	0.47	-0.21	0.47	-0.26	-0.26	0.0
N	4858	256971	SR	0.56	0.35	0.35	-0.27	-0.27	<b>0.02</b>	0.1
N	4858	256972	SR	0.35	0.28	-0.18	0.28	-0.08	-0.26	0.1
N	4858	256973	SR	0.70	0.44	-0.28	-0.24	0.44	-0.18	0.1
N	4858	318479	SR	0.84	0.42	-0.22	-0.22	0.42	-0.23	0.7
N	4858	264686	SR	0.40	0.39	-0.25	-0.11	-0.20	0.39	0.1
N	4858	264688	SR	0.76	0.28	0.28	-0.18	-0.20	-0.09	0.1
N	4858	288678	SR	0.85	0.44	-0.27	-0.20	0.44	-0.25	0.1
N	4858	318480	SR	0.79	0.46	0.46	-0.23	-0.32	-0.18	0.1
N	4858	264690	SR	0.80	0.34	0.34	-0.22	-0.16	-0.15	0.2
N	4858	264691	SR	0.82	0.36	-0.13	0.36	-0.27	-0.15	0.2
N	4858	264692	SR	0.71	0.28	-0.09	0.28	-0.23	-0.18	0.2
N	4858	264693	SR	0.73	0.43	-0.25	-0.24	-0.21	0.43	0.2
<b>Mean</b>				0.62	0.34	-0.06	-0.04	-0.06	-0.04	0.2
<b>SD</b>				0.17	0.12	0.24	0.26	0.25	0.23	0.1

Note: Values in bold are outside of the accepted range. Statistics for items on multiple forms are listed under the first form on which the item appeared. P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses

**Table 1.B8** Item Statistics, Field Test Items: MD HSA Government—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
C	10008	283105	SR	0.63	0.48	-0.17	0.48	-0.32	-0.22	0.1
C	10008	297114	SR	0.69	0.23	-0.06	-0.17	-0.18	0.23	0.0
C	10008	283107	SR	0.77	0.45	-0.28	0.45	-0.18	-0.23	0.1
C	10008	257030	SR	0.44	0.46	-0.12	-0.24	-0.24	0.46	0.1
C	10008	271888	SR	0.81	0.43	-0.21	-0.24	0.43	-0.24	0.1
C	10008	256992	SR	0.54	0.38	0.38	-0.20	-0.23	-0.10	0.2
C	10008	279761	SR	0.62	0.51	-0.17	-0.33	0.51	-0.24	0.4
C	10008	279811	SR	0.37	0.18	-0.16	<b>0.02</b>	0.18	-0.15	0.3
C	10008	256994	SR	0.57	0.47	-0.26	-0.21	0.47	-0.20	0.1
C	10008	283114	SR	0.50	0.40	-0.14	0.40	-0.30	-0.13	0.2
C	10008	261591	SR	0.55	0.25	-0.18	-0.23	0.00	0.25	0.2
C	10008	296517	SR	<b>0.23</b>	<b>0.08</b>	-0.23	-0.06	<b>0.25</b>	0.08	0.2
C	10008	296508	SR	0.50	0.37	0.37	-0.27	-0.17	-0.08	0.2
C	10008	296509	SR	0.53	0.40	-0.10	-0.28	0.40	-0.20	0.2
C	10008	279794	SR	0.60	0.33	-0.22	-0.12	0.33	-0.22	0.3
C	10008	257002	SR	0.43	0.42	-0.22	<b>0.02</b>	0.42	-0.36	0.4
C	10008	261638	SR	0.63	0.50	0.50	-0.28	-0.28	-0.16	0.4
C	10008	271832	SR	0.71	0.49	0.49	-0.26	-0.26	-0.22	0.3
C	10008	283091	SR	0.55	0.51	-0.30	-0.24	0.51	-0.17	0.2
C	10008	296469	SR	0.46	0.30	-0.14	-0.06	0.30	-0.20	0.3
C	10008	296581	SR	0.76	0.39	-0.14	0.39	-0.27	-0.20	0.3
C	10008	257174	SR	0.72	0.51	0.51	-0.23	-0.31	-0.23	0.3
C	10008	271801	SR	0.66	0.49	-0.16	-0.29	-0.26	0.49	0.4
C	10008	297120	SR	0.48	0.24	-0.03	0.24	-0.19	-0.10	0.4
C	10008	297121	SR	<b>0.24</b>	<b>-0.08</b>	-0.11	<b>0.21</b>	-0.08	-0.06	0.4
D	5118	297134	SR	0.37	<b>0.12</b>	-0.13	-0.17	<b>0.13</b>	0.12	0.1
D	5118	297122	SR	0.31	0.45	-0.28	0.45	-0.12	-0.10	0.2
D	5118	279812	SR	<b>0.18</b>	0.24	-0.03	-0.07	0.24	-0.11	0.2
D	5118	283070	SR	0.26	<b>0.15</b>	0.15	-0.14	<b>0.00</b>	-0.12	0.2
D	5118	297133	SR	0.41	0.44	<b>0.01</b>	0.44	-0.36	-0.17	0.1
D	5118	279792	SR	0.54	<b>0.22</b>	-0.08	-0.15	-0.08	0.22	0.4
D	5118	279734	SR	0.66	0.44	0.44	-0.19	-0.19	-0.28	0.4
D	5118	279785	SR	0.52	0.26	-0.22	-0.26	0.26	<b>0.03</b>	0.3
D	5118	297428	SR	0.60	0.45	-0.23	-0.30	0.45	-0.15	0.1
D	5118	271816	SR	<b>0.17</b>	0.20	-0.06	-0.11	<b>0.00</b>	0.20	0.2
D	5118	261594	SR	0.48	0.19	-0.18	<b>0.04</b>	0.19	-0.24	0.1
D	5118	261572	SR	0.39	0.42	0.42	-0.22	-0.13	-0.19	0.2
D	5118	271800	SR	0.79	0.49	0.49	-0.26	-0.24	-0.29	0.1
D	5118	279732	SR	0.79	0.43	-0.22	-0.27	0.43	-0.19	0.2
D	5118	283109	SR	0.79	0.47	-0.23	0.47	-0.27	-0.23	0.3
D	5118	296521	SR	0.62	0.43	-0.27	-0.12	0.43	-0.22	0.3
D	5118	296522	SR	0.32	<b>0.06</b>	-0.02	0.06	-0.13	<b>0.09</b>	0.4
D	5118	271812	SR	0.46	0.43	0.43	-0.27	-0.24	-0.09	0.1

**Table 1.B8** Item Statistics, Field Test Items: MD HSA Government—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
D	5118	79700	SR	0.39	<b>0.06</b>	0.06	-0.05	-0.17	<b>0.14</b>	0.2
D	5118	257000	SR	0.40	0.34	-0.11	-0.15	0.34	-0.18	0.1
D	5118	79563	SR	0.69	0.57	-0.26	0.57	-0.39	-0.20	0.1
D	5118	257161	SR	0.39	0.40	-0.24	-0.21	-0.04	0.40	0.3
D	5118	264006	SR	0.56	0.37	-0.19	0.37	-0.16	-0.16	0.3
D	5118	257003	SR	0.39	0.28	-0.14	-0.16	-0.04	0.28	0.3
D	5118	279755	SR	0.31	0.25	-0.01	0.25	-0.16	-0.09	0.4
E	5049	297427	SR	0.65	0.34	0.34	-0.12	-0.21	-0.20	0.1
E	5049	279827	SR	0.75	0.34	-0.14	0.34	-0.18	-0.21	0.0
E	5049	257019	SR	0.43	0.52	-0.28	0.52	-0.17	-0.25	0.0
E	5049	263986	SR	0.36	0.19	-0.20	-0.08	0.19	<b>0.09</b>	0.1
E	5049	279757	SR	0.55	0.41	-0.26	-0.25	0.41	-0.02	0.1
E	5049	261597	SR	0.61	0.32	0.32	-0.08	-0.26	-0.14	0.1
E	5049	214581	SR	0.54	0.53	-0.31	-0.26	0.53	-0.14	0.2
E	5049	79628	SR	0.77	0.50	-0.22	-0.34	0.50	-0.22	0.2
E	5049	257156	SR	0.49	0.50	-0.24	-0.25	0.50	-0.19	0.1
E	5049	271796	SR	0.81	0.37	-0.21	-0.23	0.37	-0.18	0.1
E	5049	283083	SR	0.74	0.43	-0.24	-0.23	0.43	-0.21	0.2
E	5049	279739	SR	0.88	0.43	-0.24	0.43	-0.22	-0.23	0.1
E	5049	279793	SR	0.48	0.27	-0.20	-0.25	-0.09	0.27	0.2
E	5049	296470	SR	0.74	0.47	-0.23	-0.33	0.47	-0.18	0.2
E	5049	296519	SR	0.80	0.50	-0.22	-0.30	-0.26	0.50	0.2
E	5049	296520	SR	0.34	0.17	-0.18	-0.01	-0.04	0.17	0.2
E	5049	283094	SR	0.65	0.41	-0.15	0.41	-0.27	-0.21	0.2
E	5049	283117	SR	0.41	0.28	-0.16	-0.22	-0.04	0.28	0.2
E	5049	271830	SR	0.67	0.53	-0.22	-0.31	-0.27	0.53	0.1
E	5049	279738	SR	0.88	0.40	-0.18	-0.26	0.40	-0.22	0.1
E	5049	297431	SR	0.72	0.42	-0.23	0.42	-0.17	-0.25	0.1
E	5049	297117	SR	<b>0.11</b>	0.19	-0.01	-0.09	-0.02	0.19	0.1
E	5049	297118	SR	0.34	0.30	0.30	-0.28	-0.25	<b>0.13</b>	0.1
E	5049	279786	SR	0.55	0.46	-0.16	0.46	-0.29	-0.21	0.2
E	5049	283118	SR	0.34	0.28	<b>0.01</b>	0.28	-0.29	-0.08	0.2
F	5003	296478	SR	0.86	0.37	-0.19	0.37	-0.19	-0.24	0.0
F	5003	279832	SR	0.67	0.48	0.48	-0.24	-0.21	-0.28	0.1
F	5003	271826	SR	0.88	0.39	-0.22	0.39	-0.23	-0.19	0.1
F	5003	263977	SR	0.32	0.44	-0.15	-0.27	-0.12	0.44	0.0
F	5003	263985	SR	0.47	0.41	-0.15	0.41	-0.25	-0.13	0.1
F	5003	261570	SR	0.85	0.43	-0.24	-0.23	-0.24	0.43	0.0
F	5003	279746	SR	0.69	0.45	-0.20	0.45	-0.26	-0.24	0.1
F	5003	257014	SR	0.44	<b>0.13</b>	<b>0.06</b>	-0.10	0.13	-0.16	0.4
F	5003	296582	SR	0.57	0.40	-0.18	-0.20	-0.17	0.40	0.2
F	5003	279788	SR	0.39	0.26	0.26	-0.03	-0.25	-0.14	0.3
F	5003	297128	SR	0.69	0.46	-0.23	-0.29	-0.18	0.46	0.1
F	5003	297127	SR	0.53	0.33	-0.21	-0.12	0.33	-0.26	0.1

**Table 1.B8** Item Statistics, Field Test Items: MD HSA Government—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
F	5003	279822	SR	0.44	0.26	0.26	-0.18	-0.06	-0.19	0.1
F	5003	297433	SR	0.76	0.49	-0.24	-0.24	0.49	-0.29	0.1
F	5003	271824	SR	0.75	0.43	-0.28	-0.26	-0.17	0.43	0.2
F	5003	261601	SR	0.63	0.44	-0.21	-0.23	0.44	-0.21	0.2
F	5003	279784	SR	0.53	0.36	-0.17	-0.24	-0.12	0.36	0.2
F	5003	257004	SR	0.49	0.44	-0.18	-0.01	0.44	-0.43	0.1
F	5003	296468	SR	0.81	0.48	-0.26	-0.30	0.48	-0.20	0.1
F	5003	279796	SR	0.73	0.43	-0.21	0.43	-0.28	-0.21	0.2
F	5003	257162	SR	0.62	0.41	-0.19	-0.18	0.41	-0.23	0.2
F	5003	296523	SR	0.46	0.45	-0.12	-0.21	-0.26	0.45	0.3
F	5003	296524	SR	0.30	<b>0.14</b>	-0.07	<b>0.01</b>	-0.09	0.14	0.4
F	5003	257020	SR	0.44	0.44	-0.18	-0.20	-0.23	0.44	0.3
F	5003	283363	SR	0.69	0.53	-0.26	-0.30	0.53	-0.23	0.4
G	5005	283124	SR	0.68	0.49	0.49	-0.21	-0.27	-0.27	0.0
G	5005	296477	SR	0.58	0.41	0.41	-0.20	-0.26	-0.15	0.1
G	5005	296117	SR	0.45	0.23	-0.16	0.23	-0.04	-0.10	0.1
G	5005	296118	SR	0.32	0.37	-0.18	-0.13	-0.10	0.37	0.1
G	5005	297131	SR	0.82	0.31	-0.14	0.31	-0.18	-0.20	0.1
G	5005	271835	SR	0.74	0.35	-0.12	0.35	-0.28	-0.11	0.2
G	5005	257021	SR	0.57	0.50	0.50	-0.24	-0.14	-0.32	0.1
G	5005	279844	SR	0.69	0.45	-0.22	0.45	-0.25	-0.22	0.2
G	5005	283073	SR	0.87	0.36	-0.15	-0.18	-0.26	0.36	0.1
G	5005	271833	SR	0.31	0.27	-0.43	0.27	<b>0.01</b>	<b>0.10</b>	0.1
G	5005	283268	SR	0.76	0.32	-0.20	0.32	-0.28	-0.07	0.0
G	5005	261576	SR	0.44	0.21	-0.17	-0.12	<b>0.01</b>	0.21	0.1
G	5005	263975	SR	<b>0.23</b>	<b>-0.01</b>	-0.01	-0.26	<b>0.18</b>	-0.09	0.1
G	5005	279833	SR	0.69	0.50	-0.28	0.50	-0.25	-0.24	0.1
G	5005	297123	SR	0.76	0.44	-0.21	0.44	-0.28	-0.19	0.1
G	5005	261578	SR	0.47	0.41	-0.22	-0.17	-0.16	0.41	0.2
G	5005	261606	SR	0.88	0.41	0.41	-0.20	-0.24	-0.23	0.2
G	5005	297126	SR	0.41	0.31	-0.18	0.31	-0.19	-0.01	0.1
G	5005	297125	SR	0.39	0.31	0.31	-0.19	-0.19	<b>0.00</b>	0.1
G	5005	257023	SR	0.70	0.36	0.36	-0.23	-0.17	-0.14	0.1
G	5005	296499	SR	0.64	0.53	0.53	-0.25	-0.30	-0.24	0.1
G	5005	283111	SR	0.53	0.46	-0.23	0.46	-0.19	-0.23	0.1
G	5005	296507	SR	0.79	0.30	-0.19	-0.15	0.30	-0.18	0.1
G	5005	279758	SR	0.37	0.39	-0.26	-0.09	-0.21	0.39	0.2
G	5005	297130	SR	0.87	0.43	-0.23	-0.28	0.43	-0.19	0.2
H	5035	283075	SR	0.33	<b>0.11</b>	0.11	-0.06	<b>0.11</b>	-0.25	0.2
H	5035	263983	SR	0.58	0.30	0.30	-0.27	-0.07	-0.08	0.1
H	5035	279797	SR	0.44	0.29	0.29	-0.17	-0.18	-0.19	0.0
H	5035	283098	SR	0.67	0.51	0.51	-0.27	-0.25	-0.24	0.3
H	5035	296476	SR	0.89	0.27	-0.12	-0.14	0.27	-0.18	0.1
H	5035	261582	SR	0.90	0.36	0.36	-0.21	-0.21	-0.18	0.1

**Table 1.B8** Item Statistics, Field Test Items: MD HSA Government—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
H	5035	296490	SR	0.60	0.40	0.40	-0.15	-0.29	-0.20	0.3
H	5035	296491	SR	0.76	0.42	0.42	-0.26	-0.24	-0.16	0.2
H	5035	283122	SR	0.82	0.42	-0.30	0.42	-0.20	-0.17	0.1
H	5035	256998	SR	0.61	0.44	-0.16	-0.27	0.44	-0.25	0.1
H	5035	297432	SR	0.80	0.28	-0.18	0.28	-0.20	-0.07	0.1
H	5035	257172	SR	0.60	0.42	-0.23	-0.18	0.42	-0.21	0.1
H	5035	283286	SR	0.55	0.40	0.40	-0.27	-0.12	-0.21	0.1
H	5035	283072	SR	<b>0.24</b>	0.19	0.19	<b>0.07</b>	-0.14	-0.26	0.1
H	5035	297438	SR	0.79	0.41	-0.23	-0.21	0.41	-0.24	0.1
H	5035	283273	SR	0.76	0.54	-0.32	-0.27	-0.25	0.54	0.1
H	5035	283281	SR	0.46	0.33	-0.09	0.33	-0.24	-0.07	0.1
H	5035	296514	SR	0.69	0.41	-0.19	0.41	-0.30	-0.18	0.1
H	5035	296515	SR	0.45	0.27	-0.01	-0.06	-0.28	0.27	0.1
H	5035	297129	SR	0.73	0.40	-0.28	-0.21	0.40	-0.12	0.1
H	5035	271798	SR	0.46	0.34	-0.18	-0.10	0.34	-0.17	0.2
H	5035	279821	SR	0.65	0.48	-0.21	-0.30	0.48	-0.20	0.2
H	5035	261595	SR	0.60	0.50	-0.27	-0.22	-0.25	0.50	0.1
H	5035	257011	SR	<b>0.91</b>	0.37	0.37	-0.23	-0.20	-0.17	0.1
H	5035	283278	SR	0.25	<b>0.04</b>	<b>0.04</b>	<b>0.07</b>	0.04	-0.23	0.3
J	5043	279841	SR	0.66	0.46	-0.16	-0.29	-0.23	0.46	0.1
J	5043	283097	SR	<b>0.94</b>	0.31	0.31	-0.19	-0.19	-0.13	0.0
J	5043	261575	SR	0.70	0.44	-0.19	0.44	-0.28	-0.21	0.1
J	5043	263979	SR	0.60	0.41	-0.17	-0.25	0.41	-0.23	0.1
J	5043	283092	SR	0.65	0.42	-0.23	-0.29	0.42	-0.15	0.1
J	5043	279809	SR	0.25	<b>0.14</b>	-0.07	<b>0.04</b>	-0.08	0.14	0.1
J	5043	296502	SR	0.74	0.51	-0.32	-0.29	-0.18	0.51	0.1
J	5043	296503	SR	0.85	0.46	0.46	-0.28	-0.25	-0.22	0.1
J	5043	296473	SR	0.70	0.29	0.29	-0.11	-0.21	-0.13	0.1
J	5043	279798	SR	0.28	0.25	-0.15	-0.16	0.25	-0.03	0.2
J	5043	297436	SR	<b>0.19</b>	<b>0.03</b>	<b>0.25</b>	0.03	-0.16	-0.22	0.2
J	5043	297151	SR	0.84	0.46	0.46	-0.26	-0.24	-0.25	0.1
J	5043	257018	SR	0.76	0.40	-0.31	-0.16	0.40	-0.15	0.1
J	5043	261587	SR	0.89	0.42	-0.25	0.42	-0.20	-0.24	0.1
J	5043	263970	SR	<b>0.17</b>	0.23	-0.02	0.23	-0.27	<b>0.06</b>	0.2
J	5043	282257	SR	0.73	0.49	0.49	-0.25	-0.29	-0.21	0.2
J	5043	283285	SR	0.59	0.42	-0.22	-0.20	-0.19	0.42	0.2
J	5043	271797	SR	0.48	0.25	-0.16	-0.11	-0.08	0.25	0.2
J	5043	271834	SR	0.53	0.41	-0.21	-0.07	-0.28	0.41	0.2
J	5043	279810	SR	0.46	0.37	-0.18	-0.25	0.37	-0.10	0.1
J	5043	282273	SR	0.72	0.47	0.47	-0.21	-0.26	-0.26	0.1
J	5043	257170	SR	0.63	0.54	0.54	-0.31	-0.27	-0.22	0.2
J	5043	282261	SR	0.61	0.59	-0.28	-0.34	-0.24	0.59	0.2
J	5043	296488	SR	0.86	0.40	-0.24	-0.25	0.40	-0.16	0.1
J	5043	296489	SR	0.81	0.44	-0.29	-0.23	0.44	-0.20	0.1

**Table 1.B8** Item Statistics, Field Test Items: MD HSA Government—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
K	4893	296484	SR	0.65	0.49	0.49	-0.35	-0.23	-0.18	0.1
K	4893	296485	SR	0.73	0.42	0.42	-0.18	-0.22	-0.25	0.1
K	4893	283110	SR	0.83	0.34	-0.20	0.34	-0.19	-0.17	0.1
K	4893	271814	SR	0.81	0.37	-0.21	-0.18	-0.24	0.37	0.1
K	4893	296497	SR	0.74	0.48	-0.27	-0.27	-0.20	0.48	0.1
K	4893	296498	SR	0.88	0.41	0.41	-0.25	-0.21	-0.21	0.1
K	4893	296516	SR	0.54	0.27	0.27	-0.09	-0.08	-0.19	0.2
K	4893	279775	SR	0.49	0.28	-0.21	-0.12	0.28	-0.04	0.3
K	4893	271842	SR	0.62	0.38	-0.12	-0.16	-0.25	0.38	0.1
K	4893	257168	SR	0.52	0.35	-0.06	-0.35	0.35	-0.07	0.1
K	4893	283065	SR	0.59	0.55	0.55	-0.32	-0.22	-0.24	0.2
K	4893	279745	SR	0.68	0.50	-0.19	0.50	-0.34	-0.21	0.2
K	4893	264002	SR	0.74	0.50	-0.28	-0.24	0.50	-0.27	0.1
K	4893	261600	SR	<b>0.91</b>	0.35	-0.20	0.35	-0.22	-0.16	0.2
K	4893	257026	SR	0.42	0.33	-0.20	0.33	-0.21	-0.03	0.2
K	4893	279838	SR	0.51	<b>0.13</b>	-0.05	-0.15	0.13	<b>0.02</b>	0.3
K	4893	271803	SR	0.85	0.39	-0.17	-0.22	-0.25	0.39	0.2
K	4893	296510	SR	0.52	0.32	-0.18	-0.23	-0.07	0.32	0.2
K	4893	296500	SR	0.69	0.38	0.38	-0.24	-0.18	-0.19	0.2
K	4893	283266	SR	0.61	0.39	0.39	-0.20	-0.23	-0.21	0.2
K	4893	261568	SR	0.63	0.48	-0.27	0.48	-0.25	-0.20	0.3
K	4893	257028	SR	0.86	0.44	-0.23	-0.27	-0.24	0.44	0.2
K	4893	256996	SR	0.66	0.52	0.52	-0.30	-0.24	-0.22	0.2
K	4893	296504	SR	0.85	0.45	-0.24	-0.26	0.45	-0.23	0.2
K	4893	296505	SR	0.25	0.25	-0.07	-0.09	-0.08	0.25	0.3
L	4887	283062	SR	0.69	0.51	-0.19	-0.36	-0.20	0.51	0.0
L	4887	261569	SR	0.52	0.29	-0.10	0.29	-0.16	-0.14	0.1
L	4887	271804	SR	0.68	0.35	-0.17	-0.22	-0.16	0.35	0.1
L	4887	279802	SR	0.43	0.25	0.25	-0.12	-0.22	<b>0.01</b>	0.3
L	4887	257024	SR	0.74	0.15	-0.13	<b>0.00</b>	0.15	-0.15	0.2
L	4887	261585	SR	0.68	0.35	-0.15	0.35	-0.15	-0.22	0.1
L	4887	261639	SR	0.29	<b>0.12</b>	-0.05	0.12	-0.20	<b>0.07</b>	0.1
L	4887	297435	SR	0.45	0.25	-0.19	-0.02	0.25	-0.11	0.2
L	4887	296495	SR	0.67	0.50	-0.22	-0.29	-0.25	0.50	0.0
L	4887	296496	SR	0.49	0.18	-0.07	0.18	-0.08	-0.10	0.1
L	4887	257016	SR	0.53	0.37	0.37	-0.16	-0.19	-0.16	0.3
L	4887	297426	SR	0.48	0.35	<b>0.05</b>	-0.36	-0.13	0.35	0.1
L	4887	263982	SR	0.38	0.24	<b>0.07</b>	-0.30	-0.16	0.24	0.1
L	4887	271821	SR	0.81	0.47	-0.28	-0.27	0.47	-0.20	0.1
L	4887	271817	SR	0.35	0.28	-0.14	-0.11	-0.09	0.28	0.2
L	4887	257164	SR	<b>0.20</b>	0.21	0.21	-0.14	-0.10	<b>0.03</b>	0.2
L	4887	271813	SR	0.82	0.46	-0.21	-0.28	0.46	-0.25	0.2
L	4887	264010	SR	0.68	0.41	-0.15	-0.30	-0.24	0.41	0.1
L	4887	283125	SR	0.25	<b>0.10</b>	-0.07	0.10	<b>0.03</b>	-0.16	0.1

**Table 1.B8** Item Statistics, Field Test Items: MD HSA Government—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
L	4887	296480	SR	0.67	0.48	0.48	-0.22	-0.36	-0.16	0.1
L	4887	296479	SR	0.85	0.43	-0.27	0.43	-0.21	-0.21	0.1
L	4887	279763	SR	0.70	0.41	-0.22	-0.31	0.41	-0.12	0.1
L	4887	263980	SR	0.79	0.42	-0.26	-0.18	0.42	-0.21	0.1
L	4887	257169	SR	0.84	0.48	-0.25	-0.28	-0.25	0.48	0.2
L	4887	283279	SR	0.62	0.41	0.41	-0.30	-0.16	-0.11	0.2
M	4792	279759	SR	0.49	0.39	0.39	-0.18	-0.27	-0.15	0.2
M	4792	257015	SR	0.82	0.46	-0.22	0.46	-0.14	-0.35	0.0
M	4792	296493	SR	0.66	0.37	-0.19	0.37	-0.22	-0.16	0.0
M	4792	296494	SR	0.56	0.23	-0.10	-0.19	-0.03	0.23	0.1
M	4792	279837	SR	0.40	<b>0.11</b>	-0.26	<b>0.14</b>	0.11	-0.10	0.1
M	4792	263972	SR	0.72	0.46	-0.22	0.46	-0.30	-0.20	0.2
M	4792	261583	SR	0.58	0.35	0.35	-0.36	-0.01	-0.21	0.1
M	4792	283123	SR	0.60	0.44	-0.30	-0.19	0.44	-0.20	0.1
M	4792	264004	SR	0.62	0.47	-0.27	0.47	-0.23	-0.21	0.1
M	4792	271818	SR	0.85	0.39	-0.13	-0.25	0.39	-0.26	0.0
M	4792	296486	SR	0.39	<b>0.02</b>	0.02	-0.26	<b>0.19</b>	-0.15	0.1
M	4792	296487	SR	0.86	0.35	-0.18	-0.19	-0.20	0.35	0.1
M	4792	297429	SR	0.73	0.36	-0.31	-0.09	0.36	-0.19	0.1
M	4792	283081	SR	0.89	0.39	-0.20	0.39	-0.25	-0.20	0.1
M	4792	297132	SR	0.58	0.54	-0.34	-0.18	-0.26	0.54	0.1
M	4792	263974	SR	0.25	<b>-0.07</b>	<b>0.14</b>	-0.07	-0.13	<b>0.07</b>	0.3
M	4792	283088	SR	0.52	0.33	-0.23	-0.23	0.33	-0.07	0.2
M	4792	257009	SR	0.65	0.39	-0.21	0.39	-0.23	-0.20	0.2
M	4792	263964	SR	0.42	0.23	-0.15	-0.25	<b>0.07</b>	0.23	0.2
M	4792	271806	SR	0.43	0.19	-0.22	0.19	-0.23	<b>0.11</b>	0.1
M	4792	297442	SR	0.75	0.43	-0.21	-0.28	-0.17	0.43	0.1
M	4792	296483	SR	0.69	0.39	-0.24	0.39	-0.17	-0.20	0.3
M	4792	257173	SR	0.67	0.43	-0.24	-0.28	0.43	-0.14	0.2
M	4792	283119	SR	0.73	0.44	-0.26	0.44	-0.26	-0.20	0.2
M	4792	279800	SR	0.70	0.38	-0.18	0.38	-0.19	-0.20	0.2
N	4857	279834	SR	0.63	<b>0.05</b>	-0.22	0.05	-0.16	<b>0.14</b>	0.1
N	4857	283280	SR	0.68	0.37	-0.17	-0.23	0.37	-0.17	0.1
N	4857	79738	SR	0.67	0.35	-0.24	0.35	-0.16	-0.20	0.0
N	4857	261577	SR	0.53	0.50	-0.19	-0.28	0.50	-0.26	0.1
N	4857	296512	SR	0.66	0.50	-0.28	-0.22	0.50	-0.28	0.1
N	4857	296513	SR	0.38	0.23	0.23	-0.03	-0.19	-0.04	0.1
N	4857	257022	SR	0.55	0.51	-0.20	-0.32	-0.20	0.51	0.1
N	4857	271819	SR	0.57	0.42	-0.18	-0.27	0.42	-0.14	0.2
N	4857	296506	SR	0.58	0.38	-0.20	-0.19	0.38	-0.18	0.1
N	4857	257157	SR	0.49	0.39	-0.30	0.39	-0.18	-0.02	0.1
N	4857	263965	SR	0.66	0.36	-0.16	0.36	-0.19	-0.22	0.1
N	4857	271815	SR	0.86	0.37	-0.21	0.37	-0.24	-0.17	0.0
N	4857	282267	SR	0.83	0.35	-0.17	-0.14	-0.28	0.35	0.1

**Table 1.B8** Item Statistics, Field Test Items: MD HSA Government—May 2009 Forms

Form	N	ItemID	Item Type	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
N	4857	283362	SR	0.61	0.41	-0.19	0.41	-0.26	-0.15	0.2
N	4857	279826	SR	0.64	0.39	-0.22	0.39	-0.20	-0.15	0.3
N	4857	257158	SR	0.56	0.38	-0.13	-0.16	0.38	-0.24	0.1
N	4857	257007	SR	0.46	0.45	-0.24	0.45	-0.28	-0.07	0.2
N	4857	296501	SR	0.60	0.49	-0.32	-0.21	-0.16	0.49	0.1
N	4857	261599	SR	0.58	0.52	-0.12	-0.27	-0.34	0.52	0.2
N	4857	296472	SR	0.42	0.44	-0.13	-0.27	0.44	-0.15	0.2
N	4857	296471	SR	0.60	0.39	-0.19	0.39	-0.23	-0.19	0.2
N	4857	279842	SR	0.55	0.51	-0.17	-0.31	-0.27	0.51	0.3
N	4857	263987	SR	0.59	0.27	-0.09	0.27	-0.18	-0.18	0.1
N	4857	279733	SR	0.28	<b>0.13</b>	-0.03	0.13	-0.05	-0.08	0.2
N	4857	256995	SR	0.62	0.37	-0.04	-0.32	0.37	-0.18	0.2
<b>Mean</b>				0.59	0.37	-0.06	-0.05	-0.03	-0.04	0.2
<b>SD</b>				0.18	0.12	0.25	0.27	0.27	0.25	0.1

Note: Values in bold are outside of the accepted range. Statistics for items on multiple forms are listed under the first form on which the item appeared. P\_Val=P-Value, R\_ITT=item-total correlation, P\_BIS1—P\_BIS4 =option-total correlation, %Omits=percent of omitted responses



# **Appendix 1C. Study of the Comparability of Online and Paper Forms of the May 2009 Maryland High School Assessments**

**As Submitted to the Maryland State Department of Education, November 9, 2009**

This memorandum summarizes the results of the May 2009 MD HSA modality comparability study. The analyses as defined by the National Psychometrics Council (NPC) and described in the memorandum ETS provided to MSDE (ETS, personal communication, July 14, 2009) were employed to assess the comparability between the paper and online forms. Revisions requested by the NPC on September 21, 2009, have been incorporated into this version.

Specifically, this study addressed the following two questions:

1. Is the construct invariant between the two modes of test administration?
2. Given that the construct remains the same, is student performance (such as mean, median, various quartiles) similar between the two modes?

In the sections below, the May 2009 MD HSA paper and online administrations first are described briefly. This is followed by a description of the examinee samples and test forms selected for the comparability study. The particular analyses to address the two research questions are then described, and the results are presented. Finally, the research findings are discussed.

## **Online and Paper Administration of May 2009 MD HSAs**

The MD HSAs assess four content areas: Algebra, Biology, English, and Government. A total of 11 primary test forms were administered in May 2009. These forms had common operational items (referred to as primary operational test Form C) and different field test items. Two makeup forms, X and Y, also were administered. Forms X and Y shared at least 80 percent of their operational items with Form C.

All test forms, Forms C, X, and Y, were administered in both the paper and online formats. For the paper tests, the 11 primary test forms were administered during the primary testing week (Week 1). Form X was administered during the first make-up week, and Form Y was administered during the second make-up week. For online tests, the 13 test forms were spiraled equally throughout the three-week testing window. Therefore, in each content area the majority of both online and paper test takers were administered the primary operational test form, Form C.

## **Test Forms and Student Samples**

The analyses were carried out using data from students that took the online (ONL) and paper-and-pencil (PNP) versions of primary Form C in each content area. Decisions about administration mode were made at the school level. Student assignment to the test modes was not random.

The number of items, raw score points, and subscores in Form C for each content area is provided in Table 1. All items were multiple-choice (selected response; SR) except for ten items in algebra that were gridded, called student produced response (SPR) items. All items were dichotomously scored. Raw total scores and subscores are converted to scale scores using item pattern scoring for reporting purposes. The reporting scores are scale scores ranging from 240 to 650.

**Table 1** Number of Items and Score Points in Form C for Each Content Area

Content	No. selected response (SR) items	No. student produced response (SPR) items	No. total items	Possible total	
				raw score points	No. of subscores
Algebra	43	10	53	53	4
Biology	76	-	76	76	6
English	60	-	60	60	4
Government	82	-	82	82	5

Students meeting any of the following criteria were excluded from the analyses: (a) test record invalidated by the test administrator, (b) incorrect form code, or (c) no responses to the first 5 items. Table 2 provides the student sample sizes by test mode and content area.

**Table 2** Test Score Summary by Content Area and Test Mode

Content	Test mode	Sample size	Raw scores		Scale scores		Cronbach's alpha
			Mean	SD	Mean	SD	
			Algebra	Online	10,888	33	
	Paper	66,083	30	10.9	423	42.3	0.92
Biology	Online	7,004	45	14.1	430	38.1	0.93
	Paper	49,831	40	14.1	416	43.1	0.93
English	Online	7,196	43	10.4	416	31.4	0.91
	Paper	49,292	40	11.3	407	34.7	0.92
Government	Online	7,268	53	14.6	428	36.6	0.93
	Paper	48,729	47	15.6	414	40.5	0.94

### Analyses Pertaining to Construct Invariance

The following analyses were designed to assess whether the same construct was measured by the online and paper versions of the primary operational test administered in each of the four content areas. These analyses focused on the internal structure of the test versions and the degree to which the structures were similar. As noted in the *Standards for Educational and Psychological Testing* (APA, AERA, & NCME, 1999, p. 13), “Analysis of the internal structure of a test can indicate the degree to which the relationships among test items and test components conform to the construct on which the proposed test score interpretations are based.”

### Z-score Comparisons

Summary statistics obtained for the items administered in each mode were calculated. Percent correct values (p-values) for the items were converted to z-scores and plotted to examine the consistency of the items' relative difficulties across the online and paper test modes. Z-scores were calculated using the following formula:

$$z_{im} = \frac{p_{im} - \bar{p}_m}{s_{pm}} \quad (1)$$

where,  $p_{im}$  is the p-value for item  $i$  within a test mode  $m$ ,  $\bar{p}_m$  is the mean of the items in test mode  $m$ , and  $s_{pm}$  is the standard deviation of the p-values of the items in test mode  $m$ .

In addition, a first principal axis was fit to the scatterplot of z-scores from the two modes for each content area. The first principal axis is the line that minimizes the sum of the squared orthogonal distances between the data points and the line (Niklas, 1994, pp. 328–334). A program called *SMATR* was used to generate the first principal axis in each plot (Falster, Warton, & Wright, 2006). Finally, correlations between the ONL and PNP z-scores were calculated.

### Summary Statistics

Table 2 shows the means and standard deviations of total test raw scores and scale scores as well as reliability coefficients (Cronbach's alpha) by content area and test mode.

The students taking the online tests performed better than students taking the paper tests across all content areas. The reliability coefficients were the same or nearly the same across test modes for all content areas; they ranged from 0.91 to 0.94.

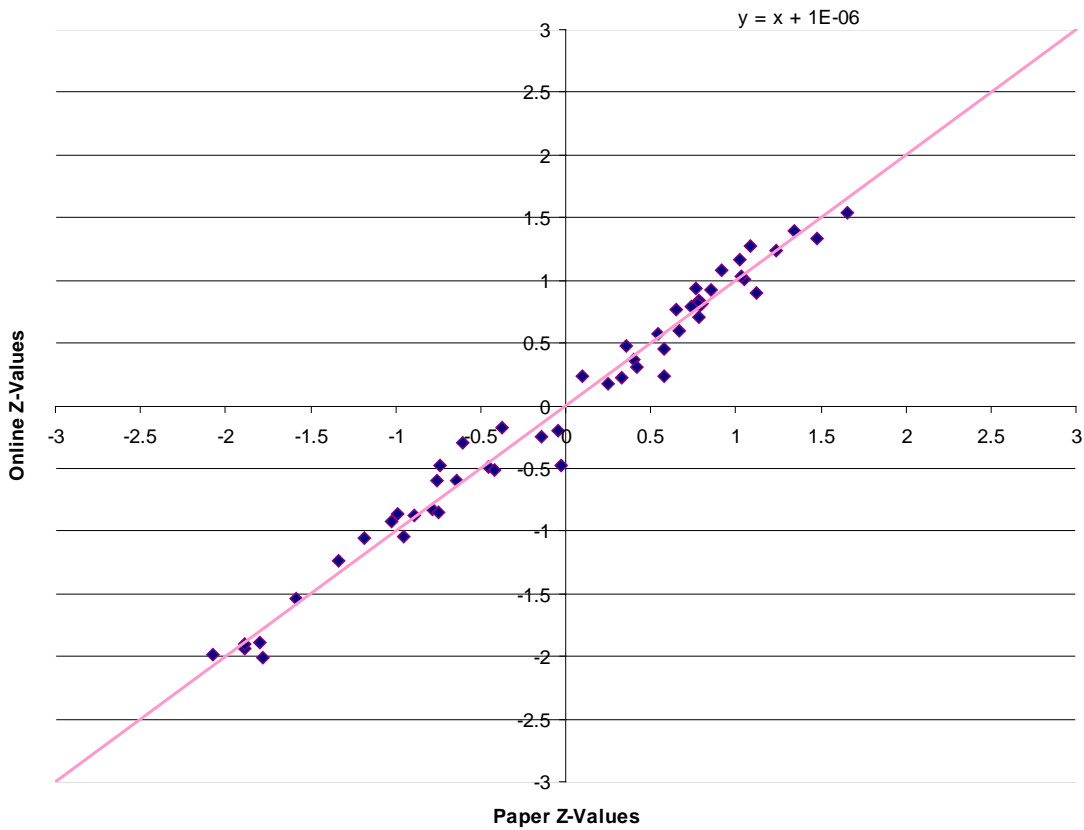
### Z-Score Comparisons Results

Table 3 shows the item p-value summary by content area and test mode. Items appear to be easier in the online format, as would be expected given the higher total raw scores obtained by the online group.

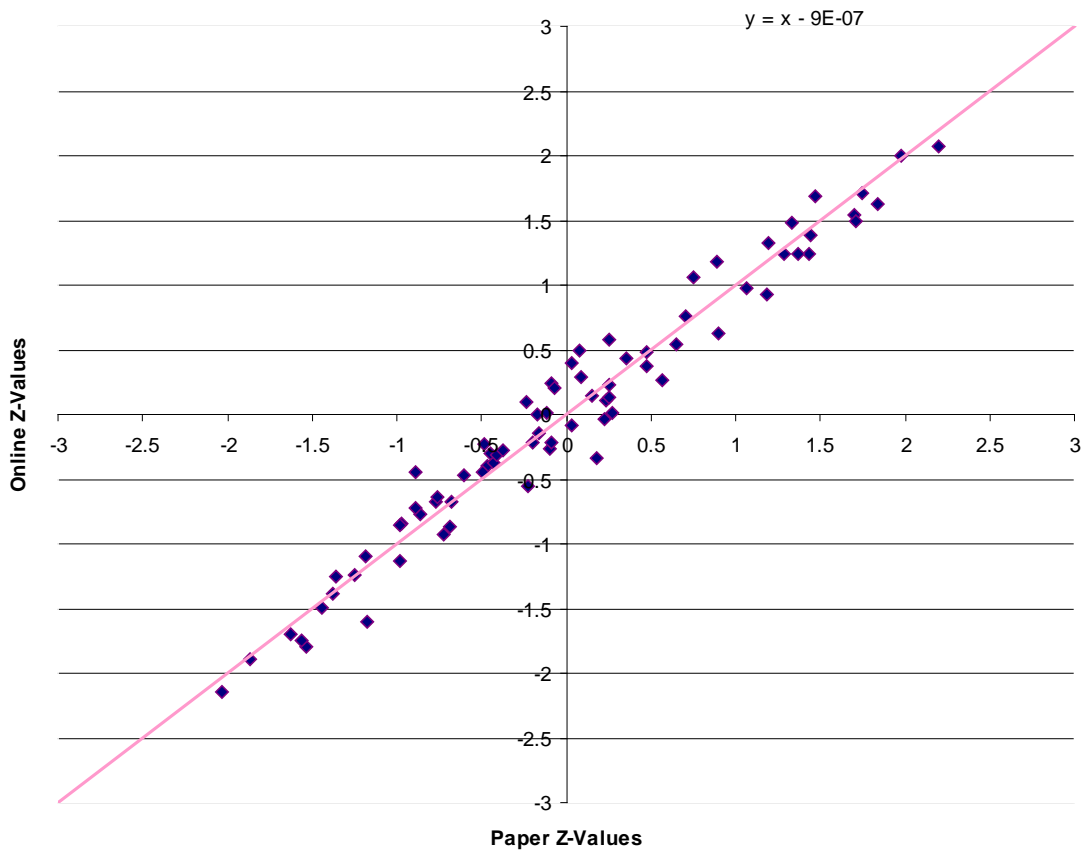
**Table 3** Summary Statistics Describing Item P-values by Content Area and Test Mode

Content	Test mode	No. items	Min	Max	Mean	SD	Median
Algebra	Online	53	0.27	0.88	0.62	0.17	0.66
	Paper	53	0.21	0.85	0.56	0.17	0.62
Biology	Online	76	0.26	0.90	0.59	0.15	0.59
	Paper	76	0.23	0.85	0.52	0.15	0.51
English	Online	60	0.43	0.93	0.72	0.13	0.74
	Paper	60	0.39	0.90	0.66	0.13	0.67
Government	Online	82	0.25	0.97	0.64	0.17	0.67
	Paper	82	0.23	0.95	0.58	0.17	0.59

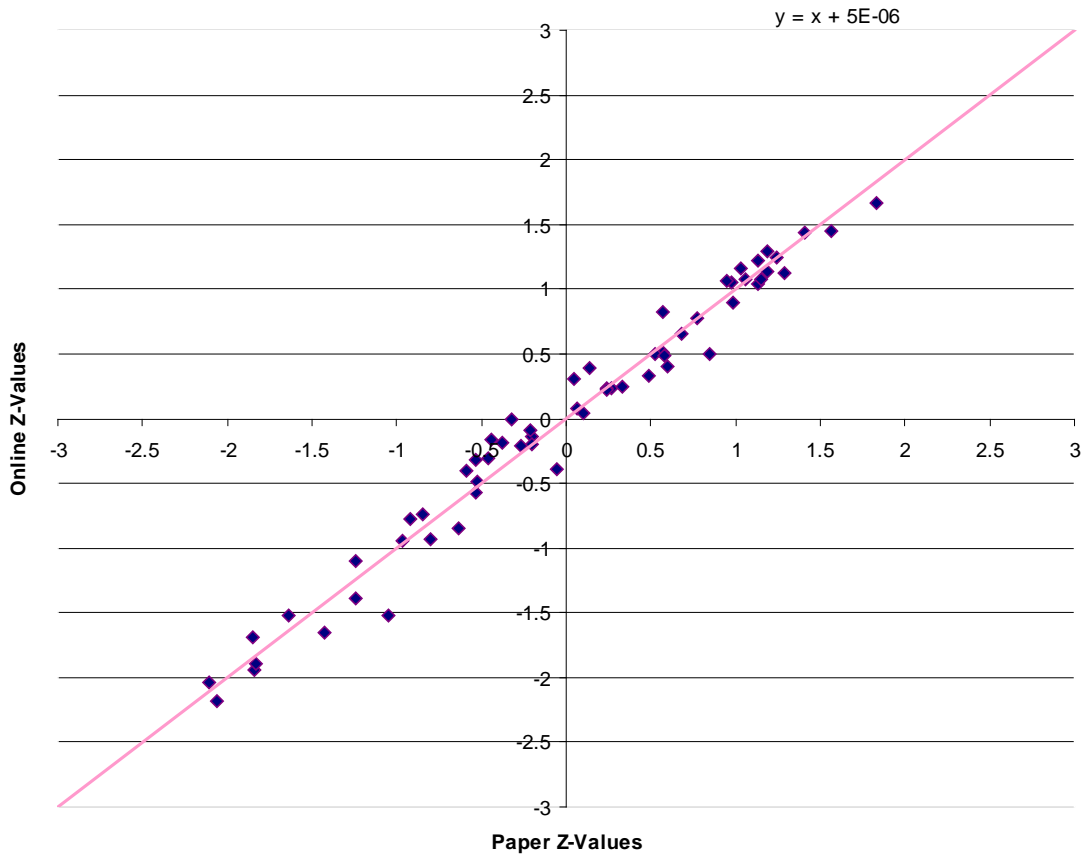
Figures 1 through 4 contain scatterplots of the item z-scores from both testing modes for the four content areas. Each figure includes the first principal axis. The figures show that in all content areas the data points were very close to the first principal axis. The slopes of the first principal axes are one and the intercepts are zero. There are no outliers in the plots, and correlations between ONL and PNP z-scores ranged from 0.98 to 0.99.



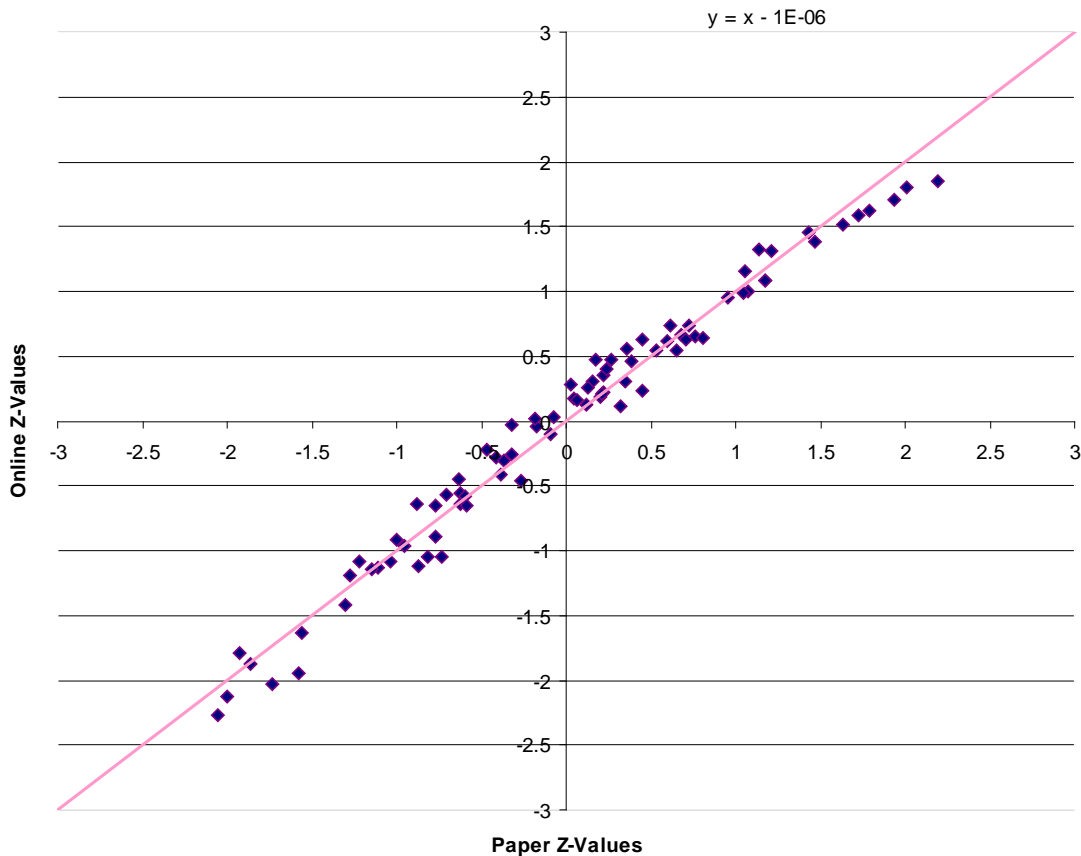
**Figure 1.** May 2009 HSA—Algebra online and paper z-values and the first principal axis



**Figure 2** May 2009 HSA—Biology online and paper z-values and the first principal axis



**Figure 3** May 2009 HSA—English online and paper z-values and the first principal axis



**Figure 4** May 2009 HSA—Government online and paper z-values and the first principal axis

### *Differential Item Functioning*

Analyses were carried out to assess differential item functioning (DIF) between the two test modes using the Mantel-Haenszel DIF procedure (MH DIF; Dorans & Holland, 1993; Mantel & Haenszel, 1959). Three DIF analyses were conducted.

The first analysis used students’ raw scores as their ability estimates. This is the usual method used to conduct MH DIF analyses. In the second and third analyses an adjustment was made to students’ ability estimates to simulate a “small effect size” (SmES) due to administration mode. More specifically, in the second analysis a constant reflecting a small effect size was added to the raw scores of students who took the paper form. In the third analysis, the constant reflecting the small effect size was subtracted from their scores. The constants used to make the adjustments were derived using Cohen’s (1988, p. 25) definition of a small effect size:

$$\text{SmES} = 0.2\sqrt{(\sigma_{\text{online}}^2 + \sigma_{\text{paper}}^2)/2} , \quad (2)$$

where  $\sigma_{\text{online}}^2$  and  $\sigma_{\text{paper}}^2$  are the variances of students’ total raw scores on the online and paper tests, respectively. The SmESs found for the May 2009 Algebra, Biology, English, and Government HSAs were 2, 3, 2, and 3 (rounded to integer values), respectively.

The logic of assessing DIF using adjusted scores in addition to the unadjusted scores was as follows. A Mantel-Haenszel DIF analysis entails comparing the item performance of two groups of examinees after these examinees have been stratified by ability. Ability is usually measured by the examinees' total test raw scores; students with the same score are grouped together and assumed to be equal in ability. The adjustments were designed to address the possibility that a given total score on the paper test and on the online test did not reflect the same level of ability. It may be, for example, that students taking the paper test got slightly lower scores than did their equally able counterparts who took the online test. Or students who tested on paper might have gotten slightly higher scores than their online counterparts. The purpose of adjusting students' paper scores by adding and subtracting one SmES was to adjust for these kinds of negative or positive mode effects prior to conducting the DIF analyses. If all three results agree, the result would be more robust.

The Mantel-Haenszel procedure was used to classify the three DIF categories as defined in Table 4. Consistent with current ETS practice, only Category C DIF is considered to be a potential threat to item fairness and to warrant further investigation (Educational Testing Service, 2002).

**Table 4** Categories of Differential Item Functioning

DIF Category	Definition <sup>a</sup>
A (negligible)	MH D-DIF not significantly different from zero, or has an absolute value smaller than 1.
B (slight to moderate)	1. MH D-DIF in absolute value is significantly different from zero but not from one, and is at least one; OR 2. MH D-DIF in absolute value is significantly different from one, but is smaller than 1.5. Positive values are classified as “B+” and negative values as “B-”.
C (moderate to large)	MH D-DIF in absolute value is significantly different from one, and is at least 1.5. Positive values are classified as “C+” and negative values as “C-”.

*Note.* <sup>a</sup> the significance level at 0.05.



### *Differential Item Functioning*

DIF classifications by content area for all three DIF analyses are given in Table 5. Results of the DIF analyses showed that no item was found to have C-level DIF in any of the three DIF analyses, and only one item was found to have B-level DIF.

**Table 5** DIF Categorization of Items by Content and Type of DIF Analysis

Content area	DIF Category	Raw Score	+ 1 Small Effect Size	- 1 Small Effect Size
Algebra	A	53	53	53
	B	0	0	0
	C	0	0	0
Biology	A	75	76	75
	B	1	0	1
	C	0	0	0
English	A	60	60	60
	B	0	0	0
	C	0	0	0
Government	A	82	82	82
	B	0	0	0
	C	0	0	0

### *Confirmatory Factor Analyses*

Confirmatory factor analyses (CFAs) were carried out in each content area to examine the consistency of subscore structures across test administration modes. The MD HSA blueprints define a subscore structure for each content area.

The first set of CFAs was conducted using item level data. These analyses were designed to investigate the question of whether the subscore structures were the same in the tests administered in the paper and online modes. Table 6 shows the number of items in each content area subscore.

The second set of CFAs was conducted using subscore level scale scores to assess the structural invariance of the paper and online tests. In addition to fitting a single factor model to each test, the fit of three multigroup CFA models that differed in their structural constraints was analyzed. In Model 1 the subscores of the students taking the paper and online tests were pooled and a single factor model was fit to the data without constraints on the factor loadings or error variances. In Model 2 the factor loadings for the corresponding subscores of the paper and online tests were constrained to be equal across testing modes. In Model 3 the factor loadings as well as the error variances were constrained to be equal for the corresponding subscores across testing modes. A comparison of fit results across the three models would demonstrate the degree to which the structure underlying the paper test scores matched the structure underlying the online test scores.

**Table 6** Subscore Structures of the May 2009 HSAs

Content area	Subscore Description	No. of items
Algebra	Analysis of patterns and functional relationships	13
	Modeling and interpretation of real-world situations	17
	Collection, organization, analysis and presentation of data	12
	Application of basic concepts of statistics and probability	11
Biology	Skills and processes of Biology	16
	Structure and function of biological molecules	12
	Structure and function of cells and organisms	13
	Inheritance of traits	13
	Mechanism of evolutionary change	9
	Interdependence of organisms in the biosphere	13
English	Reading and Literature: Comprehension and interpretation	16
	Reading and Literature: Making connections and evaluation	14
	Writing: Composing	16
	Language Usage and Conventions	14
Government	U.S. Government Structure, Functions and Principles	23
	Protecting Rights and Maintaining Order	21
	Systems of Government and U.S. Foreign Policy	12
	Impact of Geography on Governmental Policy	11
	Economic Principles, Institutions and Processes	15

All CFAs were conducted using *MPlus* (Muthén & Muthén, 2007). Parameter estimation for the item-level analyses was performed using a weighted least-squares method with mean and variance adjustment (WLSMV; Muthén, DuToit, & Spisic, 1997). This method provides optimal solutions for the analysis of ordered categorical data. The observed variables are binary item responses and, consequently, tetrachoric matrices were used as input for the CFA analyses.

In the item level CFA model, the observed variables (binary item responses) were classified as endogenous dependent variables and the latent factors (i.e., subscores) were classified as exogenous independent variables. In order to scale the factors, the variances of the latent variables were fixed to 1.0. All factor loading patterns were determined based on the defined subscore structures, and factor correlations were freely estimated under the assumption that the subscores could be correlated.

In the subscore level CFA models, maximum likelihood estimation was used. Subscores in the scale score metric were classified as the dependent variables and the latent factors (i.e., total scores) were classified as the independent variables.

Model-data fit was examined using the following fit indices. The Tucker-Lewis Index (TLI) index compares the chi-square for the hypothesized model to that of the null or “independence” model, in which all correlations or covariances are zero. TLI values range from 0.0 to 1.0; values greater than 0.94 signify good fit (Hu & Bentler, 1999). The comparative fit index (CFI) and root mean square error of approximation (RMSEA) index are based on non-centrality parameters. The CFI compares the covariance matrix predicted

by the model to the observed covariance matrix and the covariance matrix of the null model to the observed. A CFI value greater than 0.90 indicates acceptable model fit. The RMSEA assesses the error in the hypothesized model predictions; values less than or equal to 0.06 indicate good fit (Hu & Bentler, 1999). Due to the fact that chi-square and chi-square difference statistics are very sensitive to sample size, Cheung and Rensvold (2002) recommend using various goodness-of-fit indexes to test for measurement invariance. They proposed that when changes in CFI values are smaller than or equal to 0.01, that measurement invariance should not be rejected. Change in CFI values ( $\Delta$ CFI) are presented in Table 9 for the models testing tau-equivalence (Model 2) and parallelism (Model 3).

### *Confirmatory Factor Analysis Results*

Results of the item-level CFAs for the online and paper tests in each content area are listed in Table 7. The indices show that all the CFA models had adequate and comparable model-data fit. Therefore, the test forms administered in the paper and online modes did not differ in terms of their fit to the specified subscore models.

**Table 7** Item-Level CFA Analyses: Model Fit Results

Content area/subscore model	Test mode	RMSEA	TLI	CFI
Algebra 4-Factor Model	Online	0.026	0.987	0.949
	Paper	0.027	0.985	0.939
Biology 6-Factor Model	Online	0.020	0.986	0.953
	Paper	0.019	0.986	0.938
English 4-Factor Model	Online	0.018	0.988	0.965
	Paper	0.020	0.987	0.951
Government 5-Factor Model	Online	0.019	0.989	0.961
	Paper	0.021	0.988	0.942

Results of fitting single factor models to the subscores of the online and paper tests are listed in Table 8. The indices show that the model had adequate and comparable model-data fit; only the RMSEA value for the English online test exceeded the criterion value. Therefore, the test forms administered in the paper and online modes did not appear to differ in terms of their fit to the one factor models when subscores were analyzed. It is also interesting to note that nearly all of the TLI and CFI values given in Table 8 were higher than those given in Table 7, which was based on item level factor analyses, suggesting better model-data fit when subscores were analyzed. The RMSE values given in the two tables were mixed, however, with neither table having clearly better results than the other.

**Table 8** Results for the Single Factor Model by Content Area and Mode of Administration

Content Area	Mode	RMSEA	TLI	CFI
Algebra	Paper	.017	.999	1.00
	Online	.024	.998	.999
Biology	Paper	.017	.998	.999
	Online	.027	.996	.997
English	Paper	.050	.987	.996
	Online	.087	.953	.984
Government	Paper	.022	.998	.999
	Online	.020	.999	.999

Results of the series of invariance tests of the one-factor model and fit indices are summarized in Table 9. However, none of the  $\Delta$ CFI values were greater than .01, suggesting that equivalence constraints on factor loadings and error variances did not reduce model fit. In addition, all of the values for the RMSEA, TLI, and CFI indices exceeded the criteria for good fit for all models. The results differed little over models, suggesting that the construct assessed by the paper and online tests did not differ over modes.

**Table 9** Fit Results for Models of Structural Invariance by Content Area

Content Area	Model	RMSEA	TLI	CFI	$\Delta$ CFI
Algebra	1	.016	.999	.999	--
	2	.015	.999	.999	0.0
	3	.019	.999	.998	-0.001
Biology	1	.024	.996	.997	--
	2	.022	.997	.997	0.0
	3	.021	.997	.997	0.0
English	1	.045	.989	.994	--
	2	.037	.993	.994	0.0
	3	.040	.991	.990	-0.004
Government	1	.018	.999	.999	--
	2	.017	.999	.999	0.0
	3	.019	.999	.999	0.0

### Analyses Pertaining to the Similarity of Student Performance across Modes

Comparisons between test performance of students at selected schools were used to examine whether student performance was similar across groups assessed using different test modes. These comparisons considered both effect sizes and passing rates.

The two May 2009 student groups of interest, those taking the assessments online and those taking the paper-and-pencil assessments were not known to be equivalent because random assignment of students to testing mode was not possible. Consequently, making a direct comparison of the performance of the two groups to assess mode effects on student performance was not appropriate. Therefore, in order to study the comparability of student performance across modes, analyses were conducted at the school level on mean MD HSA performance of matched pairs of schools. In May 2009 schools that tested exclusively in only one mode, either online

(ONL) or paper-and-pencil (PNP) were identified. The reason for using only schools that had tested entirely within a single mode was to minimize any self-selection effects. For each ONL school a matching PNP school was identified. These matched pairs of schools were used for the analyses in this section.

*Selection of Schools.* First, schools that tested all of their students online in each content area were identified. For each ONL school a matching PNP school was found from among all schools testing their students in only the paper modality.

The main matching variables were schools' May 2007 MD HSA scale score means and standard deviations. The May 2007 scores were chosen as the matching variable because the May 2008 and May 2009 scores were being used in calculation of effect sizes. The small sample of schools to choose from did not allow for school demographic variables to also be considered when matching schools.

The specific steps in the matching process carried out for each content area were as follows:

1. An ONL school was excluded from the matching process and subsequent analyses if it had fewer than 30 students that took either the May 2007, May 2008, or May 2009 test. The numbers of schools excluded were four for Algebra, none for Biology, two for English, and three for Government.
2. For each remaining ONL school, matching PNP candidate schools were identified as those with at least 30 students that took the May 2007, May 2008, and May 2009 tests. Matching PNP candidates also needed to have mean scale score differences from the ONL school of less than one scale score point. If there was no such PNP candidate school, the PNP school having the closest May 2007 mean scale score served as the matching school. There were only a few schools that did not match within one scale score point: three in Algebra, with closest matches of 1.2, 1.4 and 1.9 scale score points, one in Biology that matched by 1.1 scale score points, one in English that matched by 1.8 scale score points, and one in Government with the closest match at 3.0 scale score points.
3. For each ONL school that had more than one potential matching PNP school, the selection criteria were expanded. The magnitude of the difference in test scale score means and standard deviations between May 2007 PNP schools and the ONL schools was considered. Only one PNP school was matched to each ONL school. The resulting numbers of matching pairs of schools were 53 for Algebra, 16 for Biology, 13 for English, and 9 for Government. Addendum A lists the matched pairs by school name.

*Calculation of Effect Size.* Two effect sizes were calculated for each matched pair of schools. The first effect size was for the May 2008 performance. This effect size was calculated to determine the degree of difference between the groups when all students tested in the paper-and-pencil mode. In that sense, the May 2008 effect sizes served as a baseline for how much of a difference might be expected for reasons other than testing mode.

The second effect size calculated for each pair was based on May 2009 data, when the groups differed by testing mode. If the effect sizes for the May 2009 data were found to be about the same as those for May 2008, this would support the hypothesis that testing mode does not

significantly impact overall performance differences. For each pair of schools, the May 2008 and May 2009 effect sizes,  $d_v$ , were computed as follows (Cohen, 1988, p. 44):

$$d_{ty} = (M_{toy} - M_{tpy}) / \sigma_{ty,pooled} \text{ and,} \quad (3)$$

$$\sigma_{ty,pooled} = \sqrt{(\sigma_{toy}^2 + \sigma_{tpy}^2) / 2} \quad (4)$$

where,

$d_{ty}$  is the effect size in year  $y$  ( $y=2008$  or  $2009$ ) for school pair  $t$ ,

$M_{toy}$  and  $\sigma_{toy}^2$  are the mean and variance, respectively, of HSA scores of the 2009 ONL school in school pair  $t$  in year  $y$ ,

$M_{tpy}$  and  $\sigma_{tpy}^2$  are the mean and variance, respectively, of HSA scores of the 2009 PNP school in school pair  $t$  in year  $y$ , and

$\sigma_{ty,pooled}$  is the pooled standard deviation of the HSA scores in school pair  $t$  in year  $y$ .

For example, in Algebra, 53 matched pairs of ONL and PNP schools were identified. Therefore, 53 May 2008 effect sizes and 53 May 2009 effect sizes were calculated. A paired t-test was employed to assess whether the average effect size for the 53 ONL and PNP pairs in May 2009 was significantly different from the average effect size calculated using the May 2008 data, when both groups were administered tests on paper.

*Calculation of Passing Rates.* Because effect sizes could be influenced by extreme low and high test scores, passing rates for the matched schools also were examined. Passing rates are not influenced by extreme scores. Furthermore, passing rates are of interest to stakeholders, such as parents, teachers, and administrators. Passing rates were defined as the percentage of examinees classified as proficient or advanced.

#### *Effect Size and Passing Rate Comparisons at the School Level*

Table 10 shows the results of the t-tests comparing the overall effect sizes calculated using May 2008 and 2009 data. The results indicate that the average effect sizes for the ONL and PNP school pairs were not significantly different in the two years. This means that the degree of difference in HSA performance between the two groups of schools was about the same when all students tested on paper (2008) and when the groups of schools tested in different modes (2009). This was true for all content areas. Summary statistics that describe the matched schools by content area are provided in Addendum B.

**Table 10** May 2008 and 2009 Effect Sizes for ONL and PNP School Groups

Content	No. of school pairs	May 2008 effect size		May 2009 effect size		<i>t</i> statistic	Probability
		Mean	SD	Mean	SD		
Algebra	53	0.02	0.37	-0.03	0.60	0.12	0.90
Biology	16	-0.03	0.29	0.00	0.37	-0.53	0.60
English	13	-0.12	0.18	-0.08	0.23	-0.84	0.42
Government	9	0.03	0.29	0.10	0.26	-1.08	0.31

Table 11 lists the means and standard deviations of the passing rates in the May 2008 and May 2009 administrations by school group and content area. The table shows that the differences between the passing rates for the ONL and PNP schools differed little in 2008 and 2009. The greatest difference occurred in Government where the passing rate difference was 5.9 percent in 2009. Only nine pairs of schools were included in the analyses in this content area, so these results should be interpreted with caution.

**Table 11** May 2008 and 2009 Passing Rates and Mean Difference of Passing Rates between Schools That Tested Exclusively Online (ONL) or Paper-and-Pencil (PNP) in May 2009

Content area	No. of schools	Year	School group <sup>a</sup>	Mean (%)	SD (%)
Algebra	53	2008	ONL	87.5	16.2
			PNP	86.5	18.9
		ONL-PNP	1.0	9.0	
	2009	ONL	82.8	23.7	
		PNP	84.2	21.9	
		ONL-PNP	-1.4	20.7	
Biology	16	2008	ONL	84.6	11.4
			PNP	84.9	11.3
		ONL-PNP	-0.3	10.6	
	2009	ONL	86.1	11.3	
		PNP	83.9	13.6	
		ONL-PNP	2.1	9.6	
English	13	2008	ONL	75.2	13.0
			PNP	78.4	10.4
		ONL-PNP	-3.1	6.6	
	2009	ONL	75.9	12.5	
		PNP	77.1	13.0	
		ONL-PNP	-1.1	9.6	
Government	9	2008	ONL	86.2	9.5
			PNP	83.7	9.8
		ONL-PNP	2.5	4.2	
	2009	ONL	85.9	10.1	
		PNP	80.0	14.5	
		ONL-PNP	5.9	6.7	

*Note:* <sup>a</sup> Recall that all students tested in the paper-and-pencil format in May 2008.

ONL = Online schools where all examinees took the May 2009 HSA content test online.

PNP = Paper-and-pencil schools where all examinees took the May 2009 HSA content test in the paper-and-pencil format.

## Conclusions

In considering these findings of this study, it is important to note that data from a single test administration were used to evaluate mode effects. If desired, a replication of this study could be conducted following the May 2010 administration if resources are made available.

The current study was conducted to investigate the extent to which the online and paper forms of the MD HSA can be considered to be comparable. The first question of interest was whether the construct was invariant between the two test modes. The internal consistency of the paper and pencil forms was nearly identical to that of the online forms, as were the z-scores. After conditioning on examinee ability, no items were found to function differently across modes. These findings provide evidence that test mode did not significantly affect item performance.



Finally, confirmatory factor analyses showed that, within each content area, the paper and online test forms shared a common subscore structure as defined in the test blueprint. Structural invariance of the models across modes was also demonstrated. In short, there were no findings that suggested that the items administered on paper assessed a different construct than did the items administered online.

The second question addressed whether student performance was similar across the two modes. Comparisons of mean scores and passing rates for matched schools indicated no notable differences in student performance that could be attributed to test administration mode.

Taken together, these results support the use of computer administration of high school assessments in Maryland as equivalent to the existing paper-and-pencil assessments. Further, the use of paper and pencil derived parameters to link the scales of the computer administered assessments to their paper-and-pencil counterpart scales is also supported.

## References

- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (1999). *Standards for educational and psychological tests*. Washington, DC: AERA.
- Cheung, G.W., & Rensvold, R.B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*, 233–255.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Dorans, N. J., & Holland, P.W. (1993). DIF detection and description: Mantel-Haenszel and standardization. In P. W. Holland & H. Wainer (Eds.), *Differential item functioning* (pp. 35–66). Hillsdale, NJ: Lawrence Erlbaum.
- Educational Testing Service. (2002). *ETS standards for quality and fairness*. Princeton, NJ: Educational Testing Service.
- Falster, D.S., Warton, D.I., & Wright, I.J. (2006). Standardized major axis tests and routines (SMATR; Version 2.0) [Computer software]. New South Wales, Australia. <http://www.bio.mq.edu.au/ecology/SMATR/>
- Holland, P. W., & Thayer, D. T. (1988). Differential item performances and the Mantel-Haenszel procedure. In H. Wainer & H. I. Braun (Eds.), *Test validity* (pp. 129–145). Hillsdale, NJ: Lawrence Erlbaum.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55.
- Mantel, N., & Haenszel, W. (1959). Statistical aspects of the analysis of data from retrospective studies of disease. *Journal of the National Cancer Institute, 22*, 719-748.
- Muthén B. O., & Muthén, L. K. (2007). Mplus 5 [Computer program]. Los Angeles, CA: Muthén & Muthén.
- Niklas, K, J. (1994). *Plant allometry: The scaling of form and process*. Chicago: University of Chicago Press.

## Appendix A

**Table A1** Online and Paper School Pairs Matched on May 2007 MD HSA Mean Scale Scores and Standard Deviations: Algebra

ONL LEA	ONL School	ONL N	ONL Mean	ONL SD	PNP LEA	PNP School	PNP N	PNP Mean	PNP SD
BALTIMORE	Southwest Academy	160	408.05	27.58	BALTIMORE	Parkville High & Center For Math/S	363	407.38	30.07
BALTIMORE	Woodlawn Middle	119	413.27	24.83	ANNE ARUNDEL	Meade High	362	413.67	34.26
BALTIMORE	Windsor Mill Middle	87	416.34	26.58	WICOMICO	James M. Bennett High	170	416.14	27.37
BALTIMORE	Cockeysville Middle	193	457.67	24.79	BALTIMORE	Franklin Middle	268	457.85	28.06
BALTIMORE	Dumbarton Middle	228	463.73	28.15	ANNE ARUNDEL	Severn River Middle	143	463.85	26.73
BALTIMORE	Loch Raven Technical Academy	96	423.43	21.50	BALTIMORE CITY	Baltimore Freedom Academy	83	423.58	23.13
BALTIMORE	Lansdowne Middle	62	433.79	22.61	HARFORD	Harford Technical High	239	433.72	25.06
BALTIMORE	Middle River Middle	91	443.69	18.45	FREDERICK	Gov. Thomas Johnson Middle	108	443.27	21.11
BALTIMORE	Sparrows Point High	180	405.17	27.25	BALTIMORE CITY	Carver Vocational-Technical High	324	405.31	29.65
CHARLES	Milton M. Somers Middle School	170	470.09	29.58	ANNE ARUNDEL	Crofton Middle	187	471.34	27.52
CHARLES	Piccowaxen Middle School	71	455.58	19.45	HARFORD	North Harford Middle	188	455.64	20.39
CHARLES	Thomas Stone High School	205	410.72	24.63	MONTGOMERY	Watkins Mill High	208	410.61	27.73
CHARLES	John Hanson Middle School	136	454.67	21.79	FREDERICK	Thurmont Middle	91	454.98	21.76
CHARLES	Benjamin Stoddert Middle School	70	450.11	25.54	ANNE ARUNDEL	Macarthur Middle	101	450.24	22.37
CHARLES	Westlake High School	232	415.58	28.71	ANNE ARUNDEL	North High	402	415.36	28.64
CHARLES	Mattawoman Middle School	138	434.65	23.45	CECIL	Rising Sun High	164	434.41	22.20
CHARLES	North Point High School	410	428.14	27.30	MONTGOMERY	Northwest High	231	428.03	27.61
CHARLES	Matthew Henson Middle School	67	463.24	24.85	FREDERICK	Ballenger Creek Middle School	129	463.29	22.15
CHARLES	General Smallwood Middle School	60	455.32	14.84	CARROLL	North Carroll Middle	92	455.38	18.37
CHARLES	Henry E. Lackey High School	256	410.70	29.65	ANNE ARUNDEL	Glen Burnie High	414	410.45	30.49
GARRETT	Northern Middle School	57	466.40	21.50	MONTGOMERY	Cabin John Middle School	292	466.17	22.91
GARRETT	Northern Garrett High School	106	426.70	23.67	FREDERICK	Middletown High	107	426.77	26.09
HARFORD	Bel Air Middle	190	466.40	17.49	ANNE ARUNDEL	Central Middle	149	466.96	22.50
HARFORD	Fallston Middle School	179	468.05	20.49	MONTGOMERY	Robert Frost Middle School	241	468.06	20.81
HOWARD	Bonnie Branch Middle	117	468.81	20.47	MONTGOMERY	Robert Frost Middle School	241	468.06	20.81
HOWARD	Ellicott Mills Middle	135	461.59	25.65	QUEEN ANNE'S	Stevensville Middle School	162	461.38	23.34
HOWARD	Howard High	197	434.79	24.76	CECIL	Rising Sun High	164	434.41	22.20
HOWARD	Patapsco Middle	127	477.13	19.46	MONTGOMERY	Takoma Park Middle School	211	477.31	42.99
HOWARD	Dunloggin Middle	87	471.94	22.29	ANNE ARUNDEL	Crofton Middle	187	471.34	27.52
HOWARD	Centennial High	144	449.49	24.04	MONTGOMERY	Briggs Chaney Middle	154	449.36	26.58
HOWARD	Burleigh Manor Middle School	143	472.50	25.56	ANNE ARUNDEL	Crofton Middle	187	471.34	27.52
HOWARD	Mount View Middle	173	463.12	23.65	MONTGOMERY	North Bethesda Middle	207	463.10	22.63
HOWARD	Glenelg High	119	436.01	19.48	BALTIMORE	Sparrows Point Middle	84	435.73	18.55
HOWARD	Glenwood Middle	122	478.74	28.75	MONTGOMERY	Takoma Park Middle School	211	477.31	42.99
HOWARD	Wilde Lake Middle	87	443.03	26.17	CALVERT	Mill Creek Middle	93	443.01	19.36
HOWARD	Harpers Choice Middle	89	461.10	27.38	MONTGOMERY	Ridgeview Middle	154	460.89	23.66
3OWARD	River Hill High	143	462.29	24.76	MONTGOMERY	Julius West Middle	203	462.58	24.65
HOWARD	Lime Kiln Middle	121	473.23	24.45	ANNE ARUNDEL	Crofton Middle	187	471.34	27.52
HOWARD	Cradlerock School	53	444.06	26.38	MONTGOMERY	Thomas S. Wootton High	127	444.00	27.75
HOWARD	Hammond Middle School	123	465.69	22.00	MONTGOMERY	William H. Farquhar Middle	168	465.40	22.62
HOWARD	Oakland Mills Middle	63	461.76	22.74	MONTGOMERY	John H. Poole Middle	89	461.96	26.64

HOWARD	Patuxent Valley Middle	118	436.59	17.78	MONTGOMERY	Benjamin Banneker Middle	129	436.75	21.84
HOWARD	Murray Hill Middle	101	442.97	27.81	CALVERT	Mill Creek Middle	93	443.01	19.36
MONTGOMERY	Richard Montgomery High	145	425.56	30.64	FREDERICK	Brunswick High	131	425.40	31.05
MONTGOMERY	Rockville High	148	430.93	27.12	HARFORD	Fallston High	306	430.61	29.29
MONTGOMERY	Westland Middle	335	465.58	27.40	MONTGOMERY	William H. Farquhar Middle	168	465.40	22.62
MONTGOMERY	Argyle Middle	98	448.20	21.92	MONTGOMERY	Newport Mill Middle	141	447.82	23.56
PRINCE GEORGE'S	Thurgood Marshall Middle School	34	435.56	21.42	MONTGOMERY	White Oak Middle	164	435.85	23.53

**Table A2** Online and Paper School Pairs Matched on May 2007 MD HSA Mean Scale Scores and Standard Deviations: Biology

ONL LEA	ONL School	ONL N	ONL Mean	ONL SD	PNP LEA	PNP School	PNP N	PNP Mean	PNP SD
BALTIMORE	Sparrows Point High	122	410.19	28.39	SOMERSET	Crisfield High	38	409.45	28.77
CHARLES	La Plata High School	353	424.92	32.75	MONTGOMERY	Seneca Valley High	125	425.22	31.53
CHARLES	Westlake High School	292	411.09	30.08	DORCHESTER	Cambridge-South Dorchester High	172	411.46	34.02
CHARLES	North Point High School	478	427.53	24.30	HARFORD	C. Milton Wright High	405	427.30	28.26
CHARLES	Henry E. Lackey High School	324	408.23	29.01	DORCHESTER	North Dorchester High School	125	408.34	32.19
GARRETT	Northern Garrett High School	156	422.79	25.07	ANNE ARUNDEL	Arundel High	525	422.82	26.10
HOWARD	Howard High	402	440.45	27.07	FREDERICK	Urbana High	220	441.01	25.08
HOWARD	Centennial High	369	437.94	25.54	BALTIMORE CITY	Baltimore School For The Arts	90	436.83	30.69
HOWARD	Marriotts Ridge High	298	440.24	24.22	FREDERICK	Urbana High	220	441.01	25.08
HOWARD	Glenelg High	260	434.20	31.98	FREDERICK	Walkersville High	164	434.62	31.06
HOWARD	Atholton High	318	437.03	25.63	CALVERT	Northern High	368	436.08	22.57
HOWARD	Reservoir High	323	423.73	37.00	MONTGOMERY	Seneca Valley High	125	425.22	31.53
HOWARD	Long Reach High	308	422.78	33.48	BALTIMORE	Pikesville High	250	422.01	32.48
MONTGOMERY	Richard Montgomery High	441	438.19	38.03	MONTGOMERY	Bethesda-Chevy Chase High	408	439.35	30.90
MONTGOMERY	Rockville High	346	435.30	27.81	SAINT MARY'S	Leonardtown High	298	434.92	27.04
TALBOT	Easton High	233	422.09	30.87	BALTIMORE	Pikesville High	250	422.01	32.48

**Table A3** Online and Paper School Pairs Matched on May 2007 MD HSA Mean Scale Scores and Standard Deviations: English

ONL LEA	ONL School	ONL N	ONL Mean	ONL SD	PNP LEA	PNP School	PNP N	PNP Mean	PNP SD
BALTIMORE	Sparrows Point High	177	417.14	28.92	ANNE ARUNDEL	Arundel High	502	417.92	28.87
CHARLES	Thomas Stone High School	371	412.82	33.34	MONTGOMERY	Paint Branch High	371	414.65	30.10
CHARLES	Westlake High School	305	407.94	26.67	ALLEGANY	Fort Hill High	254	407.01	32.39
CHARLES	North Point High School	495	422.32	27.34	CECIL	Rising Sun High	222	422.00	28.58
CHARLES	Henry E. Lackey High School	312	404.80	31.28	FREDERICK	Frederick High	159	404.69	31.30
GARRETT	Northern Garrett High School	148	418.24	26.57	BALTIMORE	Perry Hall High	490	418.29	26.95
HOWARD	Howard High	342	432.19	30.64	ANNE ARUNDEL	Severna Park High	427	431.98	28.93
HOWARD	Marriotts Ridge High	284	434.39	30.19	MONTGOMERY	Poolesville High	204	433.74	30.27
HOWARD	Glenelg High	279	438.02	28.71	BALTIMORE	Dulaney High	456	437.61	34.23
HOWARD	Long Reach High	304	418.84	33.93	BALTIMORE	Catonsville High	230	418.28	35.24
MONTGOMERY	Richard Montgomery High	422	437.88	48.20	MONTGOMERY	Bethesda-Chevy Chase High	392	437.73	36.99
MONTGOMERY	Rockville High	295	422.71	32.50	MONTGOMERY	James Hubert Blake High	469	422.55	32.84
TALBOT	Easton High	256	416.95	31.57	CARROLL	Francis Scott Key High	192	417.22	30.19

**Table A4** Online and Paper School Pairs Matched on May 2007 MD HSA Mean Scale Scores and Standard Deviations: Government

ONL LEA	ONL School	ONL N	ONL Mean	ONL SD	PNP LEA	PNP School	PNP N	PNP Mean	PNP SD
BALTIMORE	Sparrows Point High	221	401.27	30.58	PRINCE GEORGE'S	Parkdale High	419	401.50	32.76
CHARLES	La Plata High School	374	425.15	34.46	CARROLL	Westminster High	223	425.40	32.18
CHARLES	North Point High School	555	427.55	30.84	MONTGOMERY	Clarksburg High	370	428.08	30.15
GARRETT	Northern Garrett High School	282	418.58	29.22	WASHINGTON	South Hagerstown High	120	418.24	29.87
HOWARD	Howard High	348	440.32	36.51	MONTGOMERY	Quince Orchard High	371	440.36	38.55
HOWARD	Long Reach High	309	424.68	51.34	MONTGOMERY	Northwood High School	265	424.72	37.24
HOWARD	Glenelg High	273	447.98	31.00	MONTGOMERY	Poolesville High	205	445.03	32.67
MONTGOMERY	Rockville High	290	437.08	34.85	MONTGOMERY	Northwest High	505	436.28	34.68
TALBOT	Easton High	169	428.67	35.61	ANNE ARUNDEL	Meade High	353	428.30	33.08

## Appendix B

**Table B1** School Level Means and Standard Deviations of Scale Scores by Test Mode: Algebra (53 Pairs)

		2007			2008			2009		
		Sample Size	Scale Score	SD	Sample Size	Scale Score	SD	Sample Size	Scale Score	SD
Online Schools	Mean	133	446	24	135	444	23	127	444	25
	SD	71	21	3	69	20	5	66	27	7
Paper Schools	Mean	186	446	26	183	444	24	192	445	27
	SD	84	21	5	84	21	4	86	25	7
State Overall	Mean	124	421	30	124	423	27	134	422	30
	SD	103	40	13	108	35	11	125	36	12

**Table B2** School Level Means and Standard Deviations of Scale Scores by Test Mode: Biology (16 Pairs)

		2007			2008			2009		
		Sample Size	Scale Score	SD	Sample Size	Scale Score	SD	Sample Size	Scale Score	SD
Online Schools	Mean	314	427	29	326	431	29	277	431	32
	SD	93	11	4	94	14	4	84	15	7
Paper Schools	Mean	236	427	29	261	432	29	278	431	34
	SD	134	11	3	154	12	4	140	18	10
State Overall	Mean	169	396	33	194	403	29	191	402	38
	SD	165	40	13	183	33	10	179	34	13

**Table B3** School Level Means and Standard Deviations of Scale Scores by Test Mode: English (13 Pairs)

		2007			2008			2009		
		Sample Size	Scale Score	SD	Sample Size	Scale Score	SD	Sample Size	Scale Score	SD
Online Schools	Mean	307	422	32	329	416	30	277	414	30
	SD	91	11	6	101	13	3	92	11	5
Paper Schools	Mean	336	422	31	354	419	31	338	417	31
	SD	128	11	3	132	12	3	137	13	4
State Overall	Mean	185	397	32	202	396	30	190	395	32
	SD	165	31	12	178	28	10	169	28	11

**Table B4** School Level Means and Standard Deviations of Scale Scores by Test Mode: Government (9 Pairs)

		2007			2008			2009		
		Sample Size	Scale Score	SD	Sample Size	Scale Score	SD	Sample Size	Scale Score	SD
Online Schools	Mean	313	428	35	300	433	34	234	426	30
	SD	109	13	7	131	13	4	92	13	5
Paper Schools	Mean	315	428	33	382	431	35	387	422	33
	SD	120	13	3	149	17	3	127	16	4
State Overall	Mean	189	401	33	205	407	35	193	402	34
	SD	170	36	10	189	36	12	174	30	11

## **Appendix 2A. MD Mod-HSA Classical Item Statistics: Operational Forms**



**Table 2.A1** Item Statistics: MD Mod-HSA Algebra—October 2008

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258090	0.66	0.32	-0.17	-0.23	0.32	0.0
	258095	0.73	0.37	0.37	-0.23	-0.26	0.0
	258166	0.74	0.29	-0.26	0.29	-0.13	0.1
	258312	0.52	0.34	0.34	-0.23	-0.18	0.1
	258173	0.55	0.27	-0.09	0.27	-0.22	0.2
	258115	0.44	0.34	0.34	-0.18	-0.19	0.4
	258223	0.32	0.06	-0.07	0.06	0.02	0.4
	258230	0.52	0.23	0.23	-0.18	-0.09	0.4
	258147	0.52	0.32	0.32	-0.16	-0.23	0.3
	261560	0.64	0.33	-0.21	0.33	-0.18	0.4
	258227	0.62	0.30	0.30	-0.13	-0.24	0.4
	258308	0.40	0.29	0.29	-0.17	-0.13	0.5
	258101	0.53	0.25	-0.20	0.25	-0.08	0.5
	258210	0.79	0.30	-0.20	0.30	-0.17	0.3
	258116	0.40	0.13	0.13	-0.13	-0.02	0.3
	258089	0.25	0.23	-0.09	0.23	-0.09	0.4
	261556	0.42	0.25	0.25	-0.23	-0.04	0.4
	258309	0.83	0.35	-0.21	-0.23	0.35	0.5
	258098	0.59	0.37	-0.23	-0.22	0.37	0.4
	258208	0.41	0.13	0.02	-0.14	0.13	0.4
	258161	0.59	0.46	0.46	-0.38	-0.14	0.4
	258159	0.41	0.29	-0.12	-0.16	0.29	0.6
	258184	0.51	0.33	-0.17	0.33	-0.20	0.4
	258136	0.54	0.37	-0.20	0.37	-0.23	0.4
	258102	0.51	0.27	-0.09	0.27	-0.19	0.5
	258226	0.39	0.24	-0.14	-0.10	0.24	0.5
	258188	0.67	0.29	-0.14	0.29	-0.20	0.5
	258174	0.44	0.24	-0.08	-0.16	0.24	0.7
	258187	0.59	0.33	-0.13	-0.23	0.33	0.6
	258154	0.39	0.43	-0.27	-0.14	0.43	0.5
	258113	0.58	0.33	-0.22	0.33	-0.14	0.5
	258198	0.39	0.29	-0.15	-0.12	0.29	0.6
	258167	0.63	0.34	-0.23	0.34	-0.16	0.6
	258169	0.43	0.23	-0.06	-0.16	0.23	0.5
	258119	0.45	0.30	0.30	-0.10	-0.23	0.5
	258160	0.42	0.28	0.28	-0.17	-0.11	0.6
	258241	0.56	0.32	-0.15	0.32	-0.20	0.6
	258130	0.49	0.28	0.28	-0.15	-0.14	0.7
	258131	0.23	0.04	0.04	0.07	-0.10	0.6
	258128	0.66	0.37	-0.20	0.37	-0.23	0.6
1	258509	0.36	0.22	0.22	-0.20	0.00	0.6

**Table 2.A1** Item Statistics: MD Mod-HSA Algebra—October 2008

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	258231	0.63	0.43	-0.24	-0.26	0.43	0.7
	258111	0.55	0.30	-0.17	0.30	-0.19	0.7
	258096	0.25	0.11	0.11	0.10	-0.21	0.8
	258125	0.36	0.12	-0.18	0.12	0.05	0.8
	258144	0.33	0.15	0.15	0.06	-0.18	0.6
	261558	0.38	0.20	-0.09	0.20	-0.10	0.8
	261562	0.42	0.23	0.23	-0.15	-0.07	0.7
	258220	0.34	0.15	-0.09	-0.04	0.15	0.7
	258135	0.55	0.19	-0.13	0.19	-0.06	0.7
<b>Mean</b>		0.50	0.27	-0.01	0.01	-0.03	0.5
<b>SD</b>		0.14	0.09	0.22	0.23	0.21	0.2

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A2** Item Statistics: MD Mod-HSA Biology—October 2008

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258636	0.62	0.29	-0.18	0.29	-0.18	0.0
	258653	0.36	0.26	0.26	-0.03	-0.23	0.0
	258690	0.41	0.13	0.02	-0.15	0.13	0.1
	258702	0.60	0.35	-0.27	0.35	-0.15	0.1
	258662	0.33	0.24	-0.13	-0.11	0.24	0.2
	258659	0.30	0.09	0.09	-0.13	0.06	0.1
	258673	0.63	0.26	-0.16	-0.16	0.26	0.2
	258701	0.42	0.27	-0.22	0.27	-0.08	0.2
	258628	0.63	0.19	0.19	-0.16	-0.07	0.2
	258685	0.28	0.20	0.20	-0.16	-0.08	0.1
	261611	0.11	-0.04	0.09	-0.06	-0.04	0.1
	258615	0.48	0.23	-0.12	0.23	-0.13	0.1
	258683	0.65	0.40	-0.26	0.40	-0.23	0.1
	258641	0.51	0.15	-0.08	0.15	-0.08	0.4
	258676	0.44	0.17	-0.17	0.17	0.00	0.5
	258607	0.60	0.27	-0.08	0.27	-0.23	0.3
	258645	0.58	0.42	-0.17	-0.30	0.42	0.4
	258666	0.56	0.16	-0.06	0.16	-0.14	0.3
	258675	0.51	0.23	-0.09	0.23	-0.16	0.3
	261609	0.59	0.22	-0.11	-0.17	0.22	0.5
	258665	0.28	0.27	0.27	-0.08	-0.15	0.5
	258682	0.51	0.13	-0.10	0.13	-0.03	0.4
	258648	0.40	0.27	-0.11	0.27	-0.17	0.3
	258614	0.39	0.31	-0.11	-0.20	0.31	0.4
	258680	0.46	0.26	-0.11	-0.16	0.26	0.4
	258681	0.39	0.15	-0.05	-0.09	0.15	0.3
	258642	0.55	0.21	-0.08	0.21	-0.14	0.3
	261623	0.66	0.24	-0.07	-0.25	0.24	0.3
	258649	0.28	0.11	0.11	-0.31	0.18	0.5
	258687	0.46	0.27	-0.14	0.27	-0.15	0.4
	258646	0.34	0.26	0.26	-0.25	-0.02	0.4
	261626	0.67	0.35	-0.26	-0.18	0.35	0.4
	258707	0.50	0.32	0.32	-0.22	-0.13	0.6
	258643	0.56	0.27	0.27	-0.18	-0.15	0.4
	258698	0.34	0.08	-0.08	0.02	0.08	0.4
	258728	0.28	0.26	-0.14	-0.14	0.26	0.4
	258734	0.54	0.33	-0.17	-0.21	0.33	0.4
	258735	0.52	0.29	-0.18	0.29	-0.15	0.5
	258704	0.52	0.32	-0.16	0.32	-0.19	0.4
	258624	0.53	0.29	0.29	-0.26	-0.04	0.6

**Table 2.A2** Item Statistics: MD Mod-HSA Biology—October 2008

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258697	0.43	0.23	0.23	-0.09	-0.14	0.6
	258616	0.20	0.00	-0.10	0.00	0.13	0.6
	258617	0.43	0.13	0.13	-0.16	0.01	0.6
	258688	0.40	0.18	-0.15	-0.01	0.18	0.6
	258669	0.62	0.28	-0.10	-0.21	0.28	0.7
	261621	0.69	0.41	0.41	-0.28	-0.23	0.6
	261619	0.66	0.26	-0.21	0.26	-0.08	0.7
	258692	0.48	0.20	-0.03	-0.16	0.20	0.6
	258635	0.55	0.36	-0.24	-0.16	0.36	0.6
	261616	0.54	0.32	-0.20	-0.14	0.32	0.6
<b>Mean</b>		0.48	0.24	-0.03	-0.02	0.03	0.4
<b>SD</b>		0.13	0.10	0.18	0.21	0.20	0.2

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A3** Item Statistics: MD Mod-HSA English—October 2008

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	259429	0.51	0.24	0.24	-0.19	-0.10	0.0
	259426	0.66	0.30	0.30	-0.17	-0.21	0.3
	259349	0.69	0.28	-0.18	0.28	-0.17	0.2
	259427	0.50	0.25	-0.13	0.25	-0.15	0.2
	259323	0.42	0.30	0.30	-0.18	-0.14	0.2
	259453	0.42	0.10	0.03	-0.18	0.10	0.1
	259382	0.67	0.28	-0.18	0.28	-0.16	0.2
	259452	0.42	0.26	-0.14	0.26	-0.15	0.2
	259465	0.37	0.22	0.22	-0.21	-0.02	0.2
	259407	0.17	0.08	-0.21	0.08	0.15	0.4
	259335	0.38	0.25	-0.16	-0.12	0.25	0.5
	259410	0.73	0.31	-0.21	0.31	-0.18	0.4
	259413	0.54	0.28	-0.18	0.28	-0.17	0.4
	259411	0.46	0.25	-0.14	-0.14	0.25	0.4
	259414	0.41	0.27	-0.14	-0.14	0.27	0.5
	259338	0.35	0.14	0.14	0.01	-0.15	0.3
	259339	0.66	0.33	-0.22	0.33	-0.20	0.3
	259441	0.31	0.15	0.15	-0.06	-0.07	0.3
	259362	0.65	0.40	0.40	-0.26	-0.21	0.5
	259436	0.33	0.21	0.21	-0.04	-0.19	0.6
	259432	0.67	0.30	0.30	-0.18	-0.16	0.5
	259433	0.54	0.37	0.37	-0.24	-0.19	0.5
	259354	0.41	0.23	-0.14	-0.09	0.23	0.6
	259347	0.49	0.30	0.30	-0.17	-0.15	0.5
	259424	0.69	0.36	-0.17	-0.27	0.36	0.5
	259423	0.52	0.23	-0.13	-0.12	0.23	0.6
	259425	0.52	0.21	-0.13	0.21	-0.10	0.5
	259422	0.43	0.27	-0.13	0.27	-0.14	0.5
	259445	0.62	0.29	-0.20	0.29	-0.13	0.5
	259374	0.42	0.33	-0.19	-0.17	0.33	0.6
	259450	0.43	0.34	-0.23	-0.14	0.34	0.6
	259376	0.64	0.40	-0.18	-0.31	0.40	0.8
	259310	0.60	0.32	-0.17	0.32	-0.19	0.9
	259365	0.61	0.33	-0.14	0.33	-0.24	1.1
	259449	0.64	0.29	0.29	-0.13	-0.22	0.6
	259443	0.59	0.23	-0.12	0.23	-0.14	0.6
	259437	0.47	0.27	0.27	-0.06	-0.24	0.6
	259360	0.53	0.35	0.35	-0.27	-0.12	0.6
	259435	0.25	0.19	-0.10	-0.05	0.19	0.6
	259457	0.44	0.25	0.25	-0.23	0.00	0.8

**Table 2.A3** Item Statistics: MD Mod-HSA English—October 2008

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	259330	0.68	0.38	-0.20	0.38	-0.26	0.7
	259458	0.36	0.17	0.17	-0.18	0.03	0.6
	259466	0.60	0.44	-0.19	-0.32	0.44	0.6
	259395	0.50	0.31	-0.08	0.31	-0.25	0.8
	259459	0.50	0.25	-0.10	-0.17	0.25	0.7
	259396	0.36	0.18	-0.10	-0.05	0.18	0.6
	259460	0.66	0.33	0.33	-0.26	-0.13	0.8
	259398	0.56	0.32	-0.22	0.32	-0.13	0.6
	259444	0.60	0.24	-0.05	0.24	-0.20	0.6
	259356	0.53	0.28	-0.18	-0.14	0.28	0.6
<b>Mean</b>		0.51	0.27	-0.01	0.00	-0.02	0.5
<b>SD</b>		0.13	0.07	0.21	0.23	0.21	0.2

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A4** Item Statistics: MD Mod-HSA Government—October

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258363	0.44	0.26	-0.18	-0.12	0.26	0.0
	258500	0.24	0.19	0.19	-0.07	-0.11	0.0
	258338	0.42	0.22	-0.09	0.22	-0.16	0.0
	258327	0.47	0.22	0.22	-0.10	-0.19	0.0
	258408	0.48	0.29	0.29	-0.20	-0.13	0.1
	258355	0.48	0.21	0.21	-0.12	-0.12	0.2
	258458	0.44	0.33	0.33	-0.18	-0.19	0.1
	258505	0.48	0.23	0.23	-0.10	-0.16	0.1
	258506	0.64	0.19	-0.09	-0.14	0.19	0.1
	258349	0.56	0.32	0.32	-0.23	-0.15	0.1
	258429	0.45	0.16	-0.02	-0.16	0.16	0.2
	258353	0.31	0.13	-0.03	0.13	-0.11	0.1
	258396	0.48	0.21	0.21	-0.10	-0.14	0.3
	258410	0.45	0.28	-0.14	-0.16	0.28	0.1
	258386	0.49	0.49	0.49	-0.30	-0.24	0.4
	258350	0.34	0.20	0.20	-0.06	-0.12	0.4
	258378	0.45	0.18	-0.09	-0.09	0.18	0.4
	258503	0.36	0.22	-0.11	-0.10	0.22	0.4
	258440	0.61	0.26	-0.17	0.26	-0.13	0.4
	258400	0.55	0.33	-0.24	-0.15	0.33	0.4
	258421	0.30	0.23	0.23	-0.11	-0.09	0.4
	258446	0.38	0.22	-0.20	0.22	-0.01	0.4
	258344	0.38	0.25	0.25	-0.11	-0.13	0.5
	258432	0.48	0.21	-0.12	-0.09	0.21	0.4
	258428	0.50	0.24	-0.10	-0.15	0.24	0.4
	258360	0.43	0.22	-0.10	0.22	-0.12	0.4
	258343	0.52	0.30	-0.12	0.30	-0.22	0.5
	258438	0.55	0.37	0.37	-0.20	-0.22	0.4
	258718	0.72	0.42	0.42	-0.25	-0.26	0.4
	258424	0.31	0.13	0.05	0.13	-0.15	0.5
	258323	0.37	0.25	-0.18	0.25	-0.06	0.4
	258324	0.65	0.47	-0.25	-0.32	0.47	0.5
	258437	0.42	0.20	-0.03	-0.15	0.20	0.5
	258319	0.33	0.11	-0.05	0.11	-0.03	0.5
	258389	0.57	0.17	-0.08	0.17	-0.11	0.6
	258379	0.58	0.23	-0.03	-0.22	0.23	0.5
	258413	0.48	0.23	-0.12	0.23	-0.12	0.6
	258448	0.48	0.37	0.37	-0.25	-0.14	0.6
	258721	0.35	0.21	0.21	-0.09	-0.10	0.5
	258439	0.47	0.26	-0.11	0.26	-0.16	0.5

**Table 2.A4** Item Statistics: MD Mod-HSA Government—October

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258368	0.44	0.20	0.20	-0.17	-0.02	0.5
	258320	0.34	0.13	0.00	0.13	-0.11	0.6
	258436	0.57	0.37	0.37	-0.26	-0.16	0.5
	258384	0.68	0.34	-0.17	0.34	-0.23	0.6
	258486	0.49	0.23	-0.12	0.23	-0.11	0.6
	258411	0.31	0.13	-0.15	0.04	0.13	0.6
	258313	0.68	0.33	-0.20	0.33	-0.18	0.5
	258716	0.47	0.34	0.34	-0.18	-0.18	0.7
	258335	0.53	0.37	-0.18	-0.22	0.37	0.5
	258377	0.64	0.35	0.35	-0.18	-0.23	0.7
<b>Mean</b>		0.47	0.26	0.05	-0.04	-0.03	0.4
<b>SD</b>		0.11	0.09	0.21	0.19	0.19	0.2

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.



**Table 2.A5** Item Statistics: MD Mod-HSA Algebra—January 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2—3	258190	0.36	0.27	-0.11	-0.16	0.27	0.1
	258164	0.41	0.26	-0.13	-0.15	0.26	0.1
	258224	0.33	0.31	-0.04	0.31	-0.26	0.0
	258107	0.28	0.12	-0.06	-0.06	0.12	0.2
	258126	0.45	0.26	0.26	-0.13	-0.17	0.2
	258239	0.33	0.20	-0.06	0.20	-0.16	0.2
	258123	0.57	0.37	0.37	-0.29	-0.14	0.1
	258124	0.30	0.38	-0.18	-0.18	0.38	0.0
	258168	0.58	0.24	-0.15	0.24	-0.17	0.0
	258200	0.30	0.23	0.23	0.00	-0.22	0.2
	258179	0.32	0.18	-0.09	-0.09	0.18	0.2
	258235	0.60	0.39	-0.30	0.39	-0.17	0.4
	258105	0.31	0.19	0.19	-0.18	-0.01	0.2
	258236	0.48	0.21	-0.14	0.21	-0.10	0.2
	261559	0.32	0.16	0.16	-0.12	-0.04	0.1
	258211	0.54	0.41	-0.35	0.41	-0.12	0.1
	258209	0.61	0.20	-0.11	-0.15	0.20	0.2
	258182	0.61	0.38	-0.19	-0.27	0.38	0.1
	258238	0.25	0.27	-0.17	-0.06	0.27	0.1
	261561	0.53	0.29	0.29	-0.13	-0.20	0.2
	258132	0.49	0.25	-0.12	0.25	-0.16	0.2
	258158	0.48	0.34	-0.16	-0.22	0.34	0.2
	258145	0.54	0.29	-0.23	0.29	-0.11	0.2
	258117	0.44	0.20	-0.08	-0.14	0.20	0.4
	258229	0.64	0.27	-0.21	0.27	-0.12	0.4
	258197	0.59	0.29	-0.22	0.29	-0.11	0.3
	258097	0.29	0.33	0.33	-0.10	-0.23	0.4
	258310	0.66	0.34	-0.17	-0.24	0.34	0.5
	258109	0.46	0.24	0.24	-0.14	-0.12	0.4
	258110	0.41	0.20	-0.07	0.20	-0.14	0.4
	258103	0.30	0.17	0.17	-0.20	0.07	0.6
	258108	0.45	0.11	-0.02	0.11	-0.09	0.4
	258196	0.60	0.23	-0.08	0.23	-0.20	0.4
	261564	0.52	0.32	0.32	-0.21	-0.14	0.4
	258153	0.34	0.18	0.18	0.00	-0.16	0.3
	258181	0.76	0.36	-0.20	-0.26	0.36	0.3
	258240	0.62	0.29	-0.18	0.29	-0.18	0.4
	258157	0.22	0.20	0.20	-0.06	-0.09	0.4
	258091	0.28	0.23	-0.12	0.23	-0.08	0.3
	258118	0.49	0.31	0.31	-0.19	-0.16	0.4

**Table 2.A5** Item Statistics: MD Mod-HSA Algebra—January 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2—3	258225	0.55	0.27	-0.17	0.27	-0.14	0.4
	261557	0.40	0.22	0.22	-0.17	-0.05	0.3
	258152	0.39	0.15	0.15	-0.14	-0.01	0.4
	258133	0.39	0.25	0.25	-0.17	-0.09	0.3
	258311	0.43	0.27	-0.16	0.27	-0.12	0.4
	258178	0.71	0.27	-0.15	-0.18	0.27	0.4
	258100	0.59	0.33	-0.26	0.33	-0.12	0.4
	258171	0.51	0.34	-0.19	0.34	-0.19	0.4
	258142	0.42	0.35	-0.13	-0.25	0.35	0.4
	258150	0.43	0.21	0.21	-0.02	-0.19	0.4
<b>Mean</b>		0.46	0.26	-0.02	0.01	-0.01	0.3
<b>SD</b>		0.13	0.07	0.20	0.22	0.20	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A6** Item Statistics: MD Mod-HSA Biology—January 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2—3	258627	0.75	0.22	-0.15	0.22	-0.15	0.0
	258733	0.53	0.06	0.06	0.06	-0.15	0.1
	258684	0.48	0.15	0.03	-0.20	0.15	0.1
	258644	0.31	0.23	0.23	-0.11	-0.10	0.1
	258634	0.44	0.26	-0.15	0.26	-0.12	0.2
	261645	0.36	0.26	-0.06	-0.20	0.26	0.3
	258619	0.39	0.26	0.26	-0.14	-0.12	0.3
	258700	0.59	0.30	-0.18	-0.18	0.30	0.3
	258618	0.32	0.22	-0.07	-0.13	0.22	0.3
	261627	0.64	0.25	-0.18	0.25	-0.10	0.3
	258639	0.39	0.23	0.23	-0.11	-0.13	0.2
	258732	0.55	0.21	0.21	-0.12	-0.12	0.3
	258727	0.54	0.29	-0.17	0.29	-0.16	0.2
	258622	0.49	0.35	0.35	-0.23	-0.15	0.3
	258695	0.43	0.18	-0.09	0.18	-0.10	0.2
	258631	0.80	0.29	0.29	-0.21	-0.15	0.2
	258699	0.25	0.06	-0.17	0.06	0.13	0.4
	261607	0.67	0.18	-0.09	0.18	-0.12	0.2
	261624	0.46	0.34	-0.17	-0.20	0.34	0.2
	258612	0.65	0.29	-0.15	0.29	-0.20	0.2
	261610	0.43	0.30	-0.13	-0.19	0.30	0.3
	258714	0.33	0.35	0.35	-0.15	-0.18	0.3
	258725	0.66	0.30	-0.20	0.30	-0.16	0.3
	258664	0.61	0.33	-0.12	0.33	-0.26	0.3
	258638	0.31	0.15	-0.01	-0.13	0.15	0.2
	258650	0.45	0.32	-0.14	-0.20	0.32	0.3
	261614	0.64	0.34	0.34	-0.21	-0.22	0.3
	261622	0.84	0.29	-0.18	0.29	-0.18	0.3
	258705	0.26	0.18	-0.13	-0.02	0.18	0.3
	258678	0.66	0.31	-0.15	0.31	-0.21	0.3
	261642	0.42	0.31	0.31	-0.25	-0.05	0.4
	258654	0.61	0.26	-0.24	-0.07	0.26	0.3
	258670	0.32	0.07	0.00	-0.05	0.07	0.3
	258660	0.47	0.30	-0.18	-0.16	0.30	0.3
	258637	0.50	0.33	-0.17	0.33	-0.20	0.4
	258640	0.60	0.23	-0.13	0.23	-0.14	0.3
	258674	0.47	0.21	-0.08	-0.13	0.21	0.3
	258697	0.41	0.20	0.20	-0.14	-0.06	0.3
	258616	0.23	0.00	-0.08	0.00	0.10	0.3
	258611	0.74	0.33	-0.22	0.33	-0.19	0.3

**Table 2.A6** Item Statistics: MD Mod-HSA Biology—January 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	261640	0.33	0.23	-0.11	-0.11	0.23	0.3
2—3	261617	0.37	0.16	0.16	-0.03	-0.16	0.3
	258726	0.43	0.21	0.21	-0.07	-0.14	0.3
	258730	0.38	0.26	0.26	-0.14	-0.12	0.4
	258651	0.45	0.37	0.37	-0.24	-0.15	0.4
	258657	0.20	0.13	-0.05	-0.06	0.13	0.3
	258712	0.43	0.25	-0.20	-0.08	0.25	0.3
	258731	0.34	0.22	-0.06	-0.14	0.22	0.4
	261608	0.54	0.32	-0.18	-0.18	0.32	0.4
	258693	0.35	0.32	0.32	-0.18	-0.14	0.3
<b>Mean</b>		0.48	0.24	0.00	-0.02	0.00	0.3
<b>SD</b>		0.15	0.08	0.20	0.19	0.19	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A7** Item Statistics: MD Mod-HSA English—January 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2—3	259343	0.65	0.35	-0.20	-0.25	0.35	0.0
	259415	0.61	0.26	0.26	-0.23	-0.11	0.0
	259417	0.49	0.19	0.19	-0.13	-0.11	0.0
	259416	0.77	0.35	-0.14	0.35	-0.30	0.1
	259312	0.68	0.38	0.38	-0.29	-0.18	0.1
	259368	0.40	0.25	0.25	-0.18	-0.10	0.0
	259371	0.73	0.39	-0.28	-0.22	0.39	0.0
	259367	0.69	0.28	-0.24	0.28	-0.14	0.1
	259370	0.50	0.20	-0.19	0.20	-0.07	0.0
	259318	0.60	0.40	0.40	-0.26	-0.23	0.1
	259319	0.32	0.07	0.04	-0.12	0.07	0.1
	259320	0.68	0.36	-0.23	0.36	-0.22	0.2
	259351	0.44	0.26	-0.20	0.26	-0.10	0.2
	259430	0.73	0.24	-0.22	0.24	-0.09	0.2
	259431	0.66	0.34	0.34	-0.20	-0.22	0.3
	259419	0.63	0.21	-0.12	0.21	-0.14	0.2
	259421	0.59	0.26	0.26	-0.22	-0.08	0.3
	259463	0.38	0.22	0.22	-0.15	-0.06	0.3
	259345	0.49	0.35	-0.17	-0.22	0.35	0.2
	259325	0.57	0.31	-0.19	0.31	-0.17	0.3
	259385	0.57	0.33	-0.17	-0.21	0.33	0.3
	259390	0.60	0.30	-0.14	-0.21	0.30	0.3
	259383	0.51	0.28	-0.20	0.28	-0.10	0.5
	259386	0.40	0.37	-0.20	-0.18	0.37	0.5
	259388	0.51	0.29	0.29	-0.12	-0.19	0.4
	259389	0.43	0.22	-0.13	0.22	-0.09	0.4
	259438	0.46	0.13	-0.07	0.13	-0.06	0.4
	259439	0.53	0.25	-0.22	0.25	-0.09	0.4
	259437	0.49	0.24	0.24	-0.08	-0.19	0.4
	259358	0.58	0.36	-0.16	-0.25	0.36	0.4
	259434	0.38	0.18	-0.10	0.18	-0.13	0.4
	259332	0.62	0.20	-0.17	0.20	-0.05	0.4
	259403	0.35	0.19	-0.01	-0.17	0.19	0.4
	259401	0.45	0.24	0.24	-0.07	-0.19	0.4
	259402	0.39	0.33	-0.25	-0.07	0.33	0.4
	259399	0.75	0.40	-0.20	-0.29	0.40	0.5
	259400	0.54	0.37	-0.20	-0.24	0.37	0.5
	259404	0.61	0.24	0.24	-0.13	-0.14	0.4
	259461	0.73	0.35	-0.23	-0.20	0.35	0.4
	259446	0.55	0.39	-0.21	-0.23	0.39	0.5

**Table 2.A7** Item Statistics: MD Mod-HSA English—January 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2—3	259447	0.54	0.30	-0.17	0.30	-0.18	0.4
	259448	0.57	0.34	-0.18	-0.21	0.34	0.4
	259391	0.54	0.32	-0.14	0.32	-0.22	0.5
	259454	0.35	0.19	0.19	-0.11	-0.05	0.5
	259455	0.49	0.33	-0.23	-0.13	0.33	0.5
	259392	0.45	0.36	-0.16	-0.22	0.36	0.6
	259394	0.70	0.40	0.40	-0.25	-0.26	0.6
	259393	0.51	0.38	0.38	-0.21	-0.21	0.7
	259444	0.64	0.21	-0.09	0.21	-0.15	0.6
	259356	0.51	0.28	-0.18	-0.15	0.28	0.7
<b>Mean</b>		0.55	0.29	-0.03	-0.04	0.02	0.3
<b>SD</b>		0.12	0.08	0.22	0.22	0.24	0.2

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A8** Item Statistics: MD Mod-HSA Government—January 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2—3	258401	0.60	0.38	-0.21	-0.25	0.38	0.1
	258459	0.74	0.27	-0.18	0.27	-0.18	0.0
	258402	0.48	0.26	-0.18	-0.13	0.26	0.2
	258406	0.66	0.36	-0.20	0.36	-0.25	0.1
	258347	0.51	0.27	0.27	-0.23	-0.13	0.2
	258328	0.55	0.41	0.41	-0.27	-0.21	0.2
	258422	0.46	0.30	-0.15	-0.18	0.30	0.3
	258357	0.30	0.30	-0.14	0.30	-0.15	0.3
	258452	0.45	0.38	0.38	-0.23	-0.20	0.3
	258330	0.48	0.35	0.35	-0.23	-0.16	0.3
	258454	0.42	0.30	-0.19	-0.15	0.30	0.2
	258364	0.65	0.35	-0.20	0.35	-0.23	0.3
	258361	0.50	0.34	0.34	-0.26	-0.12	0.4
	258336	0.44	0.25	-0.13	-0.13	0.25	0.3
	258376	0.46	0.35	0.35	-0.21	-0.16	0.3
	258419	0.25	0.12	-0.04	0.12	-0.05	0.3
	258425	0.55	0.25	-0.12	0.25	-0.17	0.3
	258715	0.76	0.29	-0.22	0.29	-0.13	0.3
	258473	0.48	0.26	-0.09	-0.19	0.26	0.3
	258478	0.23	0.09	0.12	0.09	-0.19	0.3
	258501	0.53	0.33	-0.18	-0.18	0.33	0.4
	258450	0.45	0.30	0.30	-0.17	-0.15	0.4
	258498	0.45	0.39	0.39	-0.19	-0.23	0.5
	258388	0.32	0.27	-0.16	0.27	-0.09	0.5
	258351	0.36	0.37	0.37	-0.34	-0.01	0.5
	258488	0.75	0.32	0.32	-0.24	-0.15	0.5
	258479	0.42	0.32	-0.15	0.32	-0.19	0.5
	258375	0.54	0.48	0.48	-0.31	-0.24	0.5
	258414	0.42	0.24	-0.10	0.24	-0.14	0.5
	258495	0.27	0.24	0.24	-0.07	-0.14	0.5
	258321	0.54	0.33	0.33	-0.17	-0.19	0.5
	258426	0.28	0.31	0.31	-0.20	-0.08	0.5
	258722	0.52	0.22	-0.13	0.22	-0.11	0.5
	258407	0.33	0.12	0.12	-0.01	-0.10	0.5
	258412	0.59	0.39	0.39	-0.19	-0.27	0.5
	258369	0.49	0.36	-0.25	-0.14	0.36	0.5
	258483	0.54	0.37	0.37	-0.24	-0.20	0.5
	258719	0.62	0.38	0.38	-0.25	-0.20	0.6
	258345	0.21	0.07	0.07	0.07	-0.13	0.6
	258390	0.60	0.33	-0.20	0.33	-0.18	0.5

**Table 2.A8** Item Statistics: MD Mod-HSA Government—January 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2—3	258329	0.32	0.28	0.28	-0.04	-0.22	0.5
	258409	0.61	0.12	-0.04	0.12	-0.09	0.5
	258434	0.40	0.23	-0.08	-0.15	0.23	0.5
	258391	0.60	0.35	0.35	-0.22	-0.18	0.5
	258316	0.46	0.19	-0.03	0.19	-0.15	0.5
	258404	0.48	0.32	0.32	-0.18	-0.16	0.5
	258468	0.51	0.36	0.36	-0.23	-0.16	0.5
	258491	0.41	0.28	-0.07	0.28	-0.22	0.6
	258341	0.52	0.26	0.26	-0.17	-0.12	0.6
	258502	0.30	0.21	0.21	-0.14	-0.04	0.8
<b>Mean</b>		0.48	0.29	0.09	-0.04	-0.08	0.4
<b>SD</b>		0.13	0.09	0.24	0.22	0.19	0.2

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.



**Table 2.A9** Item Statistics: MD Mod-HSA Algebra—April 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2	258190	0.39	0.37	-0.16	-0.23	0.37	0.0
	258164	0.42	0.31	-0.21	-0.14	0.31	0.0
	258224	0.38	0.31	0.03	0.31	-0.35	0.0
	258107	0.31	0.19	-0.06	-0.14	0.19	0.2
	258126	0.46	0.25	0.25	-0.21	-0.06	0.0
	258239	0.40	0.23	-0.11	0.23	-0.14	0.0
	258123	0.57	0.28	0.28	-0.17	-0.18	0.0
	258124	0.32	0.38	-0.09	-0.28	0.38	0.0
	258168	0.60	0.33	-0.21	0.33	-0.21	0.0
	258200	0.32	0.21	0.21	0.02	-0.22	0.0
	258179	0.35	0.17	-0.15	-0.04	0.17	0.2
	258235	0.62	0.34	-0.27	0.34	-0.14	0.2
	258105	0.32	0.19	0.19	-0.14	-0.05	0.0
	258236	0.45	0.21	-0.08	0.21	-0.15	0.0
	261559	0.35	0.17	0.17	-0.12	-0.06	0.0
	258211	0.51	0.36	-0.37	0.36	0.00	0.0
	258209	0.62	0.23	-0.14	-0.17	0.23	0.0
	258182	0.62	0.40	-0.21	-0.29	0.40	0.0
	258238	0.27	0.34	-0.16	-0.15	0.34	0.0
	261561	0.52	0.26	0.26	-0.15	-0.16	0.2
	258132	0.53	0.32	-0.14	0.32	-0.23	0.0
	258158	0.48	0.34	-0.14	-0.25	0.34	0.0
	258145	0.53	0.27	-0.26	0.27	-0.06	0.0
	258117	0.47	0.25	-0.12	-0.16	0.25	0.2
	258229	0.63	0.26	-0.19	0.26	-0.14	0.0
	258197	0.57	0.27	-0.20	0.27	-0.15	0.0
	258097	0.34	0.28	0.28	-0.17	-0.13	0.0
	258310	0.63	0.41	-0.23	-0.29	0.41	0.0
	258109	0.40	0.26	0.26	-0.19	-0.08	0.4
	258110	0.44	0.27	-0.12	0.27	-0.18	0.0
	258103	0.30	0.26	0.26	-0.27	0.04	0.0
	258108	0.50	0.17	-0.05	0.17	-0.15	0.0
	258196	0.59	0.18	-0.09	0.18	-0.14	0.0
	261564	0.50	0.37	0.37	-0.24	-0.18	0.0
	258153	0.35	0.19	0.19	-0.04	-0.15	0.2
	258181	0.75	0.40	-0.22	-0.29	0.40	0.2
	258240	0.59	0.29	-0.19	0.29	-0.16	0.2
	258157	0.23	0.12	0.12	-0.09	-0.01	0.4
	258091	0.24	0.29	-0.16	0.29	-0.09	0.2
	258118	0.52	0.34	0.34	-0.20	-0.21	0.2

**Table 2.A9** Item Statistics: MD Mod-HSA Algebra—April 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2	258225	0.57	0.23	-0.13	0.23	-0.15	0.2
	261557	0.38	0.24	0.24	-0.20	-0.05	0.2
	258152	0.43	0.18	0.18	-0.14	-0.04	0.2
	258133	0.39	0.28	0.28	-0.19	-0.10	0.2
	258311	0.45	0.18	-0.10	0.18	-0.10	0.2
	258178	0.73	0.31	-0.20	-0.20	0.31	0.4
	258100	0.64	0.35	-0.27	0.35	-0.16	0.2
	258171	0.50	0.32	-0.23	0.32	-0.13	0.2
	258142	0.42	0.35	-0.13	-0.25	0.35	0.2
	258150	0.43	0.20	0.20	0.01	-0.24	0.2
<b>Mean</b>		0.47	0.27	-0.03	0.00	-0.01	0.1
<b>SD</b>		0.13	0.07	0.21	0.23	0.22	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A10** Item Statistics: MD Mod-HSA Biology—April 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2	258627	0.76	0.12	-0.03	0.12	-0.16	0.0
	258733	0.54	0.06	0.06	0.02	-0.12	0.0
	258684	0.46	0.06	0.04	-0.11	0.06	0.0
	258644	0.37	0.26	0.26	-0.20	-0.07	0.0
	258634	0.44	0.28	-0.14	0.28	-0.17	0.0
	261645	0.35	0.22	-0.05	-0.19	0.22	0.0
	258619	0.39	0.28	0.28	-0.17	-0.13	0.0
	258700	0.62	0.33	-0.22	-0.21	0.33	0.0
	258618	0.32	0.24	-0.14	-0.10	0.24	0.2
	261627	0.66	0.22	-0.16	0.22	-0.12	0.0
	258639	0.37	0.29	0.29	-0.12	-0.18	0.0
	258732	0.50	0.17	0.17	-0.20	0.03	0.4
	258727	0.48	0.28	-0.21	0.28	-0.11	0.2
	258622	0.51	0.32	0.32	-0.24	-0.12	0.2
	258695	0.42	0.25	-0.15	0.25	-0.13	0.2
	258631	0.82	0.30	0.30	-0.19	-0.20	0.2
	258699	0.24	0.02	-0.16	0.02	0.14	0.2
	261607	0.70	0.29	-0.15	0.29	-0.21	0.4
	261624	0.48	0.35	-0.20	-0.20	0.35	0.5
	258612	0.62	0.29	-0.17	0.29	-0.18	0.2
	261610	0.41	0.29	-0.12	-0.18	0.29	0.2
	258714	0.31	0.32	0.32	-0.24	-0.06	0.2
	258725	0.65	0.32	-0.15	0.32	-0.23	0.2
	258664	0.59	0.28	-0.15	0.28	-0.17	0.4
	258638	0.33	0.15	-0.05	-0.09	0.15	0.2
	258650	0.45	0.34	-0.22	-0.16	0.34	0.0
	261614	0.62	0.37	0.37	-0.24	-0.23	0.2
	261622	0.84	0.28	-0.14	0.28	-0.23	0.0
	258705	0.22	0.26	-0.17	-0.06	0.26	0.4
	258678	0.66	0.29	-0.16	0.29	-0.20	0.0
	261642	0.42	0.28	0.28	-0.27	-0.01	0.0
	258654	0.58	0.23	-0.24	-0.04	0.23	0.0
	258670	0.34	0.14	0.03	-0.16	0.14	0.0
	258660	0.48	0.34	-0.23	-0.18	0.34	0.0
	258637	0.53	0.34	-0.21	0.34	-0.20	0.0
	258640	0.59	0.21	-0.11	0.21	-0.16	0.0
	258674	0.50	0.18	-0.12	-0.08	0.18	0.0
	258697	0.41	0.23	0.23	-0.20	-0.05	0.2
	258616	0.24	-0.02	-0.08	-0.02	0.09	0.0
	258611	0.70	0.39	-0.27	0.39	-0.22	0.0

**Table 2.A10** Item Statistics: MD Mod-HSA Biology—April 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2	261640	0.32	0.20	-0.04	-0.15	0.20	0.2
	261617	0.35	0.15	0.15	-0.06	-0.13	0.0
	258726	0.44	0.22	0.22	-0.12	-0.12	0.2
	258730	0.35	0.26	0.26	-0.13	-0.15	0.0
	258651	0.47	0.42	0.42	-0.30	-0.16	0.2
	258657	0.23	0.16	-0.15	-0.03	0.16	0.0
	258712	0.40	0.26	-0.19	-0.11	0.26	0.2
	258731	0.33	0.23	-0.11	-0.11	0.23	0.2
	261608	0.52	0.33	-0.12	-0.26	0.33	0.4
	258693	0.38	0.29	0.29	-0.17	-0.14	0.4
<b>Mean</b>		0.47	0.25	-0.01	-0.03	0.00	0.1
<b>SD</b>		0.15	0.09	0.20	0.20	0.20	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A11** Item Statistics: MD Mod-HSA English—April 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2	259343	0.60	0.33	-0.18	-0.23	0.33	0.0
	259415	0.60	0.22	0.22	-0.16	-0.12	0.0
	259417	0.45	0.17	0.17	-0.12	-0.09	0.0
	259416	0.78	0.26	-0.09	0.26	-0.25	0.0
	259312	0.69	0.42	0.42	-0.27	-0.27	0.0
	259368	0.39	0.27	0.27	-0.23	-0.07	0.0
	259371	0.71	0.39	-0.28	-0.22	0.39	0.0
	259367	0.68	0.22	-0.18	0.22	-0.12	0.0
	259370	0.51	0.21	-0.23	0.21	-0.05	0.0
	259318	0.64	0.37	0.37	-0.25	-0.21	0.0
	259319	0.34	0.11	0.04	-0.18	0.11	0.0
	259320	0.68	0.35	-0.19	0.35	-0.25	0.2
	259351	0.41	0.20	-0.18	0.20	-0.06	0.0
	259430	0.75	0.18	-0.22	0.18	-0.03	0.0
	259431	0.65	0.37	0.37	-0.18	-0.29	0.0
	259419	0.62	0.21	-0.09	0.21	-0.17	0.0
	259421	0.62	0.23	0.23	-0.14	-0.14	0.0
	259463	0.41	0.22	0.22	-0.19	-0.05	0.0
	259345	0.52	0.35	-0.15	-0.26	0.35	0.0
	259325	0.58	0.31	-0.16	0.31	-0.22	0.0
	259385	0.53	0.31	-0.17	-0.20	0.31	0.0
	259390	0.53	0.42	-0.21	-0.28	0.42	0.0
	259383	0.51	0.25	-0.17	0.25	-0.12	0.0
	259386	0.42	0.35	-0.24	-0.15	0.35	0.0
	259388	0.53	0.27	0.27	-0.18	-0.14	0.0
	259389	0.40	0.29	-0.16	0.29	-0.15	0.4
	259438	0.50	0.16	-0.04	0.16	-0.14	0.2
	259439	0.53	0.18	-0.21	0.18	-0.03	0.0
	259437	0.47	0.30	0.30	-0.14	-0.20	0.2
	259358	0.53	0.37	-0.24	-0.21	0.37	0.0
	259434	0.43	0.22	-0.11	0.22	-0.19	0.0
	259332	0.59	0.20	-0.16	0.20	-0.09	0.2
	259403	0.37	0.26	-0.06	-0.24	0.26	0.0
	259401	0.46	0.24	0.24	-0.11	-0.17	0.2
	259402	0.41	0.42	-0.29	-0.15	0.42	0.2
	259399	0.70	0.35	-0.23	-0.23	0.35	0.0
	259400	0.56	0.32	-0.17	-0.24	0.32	0.0
	259404	0.58	0.23	0.23	-0.07	-0.20	0.0
	259461	0.71	0.34	-0.27	-0.18	0.34	0.0
	259446	0.53	0.43	-0.24	-0.26	0.43	0.0

**Table 2.A11** Item Statistics: MD Mod-HSA English—April 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2	259447	0.53	0.30	-0.15	0.30	-0.24	0.0
	259448	0.55	0.30	-0.17	-0.19	0.30	0.0
	259391	0.50	0.32	-0.20	0.32	-0.16	0.0
	259454	0.37	0.24	0.24	-0.16	-0.09	0.0
	259455	0.56	0.36	-0.26	-0.16	0.36	0.0
	259392	0.45	0.40	-0.20	-0.24	0.40	0.0
	259394	0.71	0.41	0.41	-0.27	-0.26	0.2
	259393	0.54	0.37	0.37	-0.23	-0.20	0.0
	259444	0.61	0.22	-0.10	0.22	-0.17	0.2
	259356	0.50	0.27	-0.22	-0.11	0.27	0.0
<b>Mean</b>		0.54	0.29	-0.04	-0.05	0.02	0.0
<b>SD</b>		0.11	0.08	0.23	0.21	0.25	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A12** Item Statistics: MD Mod-HSA Government—April 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2	258401	0.62	0.39	-0.21	-0.27	0.39	0.0
	258459	0.73	0.25	-0.14	0.25	-0.18	0.0
	258402	0.45	0.22	-0.13	-0.15	0.22	0.0
	258406	0.65	0.31	-0.15	0.31	-0.24	0.0
	258347	0.43	0.16	0.16	-0.21	-0.03	0.0
	258328	0.60	0.35	0.35	-0.25	-0.18	0.2
	258422	0.42	0.33	-0.19	-0.18	0.33	0.0
	258357	0.32	0.30	-0.14	0.30	-0.16	0.0
	258452	0.51	0.37	0.37	-0.25	-0.19	0.0
	258330	0.49	0.28	0.28	-0.20	-0.12	0.0
	258454	0.40	0.31	-0.26	-0.12	0.31	0.2
	258364	0.67	0.27	-0.21	0.27	-0.15	0.0
	258361	0.56	0.25	0.25	-0.19	-0.11	0.0
	258336	0.48	0.31	-0.13	-0.21	0.31	0.0
	258376	0.50	0.30	0.30	-0.23	-0.12	0.0
	258419	0.24	0.13	-0.06	0.13	-0.05	0.0
	258425	0.57	0.23	-0.14	0.23	-0.14	0.0
	258715	0.73	0.27	-0.21	0.27	-0.15	0.0
	258473	0.47	0.27	-0.10	-0.22	0.27	0.0
	258478	0.22	0.07	0.09	0.07	-0.16	0.0
	258501	0.51	0.36	-0.26	-0.17	0.36	0.0
	258450	0.44	0.30	0.30	-0.12	-0.23	0.0
	258498	0.42	0.31	0.31	-0.13	-0.22	0.0
	258388	0.35	0.18	-0.13	0.18	-0.06	0.0
	258351	0.41	0.37	0.37	-0.32	-0.07	0.0
	258488	0.73	0.38	0.38	-0.25	-0.23	0.2
	258479	0.47	0.20	-0.12	0.20	-0.11	0.2
	258375	0.57	0.33	0.33	-0.24	-0.14	0.2
	258414	0.42	0.26	-0.05	0.26	-0.21	0.2
	258495	0.27	0.20	0.20	-0.09	-0.08	0.2
	258321	0.57	0.40	0.40	-0.23	-0.24	0.2
	258426	0.28	0.23	0.23	-0.22	0.02	0.2
	258722	0.48	0.25	-0.18	0.25	-0.08	0.2
	258407	0.32	0.23	0.23	-0.10	-0.13	0.2
	258412	0.66	0.38	0.38	-0.21	-0.26	0.2
	258369	0.54	0.29	-0.18	-0.15	0.29	0.2
	258483	0.55	0.34	0.34	-0.24	-0.18	0.2
	258719	0.58	0.28	0.28	-0.21	-0.11	0.2
	258345	0.24	0.04	0.09	0.04	-0.15	0.2
	258390	0.61	0.30	-0.21	0.30	-0.15	0.7

**Table 2.A12** Item Statistics: MD Mod-HSA Government—April 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
2	258329	0.32	0.24	0.24	0.02	-0.27	0.2
	258409	0.57	0.20	-0.13	0.20	-0.10	0.2
	258434	0.41	0.26	-0.14	-0.14	0.26	0.2
	258391	0.63	0.27	0.27	-0.15	-0.18	0.2
	258316	0.44	0.12	-0.02	0.12	-0.10	0.2
	258404	0.50	0.33	0.33	-0.18	-0.19	0.2
	258468	0.52	0.31	0.31	-0.24	-0.11	0.2
	258491	0.41	0.28	-0.08	0.28	-0.23	0.2
	258341	0.48	0.25	0.25	-0.13	-0.15	0.4
	258502	0.35	0.22	0.22	-0.16	-0.05	0.4
<b>Mean</b>		0.48	0.27	0.07	-0.05	-0.07	0.1
<b>SD</b>		0.13	0.08	0.23	0.20	0.19	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.



**Table 2.A13** Item Statistics: MD Mod-HSA Algebra—May 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258090	0.58	0.34	-0.17	-0.24	0.34	0.0
	258095	0.71	0.38	0.38	-0.22	-0.27	0.0
	258166	0.72	0.36	-0.32	0.36	-0.13	0.0
	258312	0.51	0.39	0.39	-0.27	-0.20	0.1
	258173	0.51	0.29	-0.14	0.29	-0.20	0.1
	258115	0.41	0.34	0.34	-0.20	-0.17	0.1
	258223	0.30	0.12	-0.06	0.12	-0.06	0.1
	258230	0.52	0.21	0.21	-0.23	-0.04	0.0
	258147	0.48	0.28	0.28	-0.15	-0.20	0.1
	261560	0.64	0.35	-0.21	0.35	-0.22	0.1
	258227	0.63	0.32	0.32	-0.18	-0.23	0.1
	258308	0.42	0.30	0.30	-0.11	-0.22	0.1
	258101	0.56	0.30	-0.23	0.30	-0.13	0.1
	258210	0.76	0.37	-0.26	0.37	-0.22	0.0
	258116	0.42	0.16	0.16	-0.14	-0.07	0.1
	258089	0.28	0.28	-0.14	0.28	-0.12	0.1
	261556	0.44	0.29	0.29	-0.25	-0.07	0.1
	258309	0.82	0.35	-0.22	-0.25	0.35	0.1
	258098	0.61	0.39	-0.23	-0.26	0.39	0.1
	258208	0.43	0.18	-0.05	-0.15	0.18	0.1
	258161	0.57	0.46	0.46	-0.39	-0.14	0.1
	258159	0.41	0.28	-0.11	-0.20	0.28	0.1
	258184	0.53	0.31	-0.11	0.31	-0.25	0.1
	258136	0.53	0.31	-0.18	0.31	-0.19	0.2
	258102	0.49	0.30	-0.13	0.30	-0.21	0.2
	258226	0.39	0.27	-0.10	-0.19	0.27	0.1
	258188	0.67	0.31	-0.17	0.31	-0.22	0.2
	258174	0.47	0.26	-0.12	-0.17	0.26	0.3
	258187	0.59	0.29	-0.13	-0.21	0.29	0.2
	258154	0.39	0.48	-0.33	-0.18	0.48	0.2
	258113	0.56	0.35	-0.24	0.35	-0.17	0.1
	258198	0.40	0.28	-0.16	-0.14	0.28	0.3
	258167	0.62	0.35	-0.25	0.35	-0.18	0.2
	258169	0.47	0.29	-0.11	-0.21	0.29	0.2
	258119	0.47	0.30	0.30	-0.11	-0.25	0.2
	258160	0.44	0.29	0.29	-0.17	-0.14	0.3
	258241	0.55	0.33	-0.17	0.33	-0.22	0.2
	258130	0.51	0.27	0.27	-0.16	-0.16	0.3
	258131	0.22	-0.02	-0.02	0.11	-0.11	0.2
	258128	0.63	0.40	-0.21	0.40	-0.27	0.2

**Table 2.A13** Item Statistics: MD Mod-HSA Algebra—May 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258509	0.37	0.23	0.23	-0.23	-0.01	0.3
	258231	0.62	0.45	-0.24	-0.31	0.45	0.3
	258111	0.58	0.36	-0.24	0.36	-0.20	0.3
	258096	0.25	0.09	0.09	0.11	-0.22	0.3
	258125	0.38	0.13	-0.17	0.13	0.01	0.3
	258144	0.33	0.16	0.16	0.01	-0.18	0.4
	261558	0.39	0.27	-0.17	0.27	-0.10	0.3
	261562	0.43	0.30	0.30	-0.19	-0.13	0.3
	258220	0.35	0.20	-0.11	-0.08	0.20	0.4
	258135	0.55	0.23	-0.15	0.23	-0.12	0.4
<b>Mean</b>		0.50	0.29	-0.02	0.01	-0.04	0.2
<b>SD</b>		0.13	0.09	0.23	0.25	0.22	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A14** Item Statistics: MD Mod-HSA Biology—May 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258636	0.63	0.34	-0.24	0.34	-0.19	0.0
	258653	0.38	0.28	0.28	-0.04	-0.25	0.1
	258690	0.43	0.21	-0.03	-0.19	0.21	0.1
	258702	0.58	0.36	-0.28	0.36	-0.15	0.0
	258662	0.35	0.29	-0.15	-0.15	0.29	0.1
	258659	0.31	0.13	0.13	-0.11	-0.01	0.0
	258673	0.66	0.25	-0.14	-0.18	0.25	0.0
	258701	0.46	0.27	-0.22	0.27	-0.11	0.0
	258628	0.63	0.28	0.28	-0.21	-0.14	0.0
	258685	0.32	0.26	0.26	-0.12	-0.18	0.0
	261611	0.13	0.07	0.00	-0.05	0.07	0.0
	258615	0.47	0.17	-0.09	0.17	-0.10	0.1
	258683	0.65	0.37	-0.25	0.37	-0.21	0.2
	258641	0.51	0.17	-0.07	0.17	-0.13	0.1
	258676	0.45	0.16	-0.09	0.16	-0.09	0.2
	258607	0.63	0.24	-0.17	0.24	-0.17	0.0
	258645	0.55	0.39	-0.21	-0.26	0.39	0.2
	258666	0.57	0.21	-0.10	0.21	-0.17	0.1
	258675	0.46	0.24	-0.08	0.24	-0.18	0.3
	261609	0.59	0.23	-0.08	-0.24	0.23	0.1
	258665	0.26	0.25	0.25	-0.07	-0.15	0.2
	258682	0.48	0.16	-0.08	0.16	-0.11	0.2
	258648	0.43	0.36	-0.17	0.36	-0.22	0.1
	258614	0.41	0.35	-0.16	-0.21	0.35	0.2
	258680	0.42	0.30	-0.13	-0.19	0.30	0.3
	258681	0.41	0.10	-0.05	-0.06	0.10	0.4
	258642	0.58	0.16	-0.05	0.16	-0.13	0.1
	261623	0.70	0.29	-0.16	-0.25	0.29	0.1
	258649	0.30	0.16	0.16	-0.31	0.10	0.2
	258687	0.49	0.28	-0.15	0.28	-0.17	0.2
	258646	0.36	0.27	0.27	-0.19	-0.09	0.1
	261626	0.67	0.30	-0.19	-0.19	0.30	0.2
	258707	0.54	0.32	0.32	-0.22	-0.15	0.1
	258643	0.58	0.25	0.25	-0.17	-0.15	0.2
	258698	0.34	0.15	-0.12	-0.03	0.15	0.1
	258728	0.26	0.22	-0.14	-0.13	0.22	0.1
	258734	0.59	0.35	-0.20	-0.22	0.35	0.1
	258735	0.52	0.32	-0.20	0.32	-0.18	0.1
	258704	0.55	0.30	-0.14	0.30	-0.22	0.1
	258624	0.59	0.35	0.35	-0.26	-0.16	0.1

**Table 2.A14** Item Statistics: MD Mod-HSA Biology—May 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258697	0.43	0.17	0.17	-0.14	-0.04	0.2
	258616	0.22	0.03	-0.10	0.03	0.08	0.2
	258617	0.46	0.14	0.14	-0.19	0.02	0.3
	258688	0.42	0.22	-0.14	-0.09	0.22	0.3
	258669	0.64	0.31	-0.19	-0.20	0.31	0.3
	261621	0.69	0.34	0.34	-0.21	-0.23	0.3
	261619	0.70	0.28	-0.18	0.28	-0.18	0.3
	258692	0.51	0.22	-0.08	-0.17	0.22	0.3
	258635	0.55	0.34	-0.23	-0.18	0.34	0.2
	261616	0.53	0.35	-0.25	-0.15	0.35	0.3
<b>Mean</b>		0.49	0.25	-0.04	-0.02	0.02	0.2
<b>SD</b>		0.13	0.08	0.19	0.21	0.21	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A15** Item Statistics: MD Mod-HSA English—May 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	259429	0.52	0.26	0.26	-0.19	-0.11	0.0
	259426	0.61	0.33	0.33	-0.20	-0.21	0.0
	259349	0.66	0.34	-0.22	0.34	-0.21	0.1
	259427	0.48	0.27	-0.12	0.27	-0.18	0.1
	259312	0.67	0.37	0.37	-0.25	-0.21	0.0
	259368	0.37	0.24	0.24	-0.18	-0.08	0.0
	259371	0.71	0.40	-0.26	-0.25	0.40	0.1
	259367	0.71	0.28	-0.21	0.28	-0.17	0.2
	259370	0.49	0.20	-0.22	0.20	-0.05	0.2
	259432	0.65	0.30	0.30	-0.18	-0.20	0.1
	259433	0.55	0.34	0.34	-0.20	-0.20	0.1
	259354	0.44	0.23	-0.16	-0.10	0.23	0.2
	259407	0.19	0.03	-0.18	0.03	0.17	0.4
	259335	0.36	0.23	-0.16	-0.09	0.23	0.5
	259410	0.69	0.36	-0.25	0.36	-0.20	0.3
	259413	0.50	0.24	-0.14	0.24	-0.18	0.3
	259411	0.46	0.30	-0.18	-0.16	0.30	0.4
	259414	0.38	0.29	-0.13	-0.16	0.29	0.3
	259338	0.39	0.16	0.16	0.01	-0.18	0.3
	259339	0.66	0.31	-0.19	0.31	-0.22	0.3
	259340	0.77	0.40	-0.25	-0.26	0.40	0.2
	259362	0.63	0.41	0.41	-0.28	-0.21	0.2
	259436	0.33	0.18	0.18	-0.02	-0.19	0.3
	259347	0.43	0.25	0.25	-0.15	-0.12	0.3
	259424	0.60	0.34	-0.15	-0.26	0.34	0.3
	259423	0.50	0.25	-0.14	-0.14	0.25	0.4
	259425	0.49	0.19	-0.11	0.19	-0.09	0.4
	259422	0.42	0.23	-0.10	0.23	-0.14	0.5
	259445	0.66	0.28	-0.24	0.28	-0.08	0.3
	259374	0.43	0.31	-0.19	-0.17	0.31	0.3
	259450	0.41	0.36	-0.19	-0.19	0.36	0.3
	259376	0.64	0.41	-0.20	-0.31	0.41	0.4
	259310	0.59	0.34	-0.22	0.34	-0.18	0.4
	259365	0.62	0.35	-0.17	0.35	-0.24	0.5
	259449	0.65	0.29	0.29	-0.14	-0.24	0.3
	259441	0.31	0.20	0.20	-0.14	-0.04	0.3
	259443	0.55	0.28	-0.14	0.28	-0.17	0.3
	259437	0.47	0.28	0.28	-0.09	-0.22	0.3
	259457	0.44	0.26	0.26	-0.24	-0.01	0.5
1	259330	0.69	0.40	-0.20	0.40	-0.28	0.3

**Table 2.A15** Item Statistics: MD Mod-HSA English—May 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	259458	0.37	0.17	0.17	-0.19	0.02	0.3
	259466	0.61	0.45	-0.22	-0.33	0.45	0.3
	259395	0.46	0.29	-0.06	0.29	-0.25	0.3
	259459	0.50	0.34	-0.20	-0.19	0.34	0.4
	259396	0.36	0.22	-0.12	-0.08	0.22	0.3
	259460	0.64	0.37	0.37	-0.28	-0.16	0.3
	259398	0.57	0.31	-0.17	0.31	-0.19	0.3
	259397	0.44	0.29	-0.22	-0.09	0.29	0.3
	259360	0.49	0.33	0.33	-0.19	-0.16	0.4
	259435	0.24	0.15	-0.05	-0.09	0.15	0.3
<b>Mean</b>		0.52	0.29	-0.02	-0.02	0.00	0.3
<b>SD</b>		0.13	0.08	0.22	0.23	0.23	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A16** Item Statistics: MD Mod-HSA Government—May 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258363	0.43	0.37	-0.27	-0.14	0.37	0.1
	258500	0.27	0.28	0.28	-0.11	-0.16	0.1
	258338	0.42	0.28	-0.13	0.28	-0.19	0.1
	258327	0.46	0.24	0.24	-0.07	-0.23	0.1
	258408	0.45	0.29	0.29	-0.24	-0.07	0.1
	258355	0.44	0.22	0.22	-0.15	-0.09	0.1
	258458	0.48	0.36	0.36	-0.17	-0.25	0.1
	258505	0.45	0.26	0.26	-0.12	-0.19	0.1
	258506	0.63	0.30	-0.15	-0.22	0.30	0.0
	258349	0.54	0.33	0.33	-0.27	-0.11	0.1
	258429	0.50	0.22	-0.11	-0.15	0.22	0.1
	258353	0.34	0.15	-0.04	0.15	-0.12	0.0
	258396	0.51	0.23	0.23	-0.11	-0.16	0.3
	258410	0.49	0.29	-0.16	-0.18	0.29	0.0
	258386	0.46	0.51	0.51	-0.30	-0.28	0.1
	258350	0.37	0.26	0.26	-0.13	-0.14	0.1
	258378	0.58	0.25	-0.10	-0.19	0.25	0.1
	258503	0.38	0.28	-0.17	-0.12	0.28	0.1
	258440	0.63	0.31	-0.17	0.31	-0.20	0.1
	258400	0.51	0.33	-0.28	-0.12	0.33	0.1
	258421	0.37	0.28	0.28	-0.16	-0.13	0.2
	258446	0.39	0.25	-0.22	0.25	-0.03	0.2
	258344	0.37	0.25	0.25	-0.11	-0.15	0.3
	258432	0.50	0.21	-0.12	-0.12	0.21	0.4
	258428	0.49	0.23	-0.10	-0.16	0.23	0.2
	258360	0.51	0.19	-0.12	0.19	-0.09	0.2
	258343	0.53	0.36	-0.16	0.36	-0.25	0.3
	258438	0.65	0.36	0.36	-0.22	-0.22	0.2
	258718	0.71	0.45	0.45	-0.30	-0.27	0.3
	258424	0.38	0.22	-0.04	0.22	-0.18	0.2
	258323	0.40	0.25	-0.12	0.25	-0.14	0.3
	258324	0.68	0.46	-0.27	-0.31	0.46	0.4
	258437	0.48	0.29	-0.12	-0.20	0.29	0.3
	258319	0.37	0.27	-0.20	0.27	-0.06	0.3
	258389	0.60	0.26	-0.14	0.26	-0.17	0.3
	258379	0.58	0.25	-0.06	-0.23	0.25	0.3
	258413	0.46	0.25	-0.11	0.25	-0.15	0.3
	258448	0.51	0.38	0.38	-0.27	-0.16	0.3
	258721	0.36	0.13	0.13	-0.06	-0.07	0.3
	258439	0.53	0.31	-0.20	0.31	-0.17	0.3

**Table 2.A16** Item Statistics: MD Mod-HSA Government—May 2009

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
1	258368	0.45	0.23	0.23	-0.18	-0.06	0.3
	258320	0.36	0.25	-0.01	0.25	-0.23	0.3
	258436	0.62	0.43	0.43	-0.32	-0.18	0.3
	258384	0.60	0.36	-0.22	0.36	-0.22	0.3
	258486	0.50	0.24	-0.12	0.24	-0.14	0.4
	258411	0.36	0.23	-0.14	-0.09	0.23	0.3
	258313	0.65	0.33	-0.21	0.33	-0.19	0.3
	258716	0.52	0.33	0.33	-0.18	-0.20	0.3
	258335	0.56	0.38	-0.19	-0.25	0.38	0.3
	258377	0.64	0.37	0.37	-0.19	-0.25	0.3
<b>Mean</b>		0.49	0.29	0.03	-0.04	-0.04	0.2
<b>SD</b>		0.10	0.08	0.24	0.22	0.22	0.1

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.



**Table 2.A17** Item Statistics: MD Mod-HSA Algebra—Summer 2009 Primary 1

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
3	258190	0.36	0.14	-0.08	-0.06	0.14	0.5
	258164	0.44	0.23	-0.14	-0.12	0.23	0.0
	258224	0.33	0.22	-0.03	0.22	-0.18	0.0
	258107	0.30	0.09	0.01	-0.09	0.09	0.0
	258126	0.44	0.11	0.11	-0.10	-0.01	0.0
	258239	0.29	0.23	-0.04	0.23	-0.20	0.0
	258123	0.59	0.29	0.29	-0.22	-0.12	0.5
	258124	0.30	0.42	-0.25	-0.15	0.42	0.0
	258168	0.53	0.17	-0.02	0.17	-0.24	0.0
	258200	0.29	0.33	0.33	-0.09	-0.20	0.5
	258179	0.32	0.30	-0.19	-0.11	0.30	0.0
	258235	0.61	0.47	-0.31	0.47	-0.26	0.0
	258105	0.30	0.08	0.08	-0.15	0.07	0.5
	258236	0.46	0.34	-0.23	0.34	-0.17	0.0
	261559	0.35	0.27	0.27	-0.20	-0.10	0.0
	258211	0.55	0.36	-0.29	0.36	-0.14	0.0
	258209	0.63	0.25	-0.16	-0.17	0.25	0.0
	258182	0.63	0.38	-0.27	-0.21	0.38	0.0
	258238	0.25	0.26	-0.06	-0.18	0.26	0.0
	261561	0.47	0.27	0.27	-0.13	-0.18	0.0
	258132	0.39	0.30	-0.18	0.30	-0.15	0.0
	258158	0.45	0.37	-0.22	-0.19	0.37	0.0
	258145	0.52	0.30	-0.23	0.30	-0.12	0.5
	258117	0.54	0.23	-0.08	-0.19	0.23	0.0
	258229	0.66	0.32	-0.24	0.32	-0.14	0.5
	258197	0.56	0.22	-0.23	0.22	0.00	0.0
	258097	0.27	0.23	0.23	-0.13	-0.10	0.5
	258310	0.67	0.39	-0.25	-0.27	0.39	0.0
	258109	0.49	0.32	0.32	-0.10	-0.25	0.5
	258110	0.40	0.29	-0.12	0.29	-0.20	0.0
	258103	0.31	0.01	0.01	-0.21	0.21	0.0
	258108	0.46	0.22	-0.08	0.22	-0.16	0.5
	258196	0.61	0.28	-0.20	0.28	-0.14	0.0
	261564	0.53	0.38	0.38	-0.27	-0.18	0.0
	258153	0.39	0.26	0.26	-0.03	-0.23	0.5
	258181	0.70	0.41	-0.31	-0.23	0.41	0.0
	258240	0.63	0.44	-0.38	0.44	-0.14	0.0
	258157	0.16	0.05	0.05	-0.07	0.03	0.0
	258091	0.18	0.15	0.03	0.15	-0.15	0.0
	258118	0.46	0.24	0.24	-0.16	-0.11	0.0

**Table 2.A17** Item Statistics: MD Mod-HSA Algebra—Summer 2009 Primary 1

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
	258225	0.60	0.34	-0.20	0.34	-0.22	0.5
3	261557	0.39	0.36	0.36	-0.22	-0.16	0.0
	258152	0.39	0.17	0.17	-0.14	-0.03	0.0
	258133	0.45	0.29	0.29	-0.20	-0.12	0.0
	258311	0.39	0.22	-0.16	0.22	-0.07	0.0
	258178	0.72	0.30	-0.17	-0.22	0.30	0.0
	258100	0.60	0.42	-0.22	0.42	-0.27	0.5
	258171	0.48	0.28	-0.12	0.28	-0.20	0.0
	258142	0.43	0.40	-0.22	-0.25	0.40	0.0
	258150	0.45	0.17	0.17	0.02	-0.22	0.0
<b>Mean</b>		0.45	0.27	-0.04	0.01	-0.01	0.1
<b>SD</b>		0.14	0.10	0.22	0.23	0.22	0.2

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A18** Item Statistics: MD Mod-HSA Algebra—Summer 2009 Primary 2

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
4	258090	0.65	0.46	-0.09	-0.46	0.46	0.0
	258095	0.76	0.48	0.48	-0.44	-0.17	0.0
	258166	0.68	0.41	-0.36	0.41	-0.15	0.0
	258312	0.53	0.48	0.48	-0.17	-0.44	0.0
	258173	0.61	0.22	0.04	0.22	-0.30	0.0
	258115	0.50	0.30	0.30	0.00	-0.36	0.0
	258223	0.26	0.34	-0.12	0.34	-0.21	0.0
	258230	0.44	0.31	0.31	-0.20	-0.12	1.6
	258147	0.53	0.52	0.52	-0.32	-0.29	3.2
	261560	0.55	0.47	-0.23	0.47	-0.20	3.2
	258227	0.69	0.46	0.46	-0.27	-0.34	0.0
	258308	0.47	0.28	0.28	-0.05	-0.26	0.0
	258101	0.53	0.33	-0.39	0.33	0.02	0.0
	258210	0.81	0.48	-0.38	0.48	-0.27	0.0
	258116	0.52	0.31	0.31	-0.20	-0.11	1.6
	258089	0.31	0.41	-0.07	0.41	-0.24	1.6
	261556	0.50	0.22	0.22	-0.42	0.25	1.6
	258309	0.87	0.37		-0.24	0.37	1.6
	258098	0.68	0.55	-0.23	-0.37	0.55	1.6
	258208	0.44	0.24	-0.05	-0.13	0.24	1.6
	258161	0.65	0.54	0.54	-0.32	-0.24	1.6
	258159	0.35	0.32	-0.01	-0.21	0.32	1.6
	258184	0.58	0.43	-0.08	0.43	-0.31	3.2
	258136	0.61	0.42	-0.27	0.42	-0.15	1.6
	258102	0.52	0.34	-0.09	0.34	-0.20	1.6
	258226	0.37	0.36	-0.07	-0.20	0.36	1.6
	258188	0.71	0.41	-0.29	0.41	-0.12	1.6
	258174	0.61	0.27	-0.20	-0.05	0.27	1.6
	258187	0.77	0.44	-0.27	-0.17	0.44	1.6
	258154	0.47	0.47	-0.25	-0.18	0.47	1.6
	258113	0.61	0.46	-0.24	0.46	-0.21	1.6
	258198	0.35	0.34	-0.01	-0.23	0.34	1.6
	258167	0.71	0.43	-0.17	0.43	-0.28	1.6
	258169	0.52	0.26	-0.18	-0.01	0.26	1.6
	258119	0.58	0.38	0.38	-0.05	-0.32	1.6
	258160	0.63	0.30	0.30	-0.12	-0.14	1.6
	258241	0.60	0.39	-0.19	0.39	-0.18	1.6
	258130	0.55	0.39	0.39	-0.19	-0.16	1.6
	258131	0.21	-0.11	-0.11	0.20	-0.02	1.6
	258128	0.55	0.44	-0.07	0.44	-0.33	1.6

**Table 2.A18** Item Statistics: MD Mod-HSA Algebra—Summer 2009 Primary 2

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
4	258509	0.45	0.27	0.27	-0.24	0.04	1.6
	258231	0.63	0.47	-0.22	-0.24	0.47	1.6
	258111	0.66	0.38	-0.24	0.38	-0.12	1.6
	258096	0.15	-0.02	-0.02	0.23	-0.14	1.6
	258125	0.45	0.33	-0.35	0.33	-0.02	1.6
	258144	0.45	0.02	0.02	-0.02	0.14	1.6
	261558	0.47	0.42	-0.05	0.42	-0.32	1.6
	261562	0.45	0.17	0.17	-0.01	-0.07	1.6
	258220	0.27	0.40	0.00	-0.26	0.40	1.6
	258135	0.50	0.23	0.04	0.23	-0.20	1.6
<b>Mean</b>		0.54	0.35	0.01	0.04	-0.03	1.4
<b>SD</b>		0.15	0.13	0.27	0.31	0.28	0.8

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A19** Item Statistics: Biology—Summer 2009 Primary 1

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
3	258627	0.70	0.30	-0.25	0.30	-0.12	0.0
	258733	0.54	0.18	0.18	-0.08	-0.17	0.0
	258684	0.43	0.24	0.04	-0.31	0.24	0.0
	258644	0.32	0.27	0.27	-0.21	-0.06	0.0
	258634	0.44	0.28	-0.32	0.28	-0.01	0.0
	261644	0.78	0.21	0.21	-0.13	-0.16	0.0
	261645	0.29	0.24	-0.03	-0.20	0.24	0.0
	258619	0.29	0.20	0.20	-0.09	-0.10	0.0
	258700	0.61	0.44	-0.34	-0.22	0.44	0.0
	258618	0.32	0.13	-0.11	-0.02	0.13	0.0
	261627	0.62	0.21	-0.16	0.21	-0.09	0.0
	258639	0.40	0.36	0.36	-0.18	-0.21	0.0
	258732	0.49	0.26	0.26	-0.25	-0.04	0.0
	258727	0.55	0.32	-0.26	0.32	-0.13	0.6
	258622	0.55	0.32	0.32	-0.28	-0.08	0.6
	258695	0.42	0.29	-0.10	0.29	-0.21	0.6
	258631	0.78	0.40	0.40	-0.34	-0.19	0.6
	258699	0.30	0.01	-0.11	0.01	0.11	0.6
	261607	0.58	0.11	-0.04	0.11	-0.08	0.6
	261624	0.42	0.40	-0.16	-0.27	0.40	0.6
	258612	0.67	0.31	-0.10	0.31	-0.28	0.6
	261610	0.46	0.36	-0.20	-0.19	0.36	0.6
	258714	0.22	0.24	0.24	-0.19	0.01	0.6
	258725	0.63	0.27	-0.22	0.27	-0.12	0.6
	258664	0.63	0.35	-0.20	0.35	-0.23	0.6
	258638	0.32	0.15	-0.05	-0.09	0.15	0.6
	258650	0.51	0.41	-0.16	-0.29	0.41	0.6
	261614	0.63	0.36	0.36	-0.29	-0.16	1.2
	261622	0.81	0.42	-0.17	0.42	-0.38	0.6
	258705	0.30	0.27	-0.11	-0.15	0.27	1.2
	258678	0.62	0.34	-0.18	0.34	-0.21	0.6
	261642	0.37	0.29	0.29	-0.26	-0.03	1.2
	258654	0.64	0.33	-0.26	-0.12	0.33	0.6
	258670	0.33	0.04	0.00	-0.01	0.04	0.6
	258660	0.48	0.33	-0.08	-0.26	0.33	0.6
	258637	0.42	0.25	-0.11	0.25	-0.17	1.2
	258640	0.58	0.29	-0.15	0.29	-0.23	1.2
	258674	0.46	0.14	0.10	-0.24	0.14	0.6
	258697	0.39	0.25	0.25	-0.17	-0.07	0.5
	258616	0.21	0.02	-0.03	0.02	0.04	0.9

**Table 2.A19** Item Statistics: Biology—Summer 2009 Primary 1

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
3	258630	0.28	0.33	-0.16	-0.13	0.33	0.6
	261617	0.36	0.19	0.19	0.04	-0.27	0.6
	258726	0.40	0.23	0.23	-0.10	-0.13	0.6
	258730	0.58	0.20	0.20	-0.14	-0.08	0.6
	258657	0.24	0.12	0.08	-0.14	0.12	0.6
	258651	0.44	0.49	0.49	-0.20	-0.31	0.6
	258712	0.43	0.40	-0.32	-0.13	0.40	0.6
	258731	0.29	0.16	0.01	-0.13	0.16	0.6
	261608	0.51	0.33	-0.09	-0.28	0.33	0.6
	258693	0.32	0.32	0.32	-0.23	-0.06	0.6
<b>Mean</b>		0.47	0.27	0.01	-0.05	0.01	0.5
<b>SD</b>		0.15	0.11	0.22	0.22	0.22	0.3

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A20** Item Statistics: MD Mod-HSA Biology—Summer 2009 Primary 2

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
4	258636	*	*	*	*	*	*
	258653	*	*	*	*	*	*
	258690	*	*	*	*	*	*
	258702	*	*	*	*	*	*
	258662	*	*	*	*	*	*
	258659	*	*	*	*	*	*
	258673	*	*	*	*	*	*
	258701	*	*	*	*	*	*
	258628	*	*	*	*	*	*
	258685	*	*	*	*	*	*
	261611	*	*	*	*	*	*
	258615	*	*	*	*	*	*
	258683	*	*	*	*	*	*
	258641	*	*	*	*	*	*
	258676	*	*	*	*	*	*
	258607	*	*	*	*	*	*
	258645	*	*	*	*	*	*
	258666	*	*	*	*	*	*
	258675	*	*	*	*	*	*
	261609	*	*	*	*	*	*
	258665	*	*	*	*	*	*
	258682	*	*	*	*	*	*
	258648	*	*	*	*	*	*
	258614	*	*	*	*	*	*
	258680	*	*	*	*	*	*
	258681	*	*	*	*	*	*
	258642	*	*	*	*	*	*
	261623	*	*	*	*	*	*
	258649	*	*	*	*	*	*
	258687	*	*	*	*	*	*
	258646	*	*	*	*	*	*
	261626	*	*	*	*	*	*
	258707	*	*	*	*	*	*
	258643	*	*	*	*	*	*
	258698	*	*	*	*	*	*
	258728	*	*	*	*	*	*
	258734	*	*	*	*	*	*
	258735	*	*	*	*	*	*
	258704	*	*	*	*	*	*
	258624	*	*	*	*	*	*

**Table 2.A20** Item Statistics: MD Mod-HSA Biology—Summer 2009 Primary 2

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
4	258617	*	*	*	*	*	*
	258688	*	*	*	*	*	*
	258669	*	*	*	*	*	*
	261621	*	*	*	*	*	*
	261619	*	*	*	*	*	*
	258692	*	*	*	*	*	*
	258635	*	*	*	*	*	*
	261616	*	*	*	*	*	*
<b>Mean</b>		*	*	*	*	*	*
<b>SD</b>		*	*	*	*	*	*

\* Statistics not reported for sample size less than 50 (N < 50).

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.



**Table 2.A21** Item Statistics: MD Mod-HSA English—Summer 2009 Primary 1

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
3	259343	0.56	0.36	-0.29	-0.14	0.36	0.0
	259415	0.59	0.15	0.15	-0.14	-0.05	0.0
	259417	0.53	0.18	0.18	-0.16	-0.04	0.0
	259416	0.75	0.36	-0.13	0.36	-0.31	0.5
	259323	0.43	0.30	0.30	-0.22	-0.11	0.0
	259453	0.54	0.22	-0.09	-0.23	0.22	0.0
	259382	0.60	0.26	-0.26	0.26	-0.05	0.0
	259452	0.45	0.14	-0.19	0.14	-0.02	0.0
	259465	0.37	0.19	0.19	-0.15	-0.07	0.0
	259351	0.39	0.27	-0.21	0.27	-0.11	0.0
	259430	0.77	0.26	-0.20	0.26	-0.15	0.0
	259431	0.67	0.36	0.36	-0.22	-0.23	0.0
	259318	0.62	0.45	0.45	-0.23	-0.30	1.0
	259319	0.36	0.06	0.03	-0.12	0.06	0.0
	259320	0.69	0.33	-0.22	0.33	-0.22	0.0
	259419	0.65	0.32	-0.24	0.32	-0.16	0.0
	259421	0.59	0.36	0.36	-0.22	-0.21	0.0
	259463	0.36	0.05	0.05	-0.05	-0.01	0.0
	259345	0.47	0.31	-0.14	-0.21	0.31	0.0
	259325	0.53	0.29	-0.22	0.29	-0.11	0.0
	259385	0.50	0.27	-0.14	-0.17	0.27	0.0
	259390	0.64	0.35	-0.11	-0.32	0.35	0.0
	259383	0.51	0.29	-0.21	0.29	-0.12	0.0
	259386	0.42	0.35	-0.23	-0.15	0.35	0.0
	259388	0.51	0.25	0.25	-0.17	-0.12	0.0
	259389	0.35	0.30	-0.14	0.30	-0.18	0.0
	259438	0.43	0.18	-0.19	0.18	-0.04	0.0
	259439	0.55	0.28	-0.12	0.28	-0.20	0.5
	259437	0.53	0.23	0.23	-0.06	-0.22	0.0
	259332	0.63	0.25	-0.25	0.25	-0.04	0.0
	259403	0.38	0.15	0.11	-0.28	0.15	0.5
	259401	0.48	0.16	0.16	-0.10	-0.06	0.5
	259402	0.38	0.21	-0.21	0.02	0.21	0.5
	259399	0.71	0.34	-0.13	-0.29	0.34	0.5
	259400	0.55	0.28	-0.12	-0.25	0.28	0.5
	259404	0.56	0.13	0.13	-0.09	-0.05	0.5
	259461	0.66	0.24	-0.11	-0.18	0.24	0.5
	259446	0.55	0.36	-0.26	-0.15	0.36	0.5
	259447	0.54	0.27	-0.15	0.27	-0.19	0.5
	259448	0.57	0.43	-0.15	-0.35	0.43	0.5

**Table 2.A21** Item Statistics: MD Mod-HSA English—Summer 2009 Primary 1

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
3	259358	0.50	0.28	-0.18	-0.13	0.28	0.5
	259434	0.39	0.10	-0.01	0.10	-0.12	0.5
	259391	0.47	0.31	-0.06	0.31	-0.27	0.5
	259454	0.33	0.29	0.29	-0.19	-0.08	0.5
	259455	0.51	0.39	-0.27	-0.16	0.39	0.5
	259392	0.41	0.29	-0.16	-0.14	0.29	0.5
	259394	0.65	0.36	0.36	-0.17	-0.30	0.5
	259393	0.51	0.44	0.44	-0.23	-0.27	0.5
	259444	0.61	0.27	-0.09	0.27	-0.23	0.5
	259356	0.52	0.31	-0.26	-0.13	0.31	0.5
<b>Mean</b>		0.53	0.27	-0.03	-0.03	0.01	0.2
<b>SD</b>		0.11	0.09	0.22	0.22	0.23	0.3

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A22** Item Statistics: MD Mod-HSA English—Summer 2009 Primary 2

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
4	259429	*	*	*	*	*	*
	259426	*	*	*	*	*	*
	259349	*	*	*	*	*	*
	259427	*	*	*	*	*	*
	259312	*	*	*	*	*	*
	259368	*	*	*	*	*	*
	259371	*	*	*	*	*	*
	259367	*	*	*	*	*	*
	259370	*	*	*	*	*	*
	259432	*	*	*	*	*	*
	259433	*	*	*	*	*	*
	259354	*	*	*	*	*	*
	259407	*	*	*	*	*	*
	259335	*	*	*	*	*	*
	259410	*	*	*	*	*	*
	259413	*	*	*	*	*	*
	259411	*	*	*	*	*	*
	259414	*	*	*	*	*	*
	259338	*	*	*	*	*	*
	259339	*	*	*	*	*	*
	259340	*	*	*	*	*	*
	259362	*	*	*	*	*	*
	259436	*	*	*	*	*	*
	259347	*	*	*	*	*	*
	259424	*	*	*	*	*	*
	259423	*	*	*	*	*	*
	259425	*	*	*	*	*	*
	259422	*	*	*	*	*	*
	259445	*	*	*	*	*	*
	259374	*	*	*	*	*	*
	259450	*	*	*	*	*	*
	259376	*	*	*	*	*	*
	259310	*	*	*	*	*	*
	259365	*	*	*	*	*	*
	259449	*	*	*	*	*	*
	259441	*	*	*	*	*	*
	259443	*	*	*	*	*	*
	259457	*	*	*	*	*	*
	259330	*	*	*	*	*	*
	259458	*	*	*	*	*	*

**Table 2.A22** Item Statistics: MD Mod-HSA English—Summer 2009 Primary 2

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
4	259466	*	*	*	*	*	*
	259395	*	*	*	*	*	*
	259459	*	*	*	*	*	*
	259396	*	*	*	*	*	*
	259460	*	*	*	*	*	*
	259398	*	*	*	*	*	*
	259397	*	*	*	*	*	*
	259360	*	*	*	*	*	*
	259435	*	*	*	*	*	*
<b>Mean</b>		*	*	*	*	*	*
<b>SD</b>		*	*	*	*	*	*

\* Statistics not reported for sample size less than 50 (N < 50).

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A23** Item Statistics: MD Mod-HSA Government—Summer 2009 Primary 1

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
3	258401	0.54	0.39	-0.23	-0.23	0.39	0.0
	258459	0.73	0.29	-0.27	0.29	-0.11	0.0
	258402	0.39	0.24	-0.13	-0.21	0.24	0.0
	258406	0.66	0.35	-0.11	0.35	-0.31	0.0
	258347	0.49	0.23	0.23	-0.28	-0.04	0.0
	258328	0.57	0.30	0.30	-0.19	-0.17	0.0
	258422	0.49	0.13	-0.15	-0.02	0.13	0.0
	258357	0.29	0.23	-0.08	0.23	-0.16	0.0
	258452	0.40	0.30	0.30	-0.14	-0.21	0.0
	258330	0.48	0.23	0.23	-0.12	-0.14	0.0
	258454	0.45	0.17	-0.11	-0.09	0.17	0.0
	258364	0.61	0.30	-0.23	0.30	-0.18	0.0
	258361	0.57	0.18	0.18	-0.14	-0.07	0.0
	258336	0.38	0.01	-0.02	0.00	0.01	0.0
	258376	0.40	0.19	0.19	-0.19	-0.01	0.0
	258419	0.19	-0.02	-0.01	-0.02	0.03	0.0
	258425	0.49	0.16	-0.03	0.16	-0.17	0.0
	258715	0.74	0.23	-0.14	0.23	-0.17	0.5
	258473	0.44	0.24	-0.12	-0.13	0.24	0.5
	258478	0.24	0.13	0.19	0.13	-0.29	0.5
	258501	0.48	0.19	-0.12	-0.08	0.19	0.5
	258450	0.46	0.31	0.31	-0.07	-0.27	0.5
	258498	0.40	0.37	0.37	-0.19	-0.19	0.5
	258388	0.29	-0.03	0.13	-0.03	-0.07	0.5
	258351	0.40	0.33	0.33	-0.28	-0.04	0.5
	258488	0.71	0.32	0.32	-0.30	-0.09	0.0
	258479	0.48	0.28	-0.19	0.28	-0.17	0.0
	258375	0.49	0.42	0.42	-0.26	-0.22	0.0
	258414	0.43	0.19	-0.09	0.19	-0.11	0.0
	258495	0.21	0.10	0.10	-0.02	-0.06	0.0
	258321	0.51	0.17	0.17	-0.05	-0.15	0.0
	258426	0.27	0.29	0.29	-0.13	-0.14	0.0
	258722	0.44	0.21	-0.07	0.21	-0.16	0.0
	258407	0.29	0.06	0.06	0.02	-0.08	0.5
	258412	0.57	0.43	0.43	-0.27	-0.25	0.0
	258369	0.45	0.31	-0.24	-0.10	0.31	0.0
	258483	0.51	0.35	0.35	-0.23	-0.19	0.0
	258719	0.63	0.37	0.37	-0.30	-0.15	0.0
	258345	0.20	-0.04	0.05	-0.04	-0.03	0.0
	258390	0.59	0.26	-0.17	0.26	-0.16	0.0

**Table 2.A23** Item Statistics: MD Mod-HSA Government—Summer 2009 Primary 1

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
3	258329	0.33	0.21	0.21	-0.12	-0.09	0.0
	258409	0.57	0.25	-0.17	0.25	-0.13	0.0
	258434	0.35	0.04	-0.03	0.01	0.04	0.5
	258391	0.59	0.13	0.13	-0.10	-0.03	0.5
	258316	0.42	0.15	-0.07	0.15	-0.08	0.5
	258404	0.45	0.35	0.35	-0.21	-0.14	1.1
	258468	0.50	0.28	0.28	-0.23	-0.07	0.5
	258491	0.34	0.21	-0.06	0.21	-0.13	1.1
	258341	0.56	0.31	0.31	-0.19	-0.17	0.5
	258502	0.27	0.16	0.16	-0.14	0.01	0.5
<b>Mean</b>		0.45	0.22	0.08	-0.04	-0.07	0.2
<b>SD</b>		0.14	0.11	0.21	0.19	0.15	0.3

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.

**Table 2.A24** Item Statistics: MD Mod-HSA Government—Summer 2009 Primary 2

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
4	258363	*	*	*	*	*	*
	258500	*	*	*	*	*	*
	258338	*	*	*	*	*	*
	258327	*	*	*	*	*	*
	258408	*	*	*	*	*	*
	258355	*	*	*	*	*	*
	258458	*	*	*	*	*	*
	258505	*	*	*	*	*	*
	258506	*	*	*	*	*	*
	258349	*	*	*	*	*	*
	258429	*	*	*	*	*	*
	258353	*	*	*	*	*	*
	258396	*	*	*	*	*	*
	258410	*	*	*	*	*	*
	258386	*	*	*	*	*	*
	258350	*	*	*	*	*	*
	258378	*	*	*	*	*	*
	258503	*	*	*	*	*	*
	258440	*	*	*	*	*	*
	258400	*	*	*	*	*	*
	258421	*	*	*	*	*	*
	258446	*	*	*	*	*	*
	258344	*	*	*	*	*	*
	258432	*	*	*	*	*	*
	258428	*	*	*	*	*	*
	258360	*	*	*	*	*	*
	258343	*	*	*	*	*	*
	258438	*	*	*	*	*	*
	258718	*	*	*	*	*	*
	258424	*	*	*	*	*	*
	258323	*	*	*	*	*	*
	258324	*	*	*	*	*	*
	258437	*	*	*	*	*	*
	258319	*	*	*	*	*	*
	258389	*	*	*	*	*	*
	258379	*	*	*	*	*	*
	258413	*	*	*	*	*	*
	258448	*	*	*	*	*	*
	258721	*	*	*	*	*	*
	258439	*	*	*	*	*	*

**Table 2.A24** Item Statistics: MD Mod-HSA Government—Summer 2009 Primary 2

Form	ItemID	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	%Omits
4	258368	*	*	*	*	*	*
	258320	*	*	*	*	*	*
	258436	*	*	*	*	*	*
	258384	*	*	*	*	*	*
	258486	*	*	*	*	*	*
	258411	*	*	*	*	*	*
	258313	*	*	*	*	*	*
	258716	*	*	*	*	*	*
	258335	*	*	*	*	*	*
	258377	*	*	*	*	*	*
<b>Mean</b>		*	*	*	*	*	*
<b>SD</b>		*	*	*	*	*	*

\* Statistics not reported for sample size less than 50 (N < 50).

Note: P\_Val = P-Value, R\_ITT = item-total correlation, P\_BIS1 to P\_BIS3 = option-total correlation, %Omits = percent of omitted responses.



## References

- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.
- Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavior Research*, 1, 245–276.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 292–334.
- ETS (2002). *ETS standards for quality and fairness*. Princeton, NJ: Educational Testing Service.
- Feldt, L. S., & Brennan, R. L. (1989). Reliability. In R. L. Linn (Ed.), *Educational measurement* (3<sup>rd</sup> ed., pp. 105–146). New York: Macmillan.
- Finney, S.J. & DiStefano, C. (2006). Nonnormal and categorical data in structural equation modeling. In G.R. Hancock & R.O. Mueller (Eds.), *Structural equation modeling: A second course* (pp. 269–314). Greenwich, CT: Information Age.
- Fitzpatrick, A. R., Link, V., Yen, W. M., Burket, G., Ito, K., & Sykes, R. (1996). Scaling performance assessments: A comparison between one-parameter and two-parameter partial credit models. *Journal of Educational Measurement*, 33, 291–314.
- Haertel, E. H. Reliability. In R. H. Brennan (Ed.) *Educational measurement* (4<sup>th</sup> edition, pp. 64–110). Westport, CT: Praeger.
- Holland, P. W., & Thayer, D. T. (1988). Differential item performance and the Mantel-Haenszel procedure. In H. Wainer & H. I. Braun (Eds.), *Test validity* (pp. 129–145). Hillsdale, NJ: Lawrence Erlbaum.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55.
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, 20, 141–151.
- Kolen, M. J., & Brennan, R. L. (1995). *Test equating: Methods and practices*. New York: Springer-Verlag.
- Livingston, S. A., & Lewis, C. (1995). Estimating the consistency and accuracy of classification based on test scores. *Journal of Educational Measurement*, 32, 179–197.
- Messick, S. (1989). Validity. In R.L. Linn (Ed.) *Educational measurement* (3<sup>rd</sup> edition, pp. 13–103). New York: American Council on Education and Macmillan.
- Muraki, E. (1992). A generalized partial credit model: Application of an EM algorithm. *Applied Psychological Measurement*, 16(2), 159–176.

- Muraki, E., & Bock, D. (1995). Proprietary version of PARSCALE [Computer software]. Chicago: Scientific Software International.
- Muthén, B.O. (1998–2004). Mplus Technical Appendices. Los Angeles: Muthén & Muthén.
- Muthén, B., du Toit, S.H.C. & Spisic, D. (1997). Robust inference using weighted least squares and quadratic estimating equations in latent variable modeling with categorical and continuous outcomes. Unpublished manuscript.
- Muthén B. O., & Muthén, L. K. (2002). *How to Use a Monte Carlo Study to Decide on Sample Size and Determine Power*. Unpublished manuscript.
- Muthén B. O., & Muthén, L. K. (2007). Mplus 5 [Computer program]. Los Angeles: Muthén & Muthén.
- Stocking, M. L., & Lord, F. (1983). Developing a common metric in item response theory. *Applied Psychological Measurement*, 7, 201–210.
- Yen, W. M. (1984). Obtaining maximum likelihood trait estimates from number-correct scores for the three-parameter logistic model. *Journal of Educational Measurement*, 21, 93–111.
- Yen, W. M., & Fitzpatrick, A. R. (2006). *Item response theory*. In R. L. Brennan (Ed.), *Educational measurement* (4<sup>th</sup> ed., pp. 111–153). Westport, CN: Greenwood Publishing Group.