



Maryland Comprehensive Assessment Program

Maryland Comprehensive Assessment Program:  
2022 Technical Manual for High School Level  
Government and Life Science  
Assessments

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Prepared by Cognia and the Maryland  
State Department of Education

# 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 for Educational and Psychological Testing (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014).

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# Section 1. Introduction

The Maryland Comprehensive Assessments are tests that are developed or adopted by the Maryland State Department of Education (MSDE), including those assessments formerly known as the Maryland High School Assessments (HSAs). The Maryland Comprehensive Assessment Program (MCAP) includes an assessment in High School American Government (MCAP Government) and in Life Science, the Life Science Maryland Integrated Science Assessment (MCAP Life Science MISA). These MCAPs are intended to ultimately be end-of-course requirements; however, both assessments were participation-only requirements in 2022. The MCAP Life Science MISA also meets the high school assessment requirements for the federal Every Student Succeeds Act of 2015 (ESSA). The MCAP Government assessment meets the high school assessment requirements from Maryland Code Educational Article §7-203 Education Accountability Program 2017. This report provides information about the Winter, Spring, and Summer 2022 administrations for the MCAP Government and MCAP Life Science MISA.

The Government assessment administrations began in 2002 and continued until 2011. From summer 2011 to October 2012, the Government assessment was excluded from the then Maryland High School assessment program (HSA). Starting in January 2013, the Government assessment was reintroduced. The Life Science assessment began in 2022, and a standard setting was conducted in August of 2022.

Since May 2009, these assessments have been administered online as well as in the paper-and-pencil format. Studies of the comparability of online and paper forms of the HSA were conducted in 2009 and 2010. The 2009 report is provided in the 2009 HSA Technical Report in Appendix 1C. The 2010 results were provided to MSDE (Educational Testing Service, October 29, 2010). Further mode comparability studies have not been conducted.

For the 2021-22 administration year, the paper-based testing was reserved for accommodations only. The computer-based testing was provided via the eMetric-based platform. The online administrations were conducted using the Student Kiosk web-based software application. The Student Kiosk allows students to respond to the selected-response (SR) items electronically by selecting an answer choice. Students respond electronically to the constructed-response (CR) items by typing their answers into the response boxes using the computer keyboard. The Student Kiosk also allows students to respond electronically to the technology-enhanced (TE) items in a variety of formats.

All SR and TE items were machine scored. The CR items were first scored by a human scorer and then received a second score from artificial intelligence (AI) using ACT's Constructed Response Automated Scoring Engine (CRASE+). CRASE+ analyzes a sample of human-scored student responses to produce a model that emulates human scoring behavior. When the scores from the two scorers were adjacent, the higher score was used. When the two scores differed by more than one point, the scoring supervisor would decide on a final resolution score. Additional detailed information about MCAP Government and MCAP Life Science MISA is provided below.

## MCAP Government

The MCAP Government assessment was administered in Winter, Spring, and summer of 2022. Each of the distinct test forms administered in the 2022 administration was the combination of one of two operational (or core) forms and one of six field test (matrix) forms. One of the operational forms was combined with each of three field test item sets. The other operational form was combined with the other three field test forms.

As just noted, each MCAP Government form consisted of operational and field test items. The operational items were used to produce student scores; students' scores on the field test items were not included in the computation of their scores. Apart from items selected for public release, which are not reused, the operational items that are returned to the item bank remain unused for at least one year to minimize item exposure.

The operational items in the MCAP Government assessment consisted of SR items, which require students to choose from among four short response options; TE items, including matching, drag and drop, click to select, and hot spot items; brief constructed-response (BCR) items, which require students to write a short response; and evidence-based argument sets (EBAS), which consist of a series of stimuli, SR items, and an extended CR (ECR) item. All items are based on the content outlined in Maryland's Social Studies Standards.<sup>1</sup>

Item response theory (IRT) was used to estimate total test scores and subscores via item-pattern scoring using the computer program, PARSCALE (Muraki & Bock, 2003). For MCAP Government, the three-parameter logistic (3PL) model was used for the SR items (see Section 2 for an introduction to item types) and the generalized partial credit model (GPCM) was used for the BCR and ECR items. Refer to Scale Scores in Section 4 for the details of IRT models used and the item-pattern scoring procedure.

Pre-equated item parameter estimates were used to generate student scores on the MCAP Government assessment. When pre-equated item parameter estimates are used, the parameters are not estimated following an administration; instead, existing bank parameter estimates are used to produce student scores. Bank parameter estimates come from field testing of new items each Winter and Spring administration.

## MCAP Life Science MISA

The MCAP Life Science MISA is the final assessment in a series of science assessments, including the grade 5 and grade 8 MISA, students take that is aligned to the NGSS. The MCAP Life Science MISA was administered in Winter, Spring, and Summer of 2022.

Following the pattern established by the elementary and middle school MISA, the MCAP Life Science MISA consists of item sets that are organized around common stimuli. Students read a stimulus and then answer a set of six questions about the stimulus. These item sets are made up of a combination of multiple selected-response (MSR), SR, TE, and CR items.

The 2022 MCAP Life Science MISA administration had six operational item sets and two field test (matrix) item sets. One of the operational item sets was combined with each of three field test item sets. For the Winter 2022 administration, there were three unique forms. For the spring 2022 administration, there were nine unique forms. The Summer 2022 administration was a re-use of the Winter 2022 accommodated form.

Standard setting for the MCAP Life Science MISA assessment was conducted in August 2022, using a panel of 12 Maryland educators. The panel-recommended raw score cut scores were reviewed by the MSDE. MSDE opted to make policy-based adjustments to the panel-recommended cut scores. The final raw score cut scores were mapped onto the IRT scale via the test characteristic curve of the test form used for standard setting.

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<sup>1</sup> The Government Standards documents can be found on the Maryland School Improvement website at <http://www.marylandpublicschools.org/about/Pages/DAAIT/Assessment/HSA/index.aspx>

The MCAP Life Science MISA Spring 2022 operational items were calibrated without fixing any item parameters. This set the initial IRT scale for MCAP Life Science MISA. MCAP Life Science MISA Winter 2022 operational items were brought on scale via a fixed common item parameters (FCIP) calibration. All operational items in MCAP Life Science MISA Summer were administered in either the Winter or Spring 2022 administration. As such, MCAP Life Science MISA Summer test forms were pre-equated using the item parameters already obtained from the Winter and Spring 2022 calibrations.

Item response theory (IRT) was used to estimate total test scores and subscores via item-pattern scoring using the computer program, PARSCALE (Muraki & Bock, 2003). For MCAP Life Science MISA, the two-parameter logistic (2PL) model was used for the SR items and the GPCM was used for non-SR items. The 2PL model and the GPCM were chosen, in order to be consistent with all the other MCAP assessments that were newly-launched in 2022. Refer to Scale Scores in Section 4 for the details of IRT models used and the item-pattern scoring procedure.

## Structure of this Report

This Maryland technical report consists of eight sections and three appendices.

- **Section 1**—introduces the Maryland Comprehensive Assessment Program.
- **Section 2**—describes the procedures used for test construction and administration.
- **Section 3**—presents validity evidence for the MCAP Government assessment and MCAP Life Science MISA.
- **Section 4**—delineates the scoring procedures and score types.
- **Section 5**—describes the reporting of 2022 MCAP Government and MCAP Life Science MISA results.
- **Section 6**—summarizes the results of the analyses of test reliability, decision consistency, and decision accuracy.
- **Section 7**—provides summary statistics and descriptive information about student characteristics.
- **Section 8**—gives the results of the analysis of the test data, including classical item analysis, and field test item calibration and scaling.
- **Appendix A**—provides an example of the Maryland Cognitive Complexity Framework Rubric.
- **Appendix B**—provides classical item statistics for operational items by administration for each content area.
- **Appendix C**—provides classical item statistics for field-test items by administration for each content area.
- **Appendix D**—provides overall, and subgroup reliability estimates by test form and administration for each content area.
- **Appendix E**—provides overall, and subgroup decision accuracy and consistency (DAC) estimates by test form and administration for each content area.
- **Appendix F**—provides examples of the score reports.
- **Appendix G**—provides overall, and subgroup scaled score summary statistics by test form and administration for each content area.
- **Appendix H**—provides demographic subgroup frequencies by administration for each content area.

# Section 2. Test Construction and Administration

## Test Development

### Planning

For the 2022 MCAP Government test, Cognia content leaders collaborated with their content counterparts at MSDE to build operational forms using selected-response (SR), brief constructed-response (BCR), technology-enhanced (TE) items, and Evidence Based Argument Sets (EBAS) from the MCAP Government item bank. Field test items were embedded in the operational form according to the test design. Test design and specifications were developed by MSDE and Cognia and are based on the Maryland American Government Framework, which is organized around five of the six state social studies standards.

For the MCAP Life Science Maryland Integrated Science Assessment (MCAP Life Science MISA), Cognia content leaders collaborated with their content counterparts at MSDE to select operational items according to the test designs. Field test items were selected to continue to build an operational item bank for the MCAP Life Science MISA.

In adherence to these considerations, science “clusters” were developed to create a strong, three-dimensional alignment<sup>2</sup> to the Next Generation Science Standards (NGSS), incorporating two NGSS performance expectations. Each performance expectation has three foundational elements: science and engineering practices, cross cutting concepts, and the disciplinary core ideas. Each cluster is aligned to all three foundational dimensions. Each cluster was designed around a common stimulus that is based upon valid scientific research and contains six items. Test design and specifications were developed by MSDE and Cognia and are based on the 24 Life Science Standards found in the NGSS.

### MCAP Government Item Types

As noted in Section 1, four item types were used on the 2022 MCAP Government tests:

- SR—questions in multiple-choice format with four answer options and one correct answer;
- BCR—an item type used in MCAP Government only, for which the students need to write a short response;
- TE items—including matching, drag and drop, and hot spot items; and
- EBAS—that consist of a series of stimuli, SR items, and an extended constructed-response (ECR) item.

Table 2-1 shows how the operational item types were distributed on each MCAP Government form for the 2022 administrations. Each SR item is worth one point, each TE item is worth two points, each BCR is worth four points, and each ECR is worth five points.

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<sup>2</sup> *The Next Generation Science Standards (NGSS) are organized by Performance Expectations (PEs). In the NGSS, the content and the practices of science work together. Therefore, each PE is tied to a Disciplinary Core Idea (DCI) or content piece as well as to a Science and Engineering Practice (SEP) and a Crosscutting Concept (CCC), which are the over-arching science concepts that tie the content and practices. Items developed for MCAP Science must be aligned to two, if not all three, dimensions of the NGSS.*

**Table 2-1. Number of Operational Items and Points Possible by Item Type for Each MCAP Government Form**

	SR	TE	BCR	ECR	Total
Number of Items	43	5	2	1	51
Points Possible	43	10	8	5	66

## MCAP Life Science MISA Item Types

As also noted in Section 1, four item types were used on the 2022 MCAP Life Science MISA tests:

- SR—questions in multiple-choice format with four answer options and one correct answer;
- MSR—questions in multiple-choice format with multiple correct answers;
- Constructed-response (CR)—an item type for which the students need to write a response (2-point, 3-point, and 4-point CR items are included on the MCAP Life Science MISA test); and
- TE items—including matching, drag and drop, ordering, graphing, hot spot, fill-in-the-blank (numerical entry only), and inline choice. (1-point and 2-point TE items are included on the MCAP Life Science MISA test).

As previously noted, the operational MCAP Life Science MISA test is designed with item sets, or clusters. Clusters on the operational form contained a stimulus, five machine-scored items (which include SR, MSR, and TE items) and one CR item, in one of three configurations (shown below) based on the point value of the CR item.

- 2-point CR configuration: three 1-point SR/TE items, two 2-point SR/TE items, one 2-point CR item
- 3-point CR configuration: four 1-point SR/TE items, one 2-point SR/TE item, one 3-point CR item
- 4-point CR configuration: five 1-point SR/TE items, one 4-point CR item

**Table 2-2. Number of Operational Items and Points Possible by Item Type for Winter MCAP Life Science MISA Form**

	SR, MSR, TE	CR	Total
Number of Items	30	6	36
Points Possible	36	18	54

# Test Specifications and Design

## MCAP Government

For the MCAP Government test, MSDE predetermined the preliminary test design and provided it to Cognia, following the existing MCAP Government test blueprints. The final forms were selected by MSDE to adhere to content and psychometric guidelines. The 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. The variety of item types represented ensures that a variety of levels of cognitive complexity are addressed, although these levels are not specifically mandated by the test blueprints. Specific items were placed throughout the forms by Cognia content specialists, with the approval of MSDE. Construction of the forms was based on test blueprints approved by MSDE. The MCAP Government Operational Blueprint is presented in Table 2-3.

**Table 2-3. MCAP Government Operational Blueprint**

	Total Points Per Category
Standard 1: Civics	32
Standard 2: Peoples of the Nations and World	8
Standard 3: Geography	8
Standard 4: Economics	10
Standard 6: Skills and Processes	9
<b>Total</b>	<b>67</b>

Information on the referenced learning standards can be found in the Maryland Social Studies Standards for Government, available on the Maryland School Improvement website at <http://www.marylandpublicschools.org/about/Pages/DCAA/Social-Studies/AGHSH.aspx>.

## **MCAP Life Science MISA**

For the 2022 MCAP Life Science MISA test, MSDE and Cognia worked collaboratively to design an operational form consisting of six NGSS-aligned clusters, each containing one shared stimulus and six items. Each cluster included various item types as outlined above, always including one CR item. The variety of item types represented the complexity and three-dimensionality of the NGSS, which ensured that a variety of levels of cognitive complexity are addressed.

### **Cognitive Complexity and Dimensionality in NGSS Aligned Items**

To assign cognitive complexity alignments to the items administered in the 2022 MCAP Life Science MISA test, MSDE utilized existing research and consulted with Maryland science educators to design the Maryland Cognitive Complexity Framework (MCCF) Rubric (Appendix A).

This rubric was developed as MSDE researched cognitive complexity and found several documents that stressed that DOK and Bloom's were not well suited for evaluating the cognitive complexity of an assessment aligned to the multidimensional Next Generation Science Standards. Using Achieve's Framework for Evaluating Cognitive Complexity, specifically the Detailed Individual Item Analysis Rubric, MSDE drafted the Maryland Cognitive Complexity Framework Rubric, which was then reviewed by a group of science educators from across the state to ensure that the rubric was consistent with instructional practices.

Using the MCCF Rubric, Cognia and MSDE evaluated the items that were used on the 2022 MCAP Life Science MISA test. This evaluation showed that, in general, constructed response item types were more likely to be aligned to higher cognitive complexity ranges. For this reason, a more complete view of cognitive complexity ranges throughout the MCAP Life Science MISA forms were analyzed by points, not by item count. Based on this analysis, cognitive complexity ranges were assigned for the 2022 MCAP Life Science MISA forms in ranges by points, as shown in Table 2-4. These ranges will continue to be evaluated and refined as part of the operational test design moving forward.

**Table 2-4. Cognitive Complexity Alignments**

2022 MCAP Life Science MISA	Point Value				Total	
	1	2	3	4	Points	Pct (%)
Low	14-21	6-12	0	0	24-31	33-42%
Medium	10-15	8-14	3-9	0-8	28-41	38-57%
High	1-2	0-4	0-3	4-8	5-15	7-21%
<b>Total</b>	<b>28-33</b>	<b>18-26</b>	<b>9</b>	<b>8-12</b>	<b>71-73</b>	<b>100%</b>

Additionally, alignment to cognitive complexity level will be incorporated into item development and content reviews for all new MCAP Life Science MISA development. Item writers and members of content review committees will be trained on the MCCF Rubric and will establish or review the cognitive complexity alignment of each item to ensure adherence to the rubric.

### Dimensionality

The MCCF not only includes the process for evaluating Cognitive Complexity, but it also provides information about the number of active NGSS dimensions that are being used in each item. There are six cognitive complexity levels (high3, high3, medium3, medium2, low3, low2). The number identifies the total active dimensions, which is used to make sure that forms include similar ranges of two and three-dimensional items.

**Table 2-5. Dimensionality Alignments**

2022 MCAP Life Science MISA	Item Count	Item Percentage
Aligned to 3 NGSS Dimensions	45-46	94-96
Aligned to 3 NGSS Dimensions	1-3	2-6
Aligned to 1 NGSS Dimension	0	0

### Operational Blueprint

The MCAP Life Science MISA operational subscore categories and test blueprint are as follows:

- Each test form contained a total of 36 items and 54 possible points, typically in the following cluster configurations: two 2-point CR clusters, two 3-point CR clusters, and two 4-point CR clusters.
- Each test form contains clusters aligned to the NGSS Life Science Performance Expectations, as well as all three dimensions of the NGSS: DCIs, CCCs, and SEPs as outlined above.
- Each test form contains items that are aligned to the three levels of cognitive complexity for NGSS aligned items as specified by the MCCF Rubric described above.

**Table 2-6. MCAP Life Science MISA Operational Blueprint**

Content Area	Approximate Number of Items
Life Science	36
Total Number of Items	36
Total Possible Points	54



In addition, test designs are also aligned to groupings of Practices and Crosscutting Concepts as illustrated in Table 2-7 and Disciplinary Core Ideas as illustrated in Table 2-8.

**Table 2-7. Test Design Alignments: Practices and Crosscutting Concepts**

Subscore Category Investigating	Min-Max Percentage	Subscore Category Sensemaking	Min-Max Percentage	Subscore Category Critiquing	Min-Max Percentage
* Asking questions & defining problems * Planning & carrying out investigations * Using mathematics & computational thinking	24-35% (13-19 pts)	*Patterns and Cause and Effect (PCE) *Patterns *Cause and Effect	35-46% (19-25 pts)	*Engaging in argument from evidence *Obtaining, evaluating, & communicating information	24-35% (13-19 pts)

**Table 2-8. Test Design Alignments: Disciplinary Core Ideas**

DCI Category Structure and Function	Min-Max Percentage	DCI Category Matter and Energy	Min-Max Percentage	DCI Category Interdependent Relationships	Min-Max Percentage	DCI Category Inheritance and Variation of Traits	Min-Max Percentage	DCI Category Natural Selection and Evolution	Min-Max Percentage
LS1-1, LS1-2, LS1-3	11-19% (6-10 pts)	LS1-5, LS1-6, LS1-7, LS2-3, LS2-4, LS2-5	19-26% (10-14 pts)	LS2-1, LS2-2, LS2-6, LS2-7, LS2-8, LS4-6	19-26% (10-14 pts)	LS1-4, LS3-1, LS3-2, LS3-3	17-24% (9-13 pts)	LS4-1, LS4-2, LS4-3, LS4-4, LS4-5	17-24% (9-13 pts)

The MCAP Life Science MISA items and clusters were designed to align to a subset of the high school grade band standards. Item development and field test form construction were designed to support future operational test blueprints.

## Item Writing

In the 2021–2022-year, new item development occurred for the MCAP Government and MCAP Life Science MISA assessment.

All test items were originally developed by item writers. Item writers were employed to develop high-quality test items that aligned with the Social Studies Standards (Government) or the NGSS. For both assessments, the items were developed by Maryland educators, working collaboratively with the Cognia content teams and MSDE content specialists.

Item writers were trained in general item writing techniques and were given writing guidelines that are specific to the MCAP program. After an initial item writer training occurred, follow-up training was provided in the form of individual feedback and specialist review. After this follow-up training occurred, item writers received additional feedback and coaching as necessary.

Upon completion of their writing assignments, the item writers submitted their items to Cognia. Items and clusters that were accepted by the Cognia content team proceeded to the item review and revision process.

## Item Review and Revision

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

- Items were edited by Cognia’s editorial staff according to standard rules established by the Maryland Style Guide and the Chicago Manual of Style, including those detailed by the Maryland Overview Document and Item Specification documents, developed in conjunction with MSDE.
- Items were reviewed for accuracy, organization, comprehension, style, usage, consistency, fairness/sensitivity, and accessibility by Cognia’s content experts and editors.
- Item content was reviewed by Cognia’s content experts to establish whether the item measured the intended standards and cognitive complexity levels, as applicable.
- Copyright and/or trademark permissions were verified for any materials requiring permissions, for both field test and operational material after content review committee approval
- Items were reviewed by Cognia editorial staff to ensure the item adhered to both the stated MSDE Style Guide and standard grammar rules.
- Internal reviews were conducted by different content experts on Cognia’s team, and historical records were established for all version changes.

After Cognia performed the required internal reviews, items were submitted to MSDE for review. MSDE content specialists performed a review of the items and provided feedback to Cognia content specialists. The edits suggested by the MSDE specialists were then incorporated into the items. At this stage, items were also reviewed for accessibility and universal design.

Finally, the items were prepared for review by the Content, Bias/Sensitivity, and Accommodations Review Committees. These committees, selected by MSDE, were composed of diverse groups of Maryland educators. The committees reviewed each item to ensure that the content (a) accurately reflected what was taught in Maryland schools; (b) correctly aligned to the intended standards; (c) did not unfairly favor or disadvantage an individual or group; and (d) was universally designed and accessible to students with disabilities who utilize various presentation and response accommodations.

Upon completion of this final round of reviews, MSDE and Cognia content specialists conducted face-to-face meetings to evaluate and reconcile the reviews. Cognia then applied the requested edits to the items and/or revisions to the accompanying graphics.

For the MCAP Government assessment, 221 items were presented for review by the Content, Bias/Sensitivity, and Accommodations Review Committees in 2021. Some of these items were used to build the 2022 field test forms. Nineteen items were rejected following committee recommendations and three items were put on hold due to current events or curriculum changes.

For the MCAP Life Science MISA assessment, 31 science clusters were presented for review by the Content, Bias/Sensitivity, and Accommodations Review Committees in 2022. These items were then used to build the 2022 field test forms. These clusters included 31 multi-part stimuli and 434 items. Because of the integrated nature of the clusters, acceptance rates depended on the entire cluster, not individual items. Two clusters were put on hold due to the extent of the revisions requested.

# Testing Accommodations

Several alternate test formats were available to test takers, including large-print, braille, and standard paper-based versions of the MCAP Government and MCAP Life Science MISA tests. For 2022, all three alternate test formats were available for all administrations in both content areas. For additional information concerning test accommodations see the Maryland Assessment, Accessibility, and Accommodations Policy Manual available here: <http://marylandpublicschools.org/programs/Documents/Special-Ed/IEP/MAM508102017.pdf>.

## Test Construction

### MCAP Government

The MCAP Government forms administered in Winter, Spring, and Summer of 2022 were constructed using items from the Maryland MCAP government item bank. The pool of items that was available for use in the construction of the 2022 forms included items that had been administered, calibrated, and linked to the operational scale (see Year-to-Year Scale Maintenance / Section 4 for additional details). Each MCAP Government test form was constructed to meet specific test blueprint specifications. Table 2-1 indicates the distribution of score points associated with each item type.

### MCAP Life Science MISA

Each MCAP Life Science MISA form administered in Winter, Spring, and summer of 2022 was designed and constructed to meet the operational test blueprint outlined in Tables 2-2, 2-5, and 2-6 above as well as the cognitive complexity ranges detailed in Table 2-6. Each form was designed with four sessions consisting of two integrated clusters each. Two field test clusters were embedded with the six operational clusters. Each session was designed to be completed in approximately 40 minutes.

As previously stated, each cluster included one shared stimulus and six items. Each cluster contained one CR item worth two, three, or four points. The remaining five items in the cluster were a variety of SR and TE item types.

## Item Selection and Form Design

### MCAP Government

To preserve the item pool when multiple forms were included in an administration, 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 this administration, 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 percentage of common items across forms was determined by MSDE and is consistent with the test specifications for previous administrations of the MCAP Government assessment.

The guidelines used to construct the forms are provided in Tables 2-9 through 2-11. The exact composition of the forms varied slightly based on available items in the pool.

**Table 2-9. Form Construction Specifications for the MCAP Government Winter Administration**

Forms A, B, and C – Operational Core 1	Form X (Accom.)
Common set ~ 100%	Same as Form A, with paper versions of TEIs
Field test selection – Unique items	Field test selection – Same as Form A

**Table 2-10. Form Construction Specifications for the MCAP Government Spring Administration**

Forms D, E, F, G, H, J – Operational Core 1	Forms K, L, M, N, O, P – Operational Core 2	Form Y (Accom.)
Common set ~ 60%	Common set ~ 60%	Same as Form D with paper versions of TEIs
Unique items ~ 40%	Unique items ~ 40%	
Field test selection – Unique items	Field test selection – Unique items	D

**Table 2-11. Form Construction Specifications for the MCAP Government Summer Administration**

Form R – Operational Core 1	Form Z (Accom.)
Common set ~ 100%	Same as Form A with paper versions of TEIs
Field test selection – Unique items	R

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. Field test items accounted for approximately 19 percent of the total items on each form (12 field test items out of the total of 63 items). The content standards, item types, and item specifications added to the assessment and field tested in 2022 were developed and reviewed by Maryland educators to be representative of the knowledge, concepts, and skills taught in Maryland government courses and designed to be measured by the test.

For this administration, there was more than one form available, so the forms were randomly assigned at the student level. Random assignment at the student level means that multiple forms of the test were distributed to students arbitrarily by the computer-based testing platform. Random assignment at the student level helps ensure that all forms are arbitrarily distributed throughout the state. Because only one paper-based form is created, this form cannot be randomly assigned.

The 2022 MCAP Government 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 (CSEM) curves with the “target” form defined as the base form used to set the operational scale. For MCAP Government, the base forms were originally developed in 2003. These base forms contained BCR items. Between summer 2009 and October 2013, BCR items were discontinued on the MCAP Government and the target TCCs for the MCAPs were revised so that they were no longer influenced by the characteristics of CR items. Refer to the Educational Testing Service (ETS) memorandum: *Considerations for Setting New Target Test Characteristic Curves for the Maryland High School Assessments (HSAs)* (ETS, 2009) for details on how new target TCCs were created. However, starting in January 2014, BCR items were reintroduced to the MCAP Government so the Government target TCCs have been revised to again include BCR items in the calculation of TCCs and CSEMs.

The following general steps were completed during the test construction process for the MCAP Government forms:

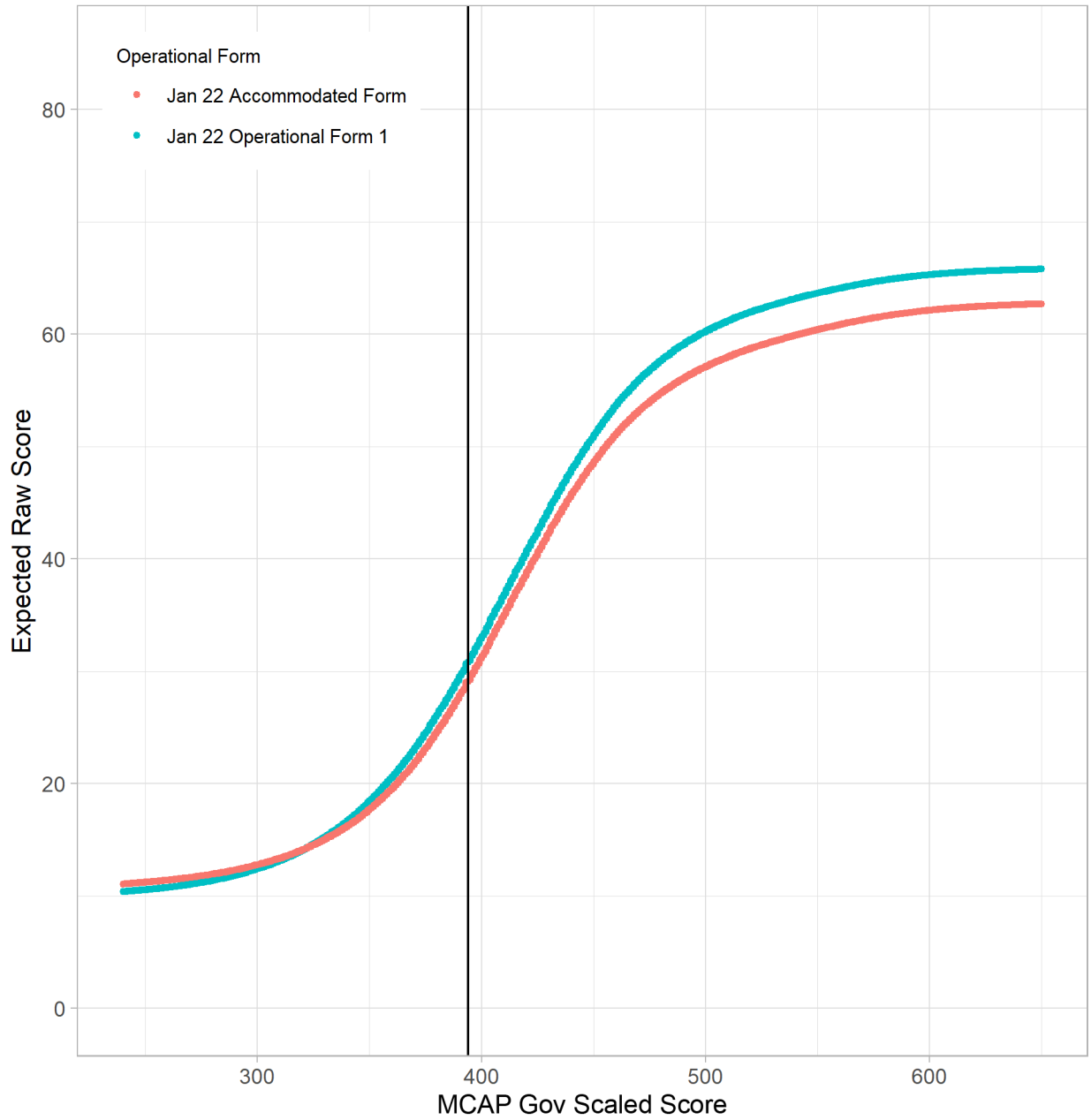
1. For each administration, all forms were constructed simultaneously to provide the best opportunity to construct parallel forms.
2. Items were selected to represent the test blueprint and match the target TCCs and CSEMs.
3. Test developers were careful to ensure that the item selections met all content specifications, including matching items to the test blueprint, distribution of keys, and avoidance of clueing<sup>3</sup> or clanging.<sup>4</sup>
4. After the operational items were selected for the test forms, the field test sets were constructed. Item sets consisted of SR, BCR, TE, and ECR item types. While the field test sets were not constructed to meet any psychometric criteria, they were constructed to meet content criteria. For MCAP Government, the field test sets were estimated to be able to be completed by students in approximately 30 to 35 minutes. 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 through 2-6 show the plots of the TCCs and CSEMs of the operational forms used for MCAP Government in 2022. The vertical line in each figure represents the proficiency scaled cut score (see Table 5-1 for the cut score value). The CSEMs in Figure 2-2 are CSEM values on the scaled score metric (i.e., scaled CSEMs). MCAP Government has only one cut: Proficient. It is important to note that the TCCs and CSEMs shown in the plots are based on pre-equated item parameters and therefore are curves calculated prior to administration of the tests. The TCC plots indicate that all forms for MCAP Government were within or very close to each other across the range of scale scores. When forms varied in difficulty, differences between forms were typically less than 5 percent of the expected raw score across the score range, especially in the range of the cut scores. When 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 tended to reach a minimum were lowest at and above the scaled cut score, which represents the middle and upper ranges of scale scores. Typically, this is where most student scores are located.

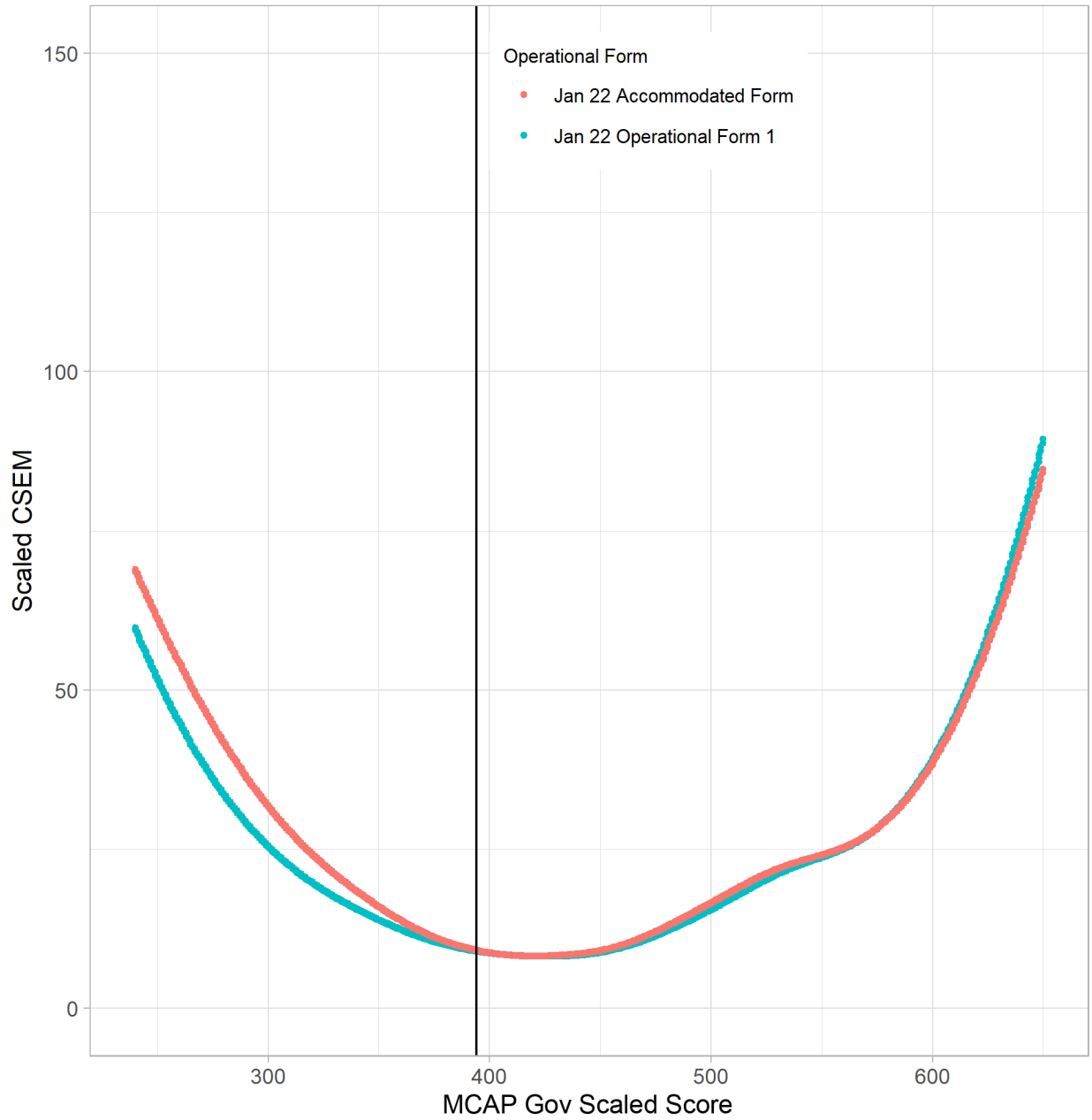
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<sup>3</sup> **Clueing** refers to information within a passage, stimulus, item, graphic, or other test component that allows respondents to select/construct the correct answer to one or more items in an assessment without the knowledge and/or skill targeted by the item.

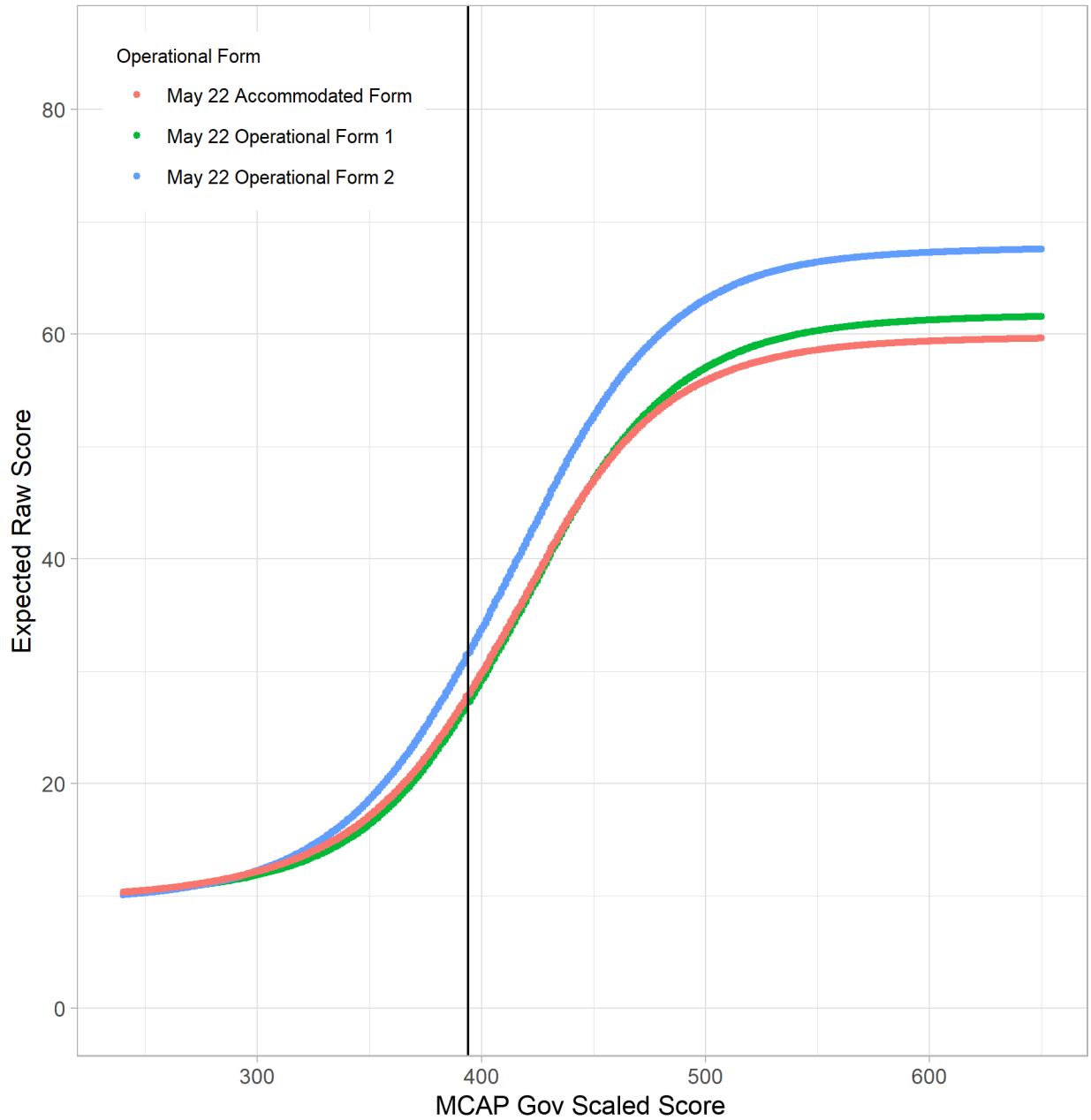
<sup>4</sup> **Clanging** occurs when an identical or similar word(s) appears in both the item stem and one or more item distractors. Also, if two or more items that are near each other share common key words, even if the item content does not clue, the items are said to clang because the interpretation of the word in one item can affect the interpretation of another item.



**Figure 2-1. Test Characteristic Curves for the 2022 Maryland MCAP Government Forms—Winter**

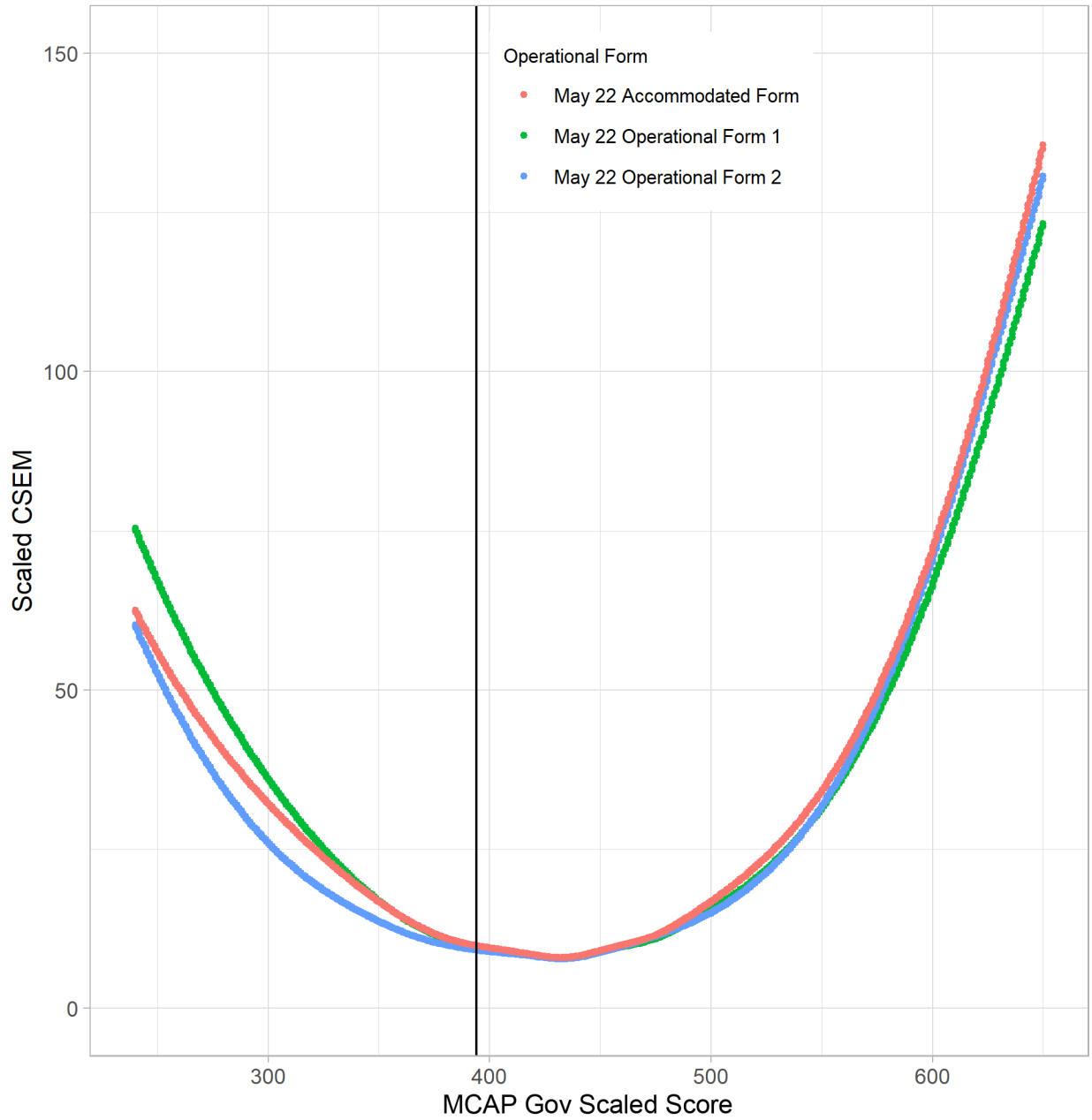


**Figure 2-2. Conditional Standard Errors of Measurement and Proficiency Cutoffs for the Maryland MCAP Government Forms—Winter**

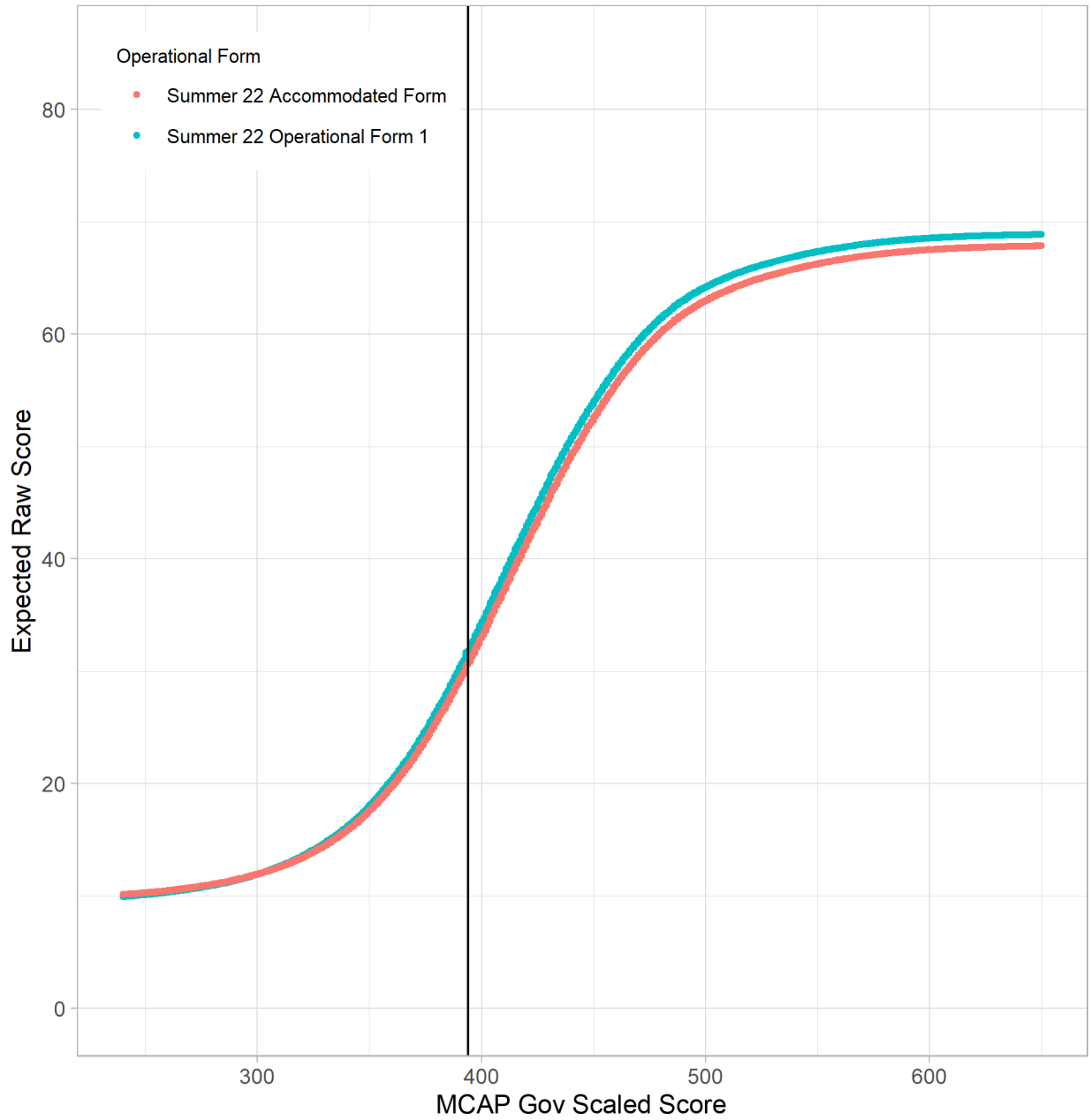


**Figure 2-3. Test Characteristic Curves for the 2022 Maryland MCAP Government Forms—Spring**

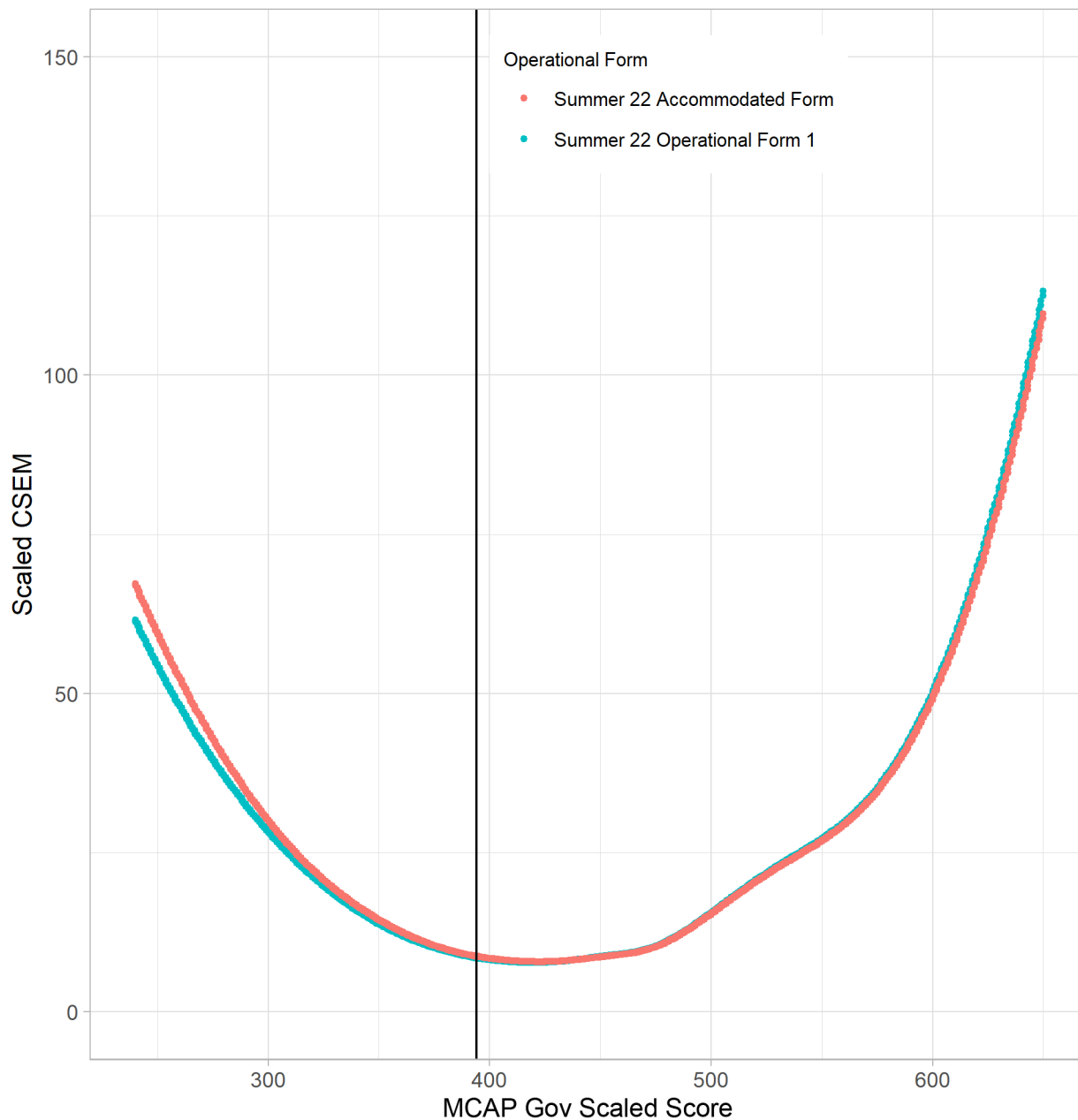




**Figure 2-4. Conditional Standard Errors of Measurement and Proficiency Cutoffs for the Maryland MCAP Government Forms—Spring**



**Figure 2-5. Test Characteristic Curves for the 2022 Maryland MCAP Government Forms—Summer**



**Figure 2-6. Conditional Standard Errors of Measurement and Proficiency Cutoffs for the Maryland MCAP Government Forms—Summer**

## MCAP Life Science MISA

Per the MCAP Life Science MISA test design, when multiple forms were included in an administration, each test form consisted of a common set of operational clusters shared across forms within an administration, as well as a unique set of items. Per this test design, one-half of the operational clusters are shared across the forms for each administration. Note that in 2022, each test form had six clusters that were operational in the sense that those clusters counted toward student scores. The other two

clusters on a test form were field test clusters in the sense that those clusters did not count toward student scores.

In addition to the operational items, embedded field test clusters 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 guidelines used to construct the forms are provided in Tables 2-12 through 2-14. The exact composition of the forms varied slightly based on available items in the pool.

**Table 2-12. Form Construction Specifications for the MCAP Life Science MISA Winter Administration**

Forms A, B, C Operational Core 1	Form X (Accom.)
Linking clusters – 62% Unique clusters – 38%	Same as Form A
Field test selection – Unique clusters	Field test selection – Same as Form A

**Table 2-13. Form Construction Specifications for the MCAP Life Science MISA Spring Administration**

Forms D, E, F – Operational Core 1	Forms G, H, J – Operational Core 2	Forms K, L, M – Operational Core 3	Form Y (Accom.)
Linking clusters – 62% Unique clusters – 38%	Linking clusters – 62% Unique clusters – 38%	Linking clusters – 62% Unique clusters – 38%	Same as Form D
Field test selection – Unique clusters	Field test selection – Unique clusters	Field test selection – Unique clusters	Field test selection – Same as Form D

**Table 2-14. Form Construction Specifications for the MCAP Life Science MISA Summer Administration**

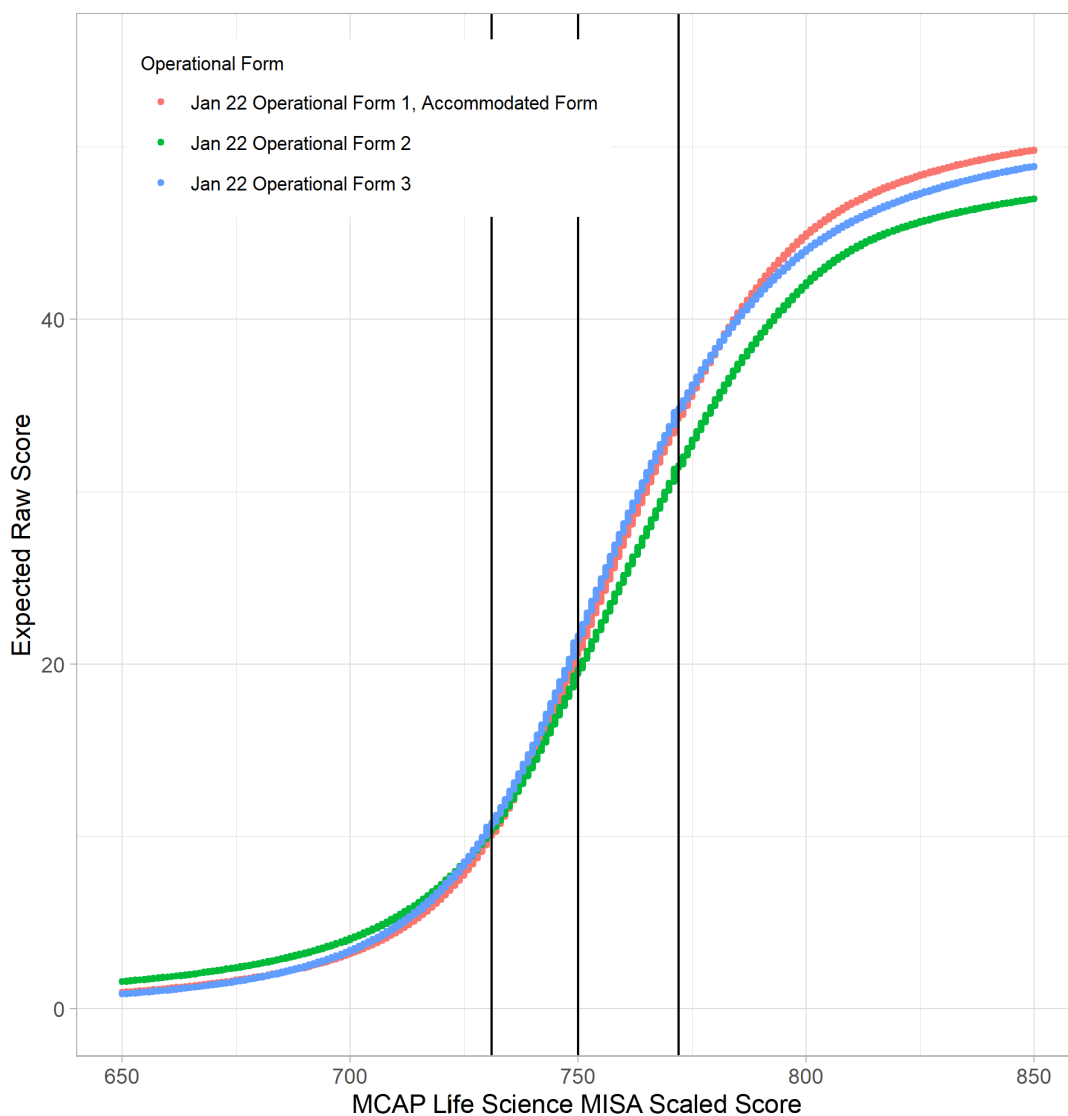
Form R Operational Core 1	Form Z (Accom.)
Linking clusters – 62% Unique clusters – 38%	Same as Form R
Field test selection – Unique clusters	Field test selection – Same as Form A

The following general steps were completed during the test construction process for the MCAP Life Science MISA forms:

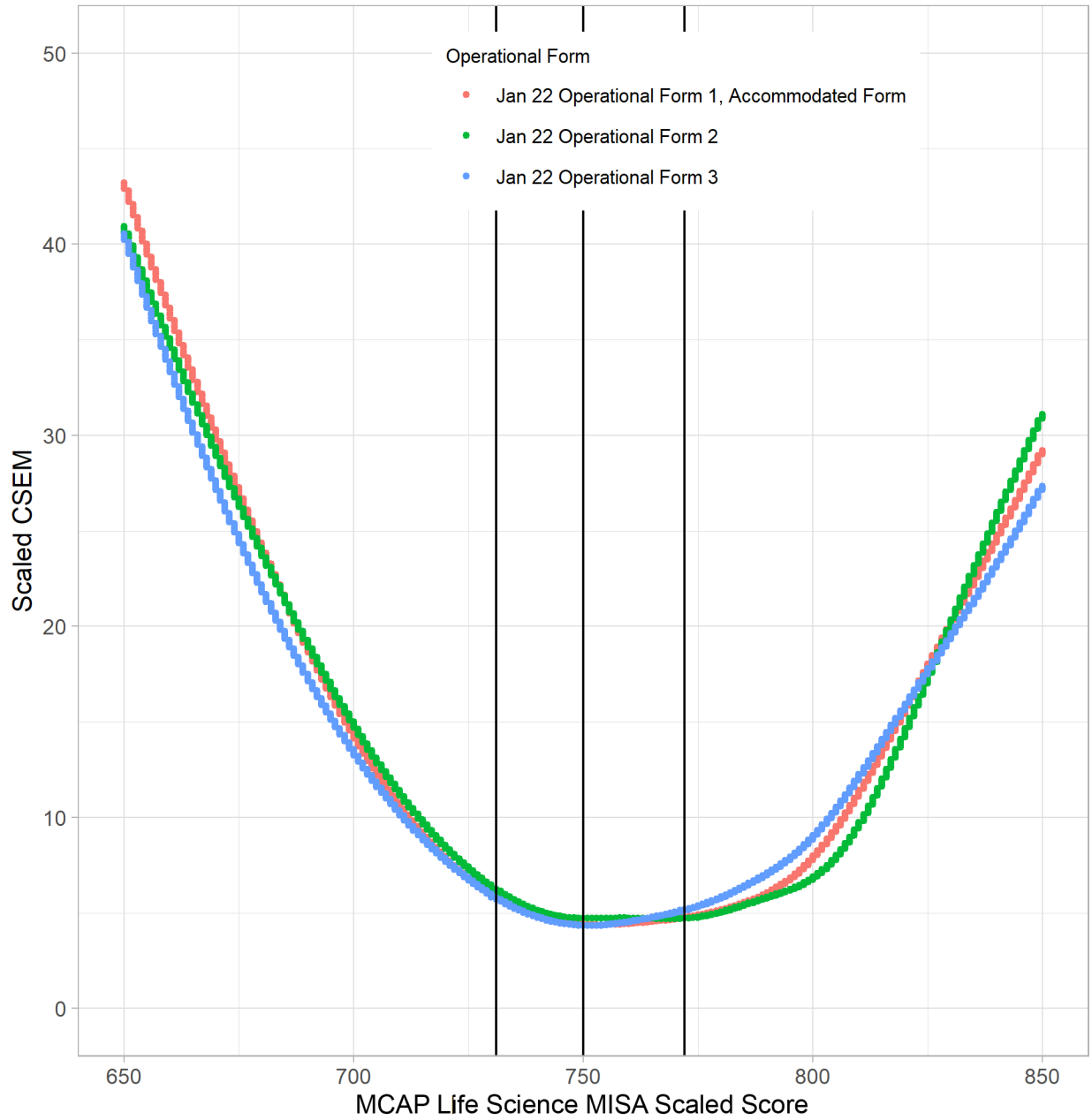
1. For each administration, typically all forms were constructed simultaneously to provide the best opportunity to construct parallel forms.
5. Test developers were careful to ensure that the item selections met all content specifications, including matching items to the test blueprint, distribution of keys, and avoidance of clueing or clanging.
6. After the operational items were selected for the test forms, the field test sets were constructed. Field test sets consisted of MCAP Life Science MISA clusters across all content areas. While the field test sets were not constructed to meet any psychometric criteria, they were constructed to meet content criteria. 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 continued efforts to build the operational pool of NGSS-aligned MCAP Life Science MISA clusters.

Figures 2-7 through 2-12 show the plots of the TCCs and CSEMs of the forms used for MCAP Life Science MISA in the Winter 2022 administration. Figures 2-5 and 2-6 show the plots of the TCCs and CSEMs of the forms used for MCAP Life Science MISA in the Early Fall 2022 administration. The vertical lines in each figure represent the scaled cut scores (see Table 5-1 for the cut score values). Note that the CSEMs in these figures are CSEM values on the scaled score metric (i.e., scaled CSEMs).

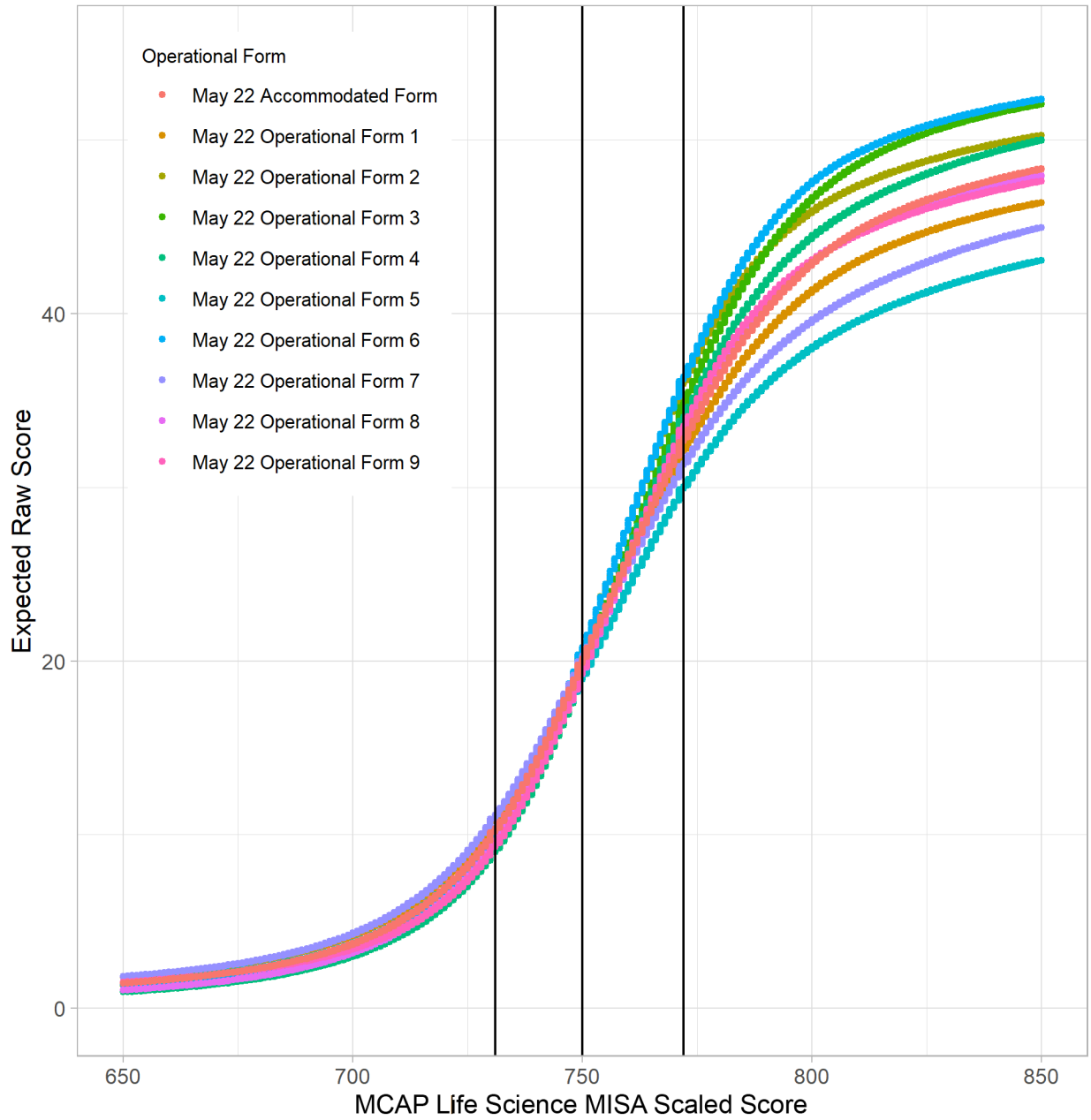
The TCC plots indicate that all forms for MCAP Life Science MISA were within the range of scaled scores, or very close to each other. When forms varied in difficulty, differences between forms were typically less than 5 percent of the total raw score across the score range, especially in the range of the cut scores. When 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. The CSEM plots indicate that the scaled CSEMs were lowest at and above the scaled cut score, which represents the middle and upper ranges of scale scores. Typically, this is where most student scores are located.



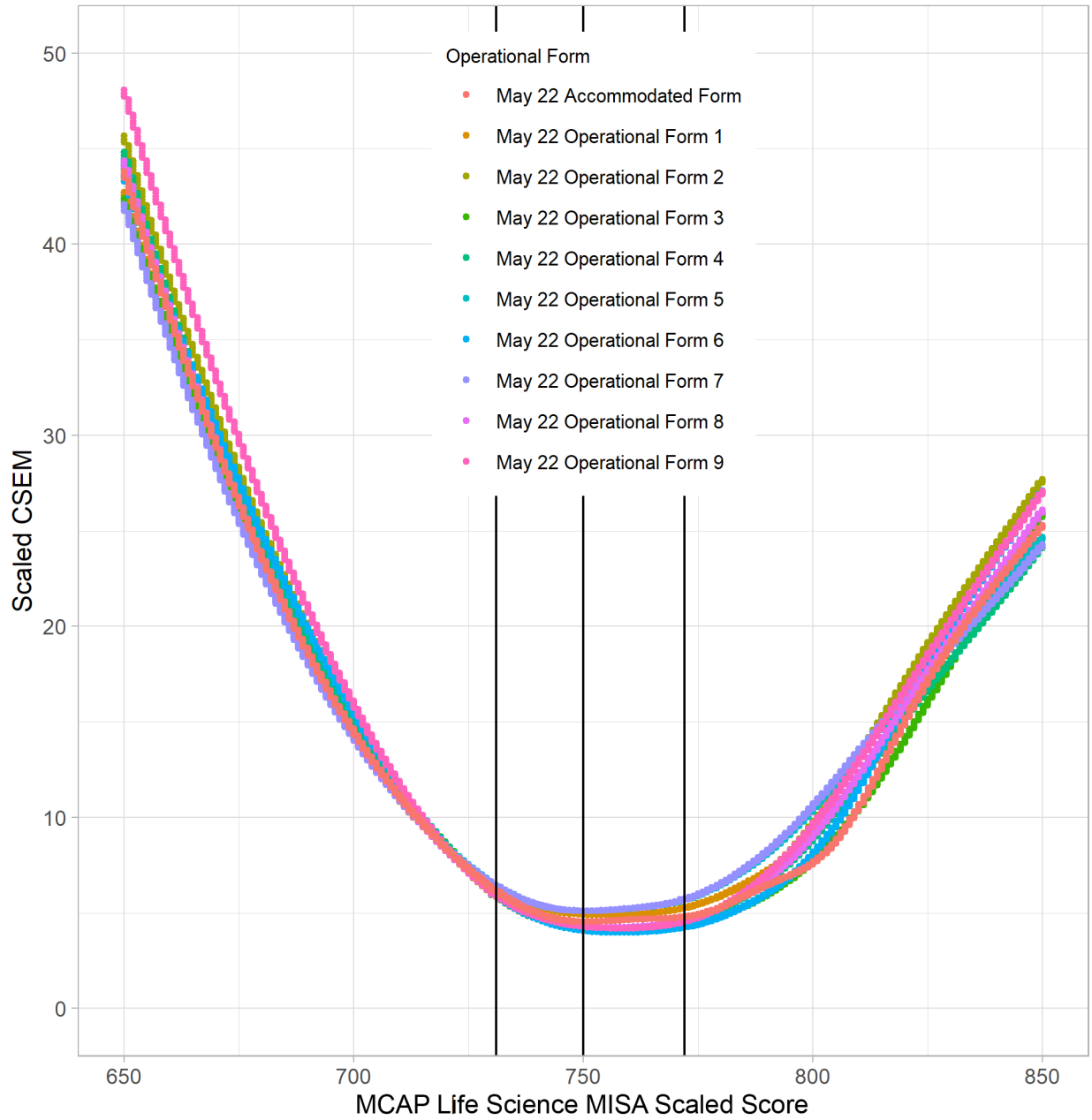
**Figure 2-7. Test Characteristic Curves for the Maryland MCAP Life Science MISA Forms—Winter**



**Figure 2-8. Conditional Standard Errors of Measurement and Performance Level Cutoffs for the Maryland MCAP Life Science MISA Forms—Winter**

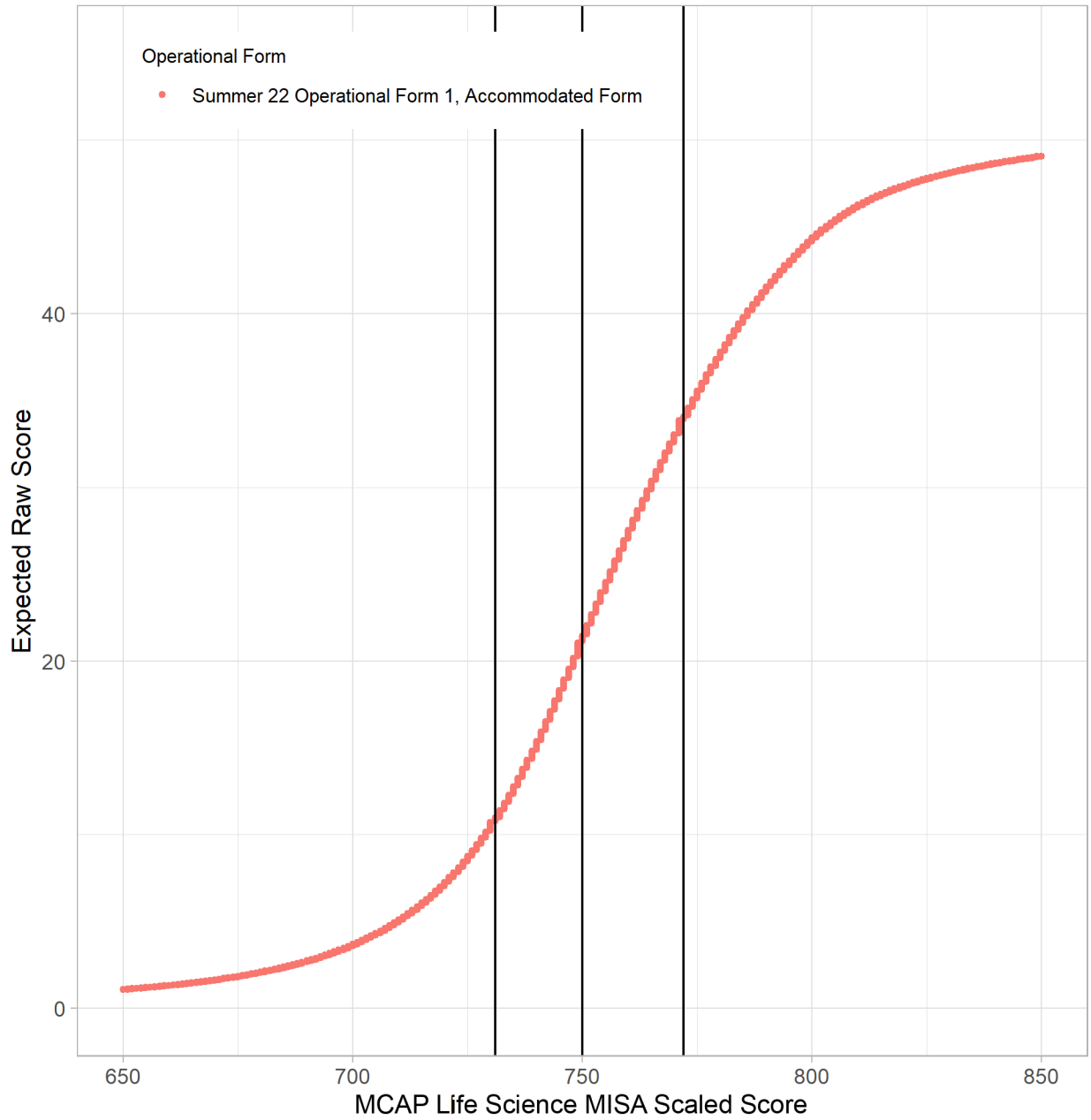


**Figure 2-9. Test Characteristic Curves for the Maryland MCAP Life Science MISA Forms—Spring**

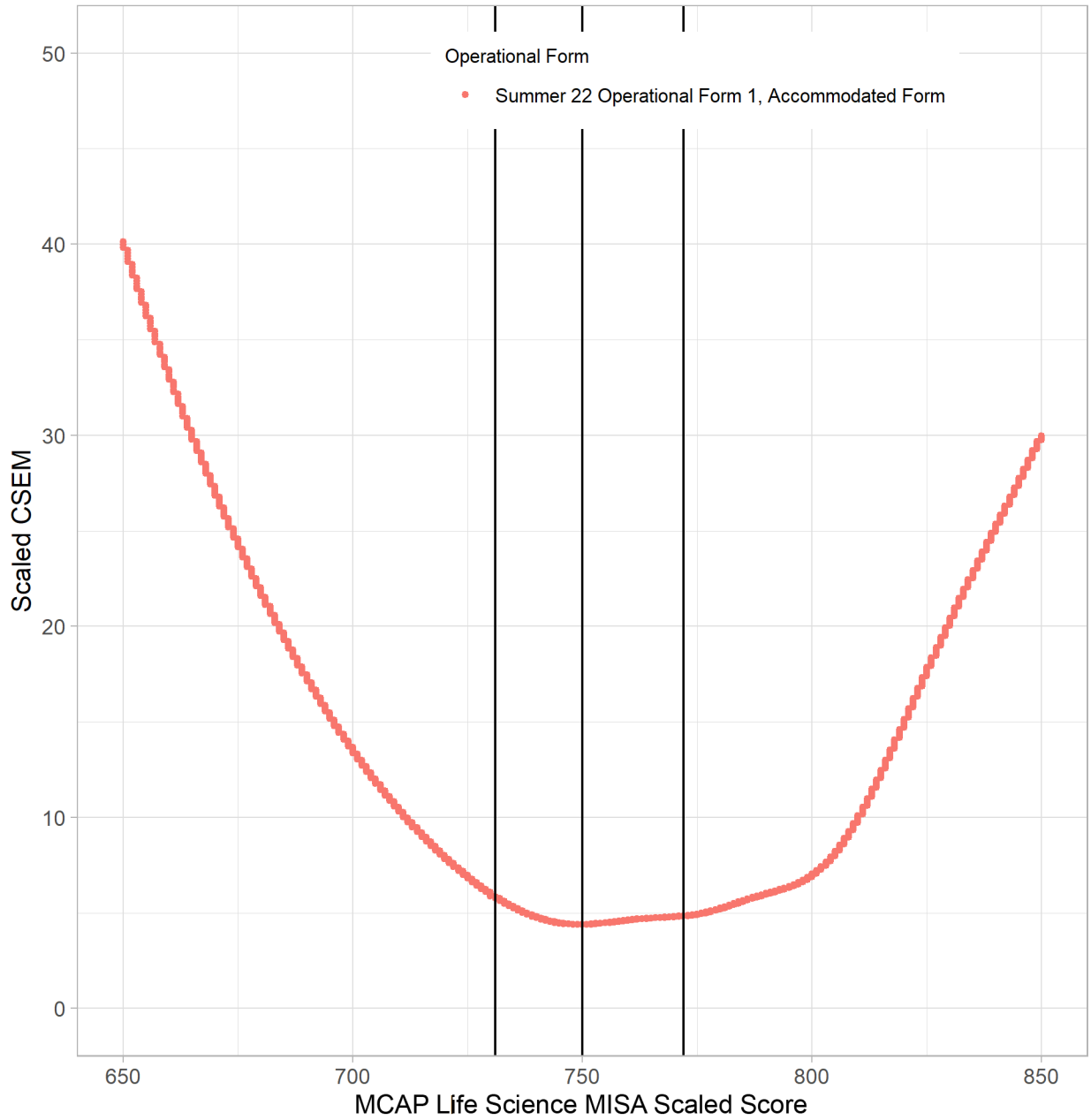


**Figure 2-10. Conditional Standard Errors of Measurement and Performance Level Cutoffs for the Maryland MCAP Life Science MISA Forms—Spring**





**Figure 2-11. Test Characteristic Curves for the Maryland MCAP Life Science MISA Forms—Summer**



**Figure 2-12. Conditional Standard Errors of Measurement and Performance Level Cutoffs for the Maryland MCAP Life Science MISA Forms—Summer**

# Test Administration

For all Maryland MCAP tests administered in 2022, both paper-and-pencil and online versions were available. An online practice test was available to the public throughout the administration year. For all administrations, online forms were randomly assigned. There was one paper form provided for students and used for accommodations or special circumstances. The paper administration window is one week shorter than the online window.

All forms administered without extended time accommodations had timing limits indicated in Table 2-15.

**Table 2-15. Test Timing Schedule in Minutes for MCAP Government and MCAP Life Science MISA**

Content Area	Session One	Break	Session Two	Break	Session Three	Break	Session Four
MCAP Life Science MISA	40 min.	5 min.	40 min.	5 min.	40 min.	5 min.	40 min.
MCAP Government	40 min.	5 min.	40 min.	5 min.	40 min.	5 min.	40 min.

# 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, 2014; 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. In 2022, taking the MCAP Government and MCAP Life Science MISA fulfilled a participation requirement. The 2022 testing data largely supported the test development process for 2023, such as field test item analysis and test form construction.

This section provides validity evidence for the Maryland Comprehensive Assessment Program Government and High School Maryland Integrated Science Assessment. Students' scores on the MCAP Government and MCAP Life Science MISA are assumed to reflect students' level of knowledge and skills in a content area. The scaled scores on each of these assessments are used to classify students in terms of their level of proficiency based on cut scores established by the state. Note that at the time of drafting this report, no validity evidence was available on the relationships to external variables (e.g., relationships to other MCAP assessments such as ELA Grade 10, Algebra 1) or on testing consequences (e.g., the impact of test scores on student grades).

## Evidence Based on Analyses of Test Content

The MCAP Government and MCAP Life Science MISA tests are referred to as end-of-course tests because students take each as they complete the appropriate coursework. Consequently, MCAP Government and MCAP Life Science MISA test items are developed to measure the knowledge and skills expected of students following completion of the respective coursework. As discussed in Section 2, the development of test content for the MCAP Government and the MCAP Life Science MISA is overseen by content experts who have depth of knowledge and teaching experience related to the course(s). Appropriate content leaders 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, 2014, p. 14). The test development process for the Maryland MCAPs provides numerous opportunities for 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 (goal, expectation, or indicator). During the internal Cognia 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 that it is intended to measure and evaluate the appropriateness for the intended grade level. These judgments are tabulated and reviewed by the content experts who use the information to decide which items 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 aim to study the relationships among test items and/or test components to establish the degree to which the items/components reflect the construct (AERA, APA, & NCME, 2014, p. 16). The term "construct" refers to the characteristic that a test is intended to

measure and a test score interpretation is based on; in the case of the MCAP Government, the construct is the knowledge and skills defined by the test blueprint for each content area.

High total group internal consistencies as well as similar group-specific SEMs across subgroups with roughly the same sample size provide additional validity evidence based on internal structure. Measurement error is inevitable. However, high reliability over items within a test implies that the measurement error is small. Coefficient alpha (Cronbach, 1951), IRT marginal reliability, and group-specific SEMs results for each administration for the overall population, as well as for subgroups, can be found in Section 6 of this report in Tables 6-1 through 6-3.

Another way to assess the internal structure of the test is through the evaluation of Pearson correlation matrices between the individual subscores. If subscores are strongly related to each other, it implies the construct measured is unidimensional, which is consistent with the IRT scaling and scoring processes.

Table 3-1 shows the Pearson correlations between subscores of the MCAP Government test. Results indicate that each subscore is positively correlated with the overall scale score and that the subscores are positively correlated with each other. The correlation of each subscore with the total test score fell within the range of 0.6 to 0.9. Correlations of subscores between each pair of standards tended to fall within the range of approximately 0.45 to 0.69. Subscore correlations between Standard 1 and any other subscore tended to be larger than that of the subscore correlations that do not include Standard 1. This is likely due to the fact Standard 1 represented a total of 32 points, while Standards 2, 3, 4, and 6 represented 8, 8, 10, and 9 points, respectively. That is, more items aligned to Standard 1 than any of the other standards.

Table 3-2 shows the Pearson correlations between subscores of the MCAP Life Science MISA test. Results indicate that each subscore is positively correlated with the overall scale score (ranging from approximately 0.7 to 0.9) and that the subscores are positively correlated with each other (ranging from approximately 0.3 to 0.95). The subscore correlations that included Standard 1–3 tended to be greater than subscores that did not include Standard 1–3. This is partially due to the large number of items in these standards and the large amount of overlap in the items that aligned to each of these standards.

**Table 3-1. Correlations Between Subscores—MCAP Government**

	Overall	Standard 1: Civics	Standard 2: Peoples of the Nations and World	Standard 3: Geography	Standard 4: Economic	Standard 6: Skills and Processes
<b>Winter 2022 Administration (N = 7,393)</b>						
Overall	1.000	--	--	--	--	--
Standard 1: Civics	0.928	1.000	--	--	--	--
Standard 2: Peoples of the Nations and World	0.801	0.685	1.000	--	--	--
Standard 3: Geography	0.700	0.584	0.534	1.000	--	--
Standard 4: Economic	0.623	0.522	0.461	0.445	1.000	--
Standard 6: Skills and Processes	0.712	0.604	0.545	0.452	0.381	1.000
<b>Spring 2022 Administration (N = 53,327)</b>						
Overall	1.000	--	--	--	--	--
Standard 1: Civics	0.951	1.000	--	--	--	--
Standard 2: Peoples of the Nations and World	0.776	0.680	1.000	--	--	--
Standard 3: Geography	0.635	0.568	0.470	1.000	--	--
Standard 4: Economic	0.662	0.595	0.483	0.426	1.000	--
Standard 6: Skills and Processes	0.793	0.690	0.609	0.441	0.457	1.000
<b>Summer 2022 Administration (N = 443)</b>						
Overall	1.000	--	--	--	--	--
Standard 1: Civics	0.913	1.000	--	--	--	--
Standard 2: Peoples of the Nations and World	0.718	0.589	1.000	--	--	--
Standard 3: Geography	0.548	0.430	0.401	1.000	--	--
Standard 4: Economic	0.650	0.512	0.445	0.428	1.000	--
Standard 6: Skills and Processes	0.645	0.519	0.447	0.327	0.487	1.000

**Table 3-2. Correlations Between Subscores—MCAP Life Science MISA**

	Overall	Standard 1: Investigating Practices	Standard 2: Sense making Practices	Standard 3: Critiquing Practices	Standard 4: Structure and Function	Standard 5: Matter and Energy in Organisms and Ecosystems	Standard 6: Interdependent Relationships in Ecosystems	Standard 7: Inheritance and Variation of Traits	Standard 8: Natural Selection and Evolution
<b>Winter 2022 Administration (N = 11,701)</b>									
Overall	1.000	--	--	--	--	--	--	--	--
Investigating Practices	0.764	1.000	--	--	--	--	--	--	--
Sensemaking Practices	0.846	0.532	1.000	--	--	--	--	--	--
Critiquing Practices	0.863	0.592	0.618	1.000	--	--	--	--	--
Structure and Function	0.639	0.433	0.680	0.489	1.000	--	--	--	--
Matter and Energy in Organisms and Ecosystems	0.682	0.412	0.819	0.490	0.367	1.000	--	--	--
Interdependent Relationships in Ecosystems	0.764	1.000	0.532	0.592	0.433	0.412	1.000	--	--
Inheritance and Variation of Traits	0.709	0.493	0.510	0.813	0.403	0.403	0.493	1.000	--
Natural Selection and Evolution	0.768	0.510	0.627	0.742	0.433	0.449	0.510	0.453	1.000
<b>Spring 2022 Administration (N = 55,868)</b>									
Overall	1.000	--	--	--	--	--	--	--	--
Investigating Practices	0.796	1.000	--	--	--	--	--	--	--
Sensemaking Practices	0.841	0.568	1.000	--	--	--	--	--	--
Critiquing Practices	0.875	0.618	0.638	1.000	--	--	--	--	--
Structure and Function	0.661	0.479	0.710	0.527	1.000	--	--	--	--
Matter and Energy in Organisms and Ecosystems	0.688	0.505	0.763	0.507	0.385	1.000	--	--	--
Interdependent Relationships in Ecosystems	0.771	0.958	0.549	0.606	0.472	0.436	1.000	--	--
Inheritance and Variation of Traits	0.731	0.535	0.533	0.821	0.452	0.422	0.529	1.000	--
Natural Selection and Evolution	0.781	0.534	0.652	0.764	0.463	0.475	0.520	0.481	1.000
<b>Summer 2022 Administration (N = 265)</b>									
Overall	1.000	--	--	--	--	--	--	--	--
Investigating Practices	0.729	1.000	--	--	--	--	--	--	--
Sensemaking Practices	0.771	0.422	1.000	--	--	--	--	--	--
Critiquing Practices	0.759	0.402	0.437	1.000	--	--	--	--	--
Structure and Function	0.554	0.352	0.597	0.377	1.000	--	--	--	--
Matter and Energy in Organisms and Ecosystems	0.630	0.342	0.838	0.321	0.274	1.000	--	--	--
Interdependent Relationships in Ecosystems	0.729	1.000	0.422	0.402	0.352	0.342	1.000	--	--
Inheritance and Variation of Traits	0.619	0.311	0.384	0.827	0.325	0.287	0.311	1.000	--
Natural Selection and Evolution	0.687	0.394	0.466	0.667	0.261	0.343	0.394	0.361	1.000

## Confirmatory Factor Analyses

The internal structures of the MCAP Government and MCAP Life Science MISA tests are assessed by the degree to which the tests meet the requirements of the statistical models used to estimate item parameters and student scores. Confirmatory factor analysis (CFA) was used to assess the degree to which one-factor models fit the MCAP Government and the MCAP Life Science MISA tests. CFA is a useful statistical methodology for evaluating whether performance on items in each test reflects a single underlying characteristic (i.e., a unidimensional test) or a set of distinct characteristics defined by the reporting categories (i.e., a multidimensional test). The CFA results provide evidence as to the degree to which the unidimensional item response theory (IRT) model used to calibrate the MCAP Government items is appropriate.

To assess the dimensionality of the MCAP Government test, a separate CFA was conducted on the item response data from each operational form and the accommodated form, from each administration. Similarly, to assess the dimensionality of the MCAP Life Science MISA, a separate CFA was conducted on each operational form and the accommodated form from each administration.

Mplus 8.1 (Muthén & Muthén, 2007) was used to calculate matrices of polychoric correlations between the items and was also used to fit specified factor models to the data. In the analysis, the input polychoric correlation matrix was used to estimate the factor loadings between the indicators (items). Parameters for CFA were estimated using weighted least-squares (WLS) estimation with mean and variance adjustment (Muthén, du Toit, & Spisic, 1997). This method leads to a consistent estimator of the model parameters and provides standard errors that are robust under model misspecification. For ordinal data, WLS 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 is assessed through 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 depend on the data, and hence degrees of freedom may vary when the same model is applied to different data (Muthén, 1998–2004, p. 19-20).

Overall model fit for the CFA model 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 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 both based on non-centrality 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).

Table 3-3 shows the results of the analyses. Although the  $\chi^2$  statistic values were statistically significant, the TLI, CFI, and RMSEA fit statistics indicated that the one-factor solutions generally fit the data well. These fit statistics provide strong evidence in support of the item response theory (IRT) assumption of unidimensionality for both MCAP Government and MCAP Life Science MISA.



**Table 3-3. Confirmatory Factor Analyses Fit Statistics**

Admin	Form	N	# of Factors	# of Items	df	$\chi^2$	p-value	TLI	CFI	RMSEA
<b>MCAP Government</b>										
Winter	Op. Core 1 (A22, B22)	6,959	1	51	1,224	7148.797	< 0.0001	0.968	0.969	0.026
	Accomm. Form (X22)	434	--	--	--	--	--	--	--	--
Spring	Op. Core 1 (D22, E22, F22, G22, H22, J22)	29,769	1	51	1,224	36541.919	< 0.0001	0.957	0.959	0.031
	Op. Core 2 (K22, L22, M22, N22, O22, P)	19,916	1	51	1,224	21118.123	< 0.0001	0.963	0.964	0.029
Summer	Accomm. Form (Y22)	3,642	1	51	1,224	3290.720	< 0.0001	0.945	0.947	0.022
	Op. Core 1 (R22)	415	--	--	--	--	--	--	--	--
	Accomm. Form (Z22)	28	--	--	--	--	--	--	--	--
<b>MCAP Life Science MISA</b>										
Winter	Op. Core 1 (A22)	3,693	1	36	594	1370.757	< 0.0001	0.985	0.986	0.019
	Op. Core 2 (B22)	3,724	1	36	594	1439.364	< 0.0001	0.985	0.986	0.02
	Op. Core 3 (C22)	3,682	1	36	594	1333.935	< 0.0001	0.983	0.984	0.018
	Accomm. Form (X22)	602	1	36	594	655.203	0.0412	0.953	0.955	0.013
Spring	Op. Core 1 (G22)	5,902	1	36	594	2012.226	< 0.0001	0.984	0.985	0.02
	Op. Core 2 (L22)	5,901	1	36	594	1832.843	< 0.0001	0.984	0.985	0.019
	Op. Core 3 (H22)	5,896	1	36	594	1841.047	< 0.0001	0.986	0.987	0.019
	Op. Core 4 (K22)	5,887	1	36	594	1537.691	< 0.0001	0.989	0.99	0.016
	Op. Core 5 (E22)	5,881	1	36	594	2196.264	< 0.0001	0.98	0.982	0.021
	Op. Core 6 (J22)	5,871	1	36	594	1809.862	< 0.0001	0.986	0.987	0.019
	Op. Core 7 (M22)	5,869	1	36	594	2000.874	< 0.0001	0.983	0.984	0.02
	Op. Core 8 (D22)	5,860	1	36	594	1695.754	< 0.0001	0.988	0.989	0.018
	Op. Core 9 (F22)	5,850	1	36	594	1720.646	< 0.0001	0.985	0.986	0.018
	Accomm. Form (Y22)	2,951	1	36	594	957.415	< 0.0001	0.956	0.958	0.014
Summer	Op. Core 1 (R22)	249	--	--	--	--	--	--	--	--
	Accomm. Form (Z22)	16	--	--	--	--	--	--	--	--

## Evidence Based on Response Processes

Validity evidence related to response processes includes results from cognitive interviews of students using think-aloud methods (e.g., Padilla & Leighton, 2017). Analyses of item response times can also provide validity evidence related to response processes. MSDE is currently engaged with Cognia to conduct such cognitive interviews during the 2022–23 school year.

One other source of validity evidence related to response processes is the rate of omitted responses. The tables in Appendices B and C contain the omit rates for field test and operational items from MCAP Government and MCAP Life Science MISA by administration and item type. Generally, omit rates were well under 5%, with only a few exceptions on some constructed-response items. This finding could be driven by the fact that MCAP Government and MCAP Life Science MISA were participation requirements in 2022, which potentially decreased engagement on constructed-response items. MSDE and Cognia will monitor the omit rates on constructed-response items in 2023 and consider what, if any, remedial measures are needed to reduce omit rates on constructed-response items.

# Section 4. Reliability / Measurement Precision

This section provides the results of test score reliability (classical and IRT-based), decision consistency, and accuracy analyses of the 2022 MCAP Government and the MCAP Life Science MISA.

## Classical Reliability

The general concept of reliability concerns the precision of a test score. Of interest is quantifying the degree to which a score varies 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 true-score variance in total score variance. Several different ways of estimating this proportion exist. One commonly used estimate of reliability is coefficient 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 as follows:

$$\alpha \equiv \frac{n}{n-1} \left[ 1 - \frac{\sum_{i=1}^n \sigma_{(Y_i)}^2}{\sigma_x^2} \right] \quad (1)$$

where

$n$  is the number of items,

$\sigma_{(Y_i)}^2$  is the variance of scores on item  $i$ , and

$\sigma_x^2$  is the variance of the total score (sum of scores on the individual items).

Sample estimates are substituted for the population variances in this formula to provide reliability estimates.

## IRT Marginal Reliability

IRT marginal reliability estimation is based on applying the standard classical test theory (CTT) formula, relating variances of true score, observed score, and measurement error, in the IRT setting. In CTT, the relationship between these variances is given by:

$$\sigma_x^2 = \sigma_T^2 + \sigma_E^2 \quad (2)$$

where

$\sigma_x^2$  is the observed-score variance,

$\sigma_T^2$  is the true-score variance, and

$\sigma_E^2$  is the error variance.

Starting from this basic equation, it can be shown that the formula for CTT reliability can be expressed as:

$$CTT \text{ Reliability} = 1 - \frac{\sigma_E^2}{\sigma_x^2} \quad (3)$$

IRT marginal reliability is based on extending the CTT model to an IRT framework (Samejima, 1994) and provides an IRT-based estimate of the overall test reliability. Error variance is estimated as the mean

squared conditional standard error of measurement (CSEM) of the theta estimates across students within a grade. Observed score variance is estimated as the variance of the theta estimates across students within a grade. Equivalently, the mean squared CSEM of the scale scores and the variance of the scale scores can be used in place of the CSEM of the theta estimates and the variance of the theta estimates, respectively. IRT marginal reliability is then given by the following formula:

$$IRT \text{ Marginal Reliability} = 1 - \frac{CSEM(\theta)^2}{Var(\hat{\theta})} = 1 - \frac{CSEM(SS)^2}{Var(SS)}, \quad (4)$$

where

- $\frac{CSEM(\theta)^2}{Var(\hat{\theta})}$  is the mean squared CSEM,
- $\frac{CSEM(SS)^2}{Var(SS)}$  is the mean squared scale CSEM,
- $Var(\hat{\theta})$  is the variance of theta estimates, and
- $Var(SS)$  is the scale score variance.

CSEMs are equal to the reciprocal of the square root of the test information function (TIF; i.e., the sum of item information functions) conditional at individual score points and defined as:

$$CSEM(\theta) = \frac{1}{\sqrt{I(\theta)}} \quad (5)$$

where

- $\vartheta$  is the individual score point (location on the scale),
- $CSEM(\vartheta)$  is the conditional standard error of measurement at the score point, and
- $I(\vartheta)$  is the test information function value at that score point,  $\vartheta$ .

Using these formulas, IRT marginal reliability estimates were calculated for each test form using the scale scores and CSEMs.

## Reliability Results

The total group and subgroup classical and IRT marginal reliabilities for MCAP Government and MCAP Life Science MISA are presented in Appendix D. Note that lower reliability coefficients can occur when sample sizes are small, the number of repeat test takers is large, and/or the sample is based only on those taking an accommodated form. That is because under such scenarios, the observed variation in scores tends to be restricted. Such a restriction in range can translate to smaller reliability estimates.

## Decision Accuracy and Decision Consistency

For MCAP Government tests, students are classified into one of two performance levels: Proficient or Basic. For MCAP Life Science MISA tests, students are classified into one of four performance levels: Beginning Learner, Developing Learner, Proficient Learner, and Distinguished Learner. The accuracy of decisions based on the specified cut score was assessed for reliability of classification using the computer program called *BB-CLASS* (Brennan, 2004). *BB-CLASS* provides statistics that describe the reliability of classifications based on test scores using the Livingston & Lewis (1995) methodology. Specifically, information from an administration of one form is used to estimate the following:

**Decision accuracy**, or the extent to which test takers are classified, on the basis of their estimated ability, into the same performance level as they should be on the basis of their true ability. Decision accuracy addresses 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 test takers are classified into the same performance level if they take the same test one more time. Decision consistency addresses the question: What is the agreement between the classifications based on two non-overlapping, equally difficult forms of the test? *BB-CLASS* estimates decision accuracy using an estimated joint distribution of reported performance-level classifications on the current form of the assessment and the performance-level classifications based on an all-forms average (true score). *BB-CLASS* estimates decision consistency using an estimated joint distribution of reported performance-level classifications on the current form of the assessment 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.

Along with the observed frequency distribution of scaled scores, *BB-CLASS* requires an estimate of score reliability for the total test. To that end, IRT marginal reliability was used.

The decision accuracy and consistency were estimated for the MCAP Government and MCAP Life Science MISA test forms administered in 2022. The results are provided in Appendix E.

Note that in all cases the decision accuracy indices tend to be somewhat larger than the decision consistency indices. This is due to the 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).

# Section 5. Scale Development and Scoring Procedures

Students' total test scores and subscores were reported as scale scores derived using item response theory (IRT; e.g., Yen & Fitzpatrick, 2006) and pattern scoring procedures. MCAP Government uses the three-parameter logistic (3PL) model for selected-response (SR) items and the generalized partial credit model (GPCM; Muraki, 1992) for constructed-response (CR) items. MCAP Life Science MISA uses the two-parameter (2PL) model for SR items and the GPCM for non-SR multi-point (polytomous) items. MCAP Life Science MISA is part of the new suite of MCAP assessments that launched in 2022. The 2PL model and GPCM were chosen for MCAP Life Science MISA in order to be consistent with the IRT models used with the other MCAP assessments that launched in 2022.

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

$$P_i(\theta) = c_i + (1 - c_i) \frac{\exp[Da_i(\theta - b_i)]}{1 + \exp[Da_i(\theta - b_i)]} \quad (6)$$

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;
- $c_i$  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; and
- $D$  is a normal approximation constant set equal to 1.701.

The 2PL model is a special case of the 3PL model in which the  $c$ -parameter is fixed to 0.0.

The GPCM states that the probability that a person with ability  $\theta$  obtains a score category of  $k$  on item  $i$  that has  $m_i$  score categories assigned score values ranging from 0 to  $m_i - 1$  can be expressed as:

$$P_{ik}(\theta) = \frac{\exp[\sum_{v=1}^k Da_i(\theta - b_i + d_{iv})]}{\sum_{c=1}^{m_i} \exp[\sum_{v=1}^c Da_i(\theta - b_i + d_{iv})]} \quad (7)$$

where

- $b_i$  is the location parameter for item  $i$ ,
- $d_{iv}$  is the step parameter for score  $v$  on item  $i$ , and
- $m_i$  is the number of item score categories of item  $i$ .

An indeterminacy exists in the item parameters of the GPCM. To resolve the indeterminacy,  $d_0$  is fixed to 0 and the sum of the step parameters is fixed to 0.0.

There are essentially two ways of scoring a test: number-correct or item-pattern scoring. Number-correct scoring considers how many test items a student answered correctly in determining that student's total raw score. In contrast, the item-pattern scoring method is based on an IRT model. Item-pattern scoring considers not only a student's total raw responses, but also the psychometric characteristics of test items. Two students with exactly the same total raw scores will get the same test scores in number-correct scoring. It is highly likely, however, that even though they have the same total raw scores, the actual items they answered correctly were different, and their different sets of correctly answered items could

have different item characteristics. In such a case, the students will very likely get different reported test scores in item-pattern scoring. With item-pattern scoring, a student who correctly answers a number of more difficult items will get a higher score than one who answers the same number of easier items. This would be applicable to both total test scores and subscore category scores reported using item-pattern scoring.

Item-pattern scoring has been found to produce smaller standard errors of measurement (SEM) than number-correct scoring. The smaller the SEM, the more confidence we have about the precision of the test results. In addition, test reliability is higher with item-pattern scoring than with number-correct scoring (Yen & Candell, 1991), which means that fewer questions are needed in item-pattern scoring than in number-correct scoring for equivalent scoring accuracy. For these reasons, both total scores and subscores of the MCAP Government and MCAP Life Science MISA tests are reported using item-pattern scoring.

## Cut Scores

MSDE established a single cut score MCAP Government test in 2003 that defines two performance levels (fail and pass).<sup>5</sup> In 2022, MCAP Government performance levels were reported to students as Not Yet Met Expectations and Met Expectations, instead of fail and pass. MSDE established three cut scores for MCAP Life Science MISA in 2022. These established cut scores define four performance levels on MCAP Life Science MISA: Beginning Learner, Developing Learner, Proficient Learner, and Distinguished Learner.

Table 5-1 contains the cut score values for MCAP Government and MCAP Life Science MISA.

**Table 5-1. MCAP Cut Scores and Scaling Constants**

Theta Cut Scores	Scaled Score Cut Scores	Slope	Intercept	LOSS	HOSS
<b>MCAP Government</b>					
-0.15	394	40	400	240	650
<b>MCAP Life Science MISA</b>					
-0.86719	731	15.5	750	650	850
0.36621	750				
1.79590	772				

## Scale Scores

The MCAP Government reporting scale was established in 2003 and defines scaled scores that range from 240 to 650, with 394 being the scaled score cut score. The scaling constants for MCAP Government are an intercept of 400 and a slope of 40, such that:

$$ScaledScore_{MCAP Govt} = 400 + 40\theta \quad (8)$$

where

$\theta$  is the ability level (or pattern score) of a student.

<sup>5</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 <https://marylandpublicschools.org/about/Pages/DCAA/PlanningResultsTest/HSATechnicalReports.aspx>

The MCAP Life Science MISA reporting scale was established in 2022 and defines scaled scores that range from 650 to 850. The scaling constants for MCAP Life Science MISA are an intercept of 750 and a slope of 15.5, such that

$$\text{ScaledScore}_{HS\ LS\ MISA} = 750 + 15.5(\theta - \theta_{\text{Proficient}}) \quad (9)$$

where

$\theta_{\text{Proficient}}$  is the theta cut score for Proficient (equal to 0.36621).

Table 5-1, above, contains the scaled score cut scores and scaling constants for MCAP Government and MCAP Life Science MISA.

## Lowest and Highest Obtainable Test Scores

The maximum likelihood procedure under either the 2PL or 3PL model does not produce finite scale score estimates for students with perfect scores or zero raw scores. In order for all test takers to receive scale scores, scores need to be established for perfect or zero raw scores. Perfect raw scores are assigned the highest obtainable scaled score (HOSS). Zero raw scores are assigned the lowest obtainable scaled score (LOSS). For MCAP Government, the LOSS and HOSS are 240 and 650, respectively. For MCAP Life Science MISA, the LOSS and HOSS are 650 and 850, respectively.

## Year-to-Year Scale Maintenance

MCAP Government is pre-equated and starting in 2023, MCAP Life Science MISA will be pre-equated. In the pre-equating design, a bank of items with calibrated parameters on the reporting scale must exist before test form construction. The item parameter estimates for new forms are retrieved from the bank and are used to build test forms that are parallel across administrations. Student scores are produced with the existing item parameter estimates; thus, scores are linked from one administration to the other. To expand both the MCAP Government and MCAP Life Science MISA item banks, both tests embedded field test items in the operational test forms of the Winter 2022 and the Spring 2022 and Summer administrations.

# Section 6. Reporting

## Reporting of Results

The MCAP Government and MCAP Life Science MISA tests are designed to measure student achievement in the Maryland content standards.

- MCAP Government results are reported in terms of a scaled score and performance level indicators, which are Not Yet Met Expectations or Met Expectations. Student performance on five social studies standards (Civics, Peoples of the Nations and World, Geography, Economics, and Skills & Processes) is reported as Has Not Yet Met Expectations or Met Expectations.
- MCAP Life Science MISA results are reported in terms of a scaled score and performance level indicators. There are three scaled cut scores that categorize student overall scaled scores into the performance levels of Beginning Learner, Developing Learner, Proficient Learner, and Distinguished Learner. Student MISA integrated dimension performance is reported for Investigating Science and Engineering Practices Integrated with Life Science, Sensemaking Science and Engineering Practices Integrated with Life Science, and Critiquing Science and Engineering Practices Integrated with Life Science. Each dimension score is reported as Beginning Learners, Developing Learners, and Distinguished & Proficient Learners.

Student results are provided to the Maryland State Department of Education via a secure website. Table 6.1 lists the state-, district-, and school-level reports produced for the MCAP Government and MCAP Life Science MISA assessments. (See Appendix F for selected sample reports, including student results labels, individual student report, school student roster report, district summary of schools report, and district/school performance level summary report.) Henceforth, districts will be referred to as local educational agencies (LEAs). Due to the timing of the reporting, MCAP Government LEAs were referred to as Districts in the report titles, while MCAP Life Science MISA report titles referred to Districts as LEAs.

**Table 6-1. List of MCAP Government and MCAP Life Science MISA Reports**

Report	Winter/Spring/Summer MCAP Government and MCAP Life Science MISA
Student Results Labels*	X
Individual Student Report*	X
School Student Roster Report*	X
School-, LEA-, and State-Performance Summary Report	X
LEA Summary of Schools Report	X
State Summary of LEAs Report	X
Interactive Reporting	X

\* LEA-level PDFs that contained a copy of school-level reports for all the schools in an LEA were also generated for each LEA.

## Student Results Labels

A Student Results Label is produced for each tested student. Student results labels are printed and mailed to the districts for distribution. Additionally, labels were available for download via a secure website. The labels provide student identifying information as well as earned scaled score and performance level for the student.



## Individual Student Results

An Individual Student Results Report is produced for each tested student. Student results reports are printed and mailed to the LEAs for distribution. Additionally, reports are available for download via a secure website.

The individual student report visualizes the results for the assessment, which includes the student's overall earned scaled score and indication whether the student was proficient. The report also provides a comparison of the school, LEA, and state as a whole. The MCAP Government report provides the student's test results on the social studies standards. The MCAP Life Science MISA report provides the student's test results on the integrated dimensions.

## School Student Roster Report

A School Student Roster Report is produced for each school containing at least one tested student for an administration. Reports are available for download via a secure website. The school student roster report summarizes school, LEA, and state performance by displaying the average overall scale score and the percentage of students at each score category for the social studies standards and the science integrated dimensions. The report provides schools with student performance by listing students' test results.

## School-, LEA-, and State-Performance Summary Report

The Performance Summary Report summarizes test results for schools, LEAs, and the state as a whole and by demographic subgroups. The number of valid scores, average scale score, number, and percent of students at each performance level are provided for gender, ethnicity/race, economic disadvantage, students with disabilities, and English Learner demographic subgroups.

## LEA Summary of Schools Report

The LEA Summary of Schools Report provides the test results for schools in a particular LEA. The number of valid scores, average scale score, percent of students at each performance category for test subject, and applicable sub-scores are listed. Stacked horizontal bar charts are provided for the percentages.

## State Summary of LEAs Report

The State Summary of LEAs Report provides the MCAP Government and MCAP Life Science MISA test results for each district. The number of valid scores, average scale score, percent of students at each performance category for science/social studies standards, and science sub-scores, if applicable, are listed. Stacked horizontal bar charts are provided for the percentages.

## Interactive Reporting

The Performance Level Summary is available in the interactive reporting platform, which is a permissions-based Web reporting tool (<https://reporting.cognia.org/ReportingMD/login.aspx>). To access this report, the user applies basic filtering options, such as the name of the LEA or school and the grade-level/content-area test. At this point, the user has the option of printing the report for the entire grade level or applying advanced filtering options to select a subgroup of students to analyze. Advanced filtering options include gender, ethnicity, EL, IEP (Individualized Education Program), and FARMS (Free and Reduced Meal Services). A user may provide a custom title for the report for download.

## Decision Rules

To ensure that high school assessment results are processed and reported accurately, a document delineating decision rules is prepared before each reporting cycle. The decision rules are observed in the analyses of the high school assessment data and in reporting results. These rules also guide data analysts in identifying students to be excluded from school-, LEA-, and state-level summary computations.

## Quality Assurance

The software quality assurance (SQA) team works together with the data processing and data analysis teams to ensure quality data is captured and delivered accurately. Quality control checks are being performed by the data processors and data analysts as the data is handed off via multiple internal software tools. These quality checks assess the accuracy of the data at different stages in data processing. These data populate the database and subsequent tables/columns. The SQA team develops a test plan that includes previously agreed upon report designs and decision rule documents. Test cases housed in internal test cases repository software are then executed including, but not limited to, the following:

- Testing data counts of data imported
- Testing data quality of individual fields for valid values, such as gender, ethnicity, etc.
- Validating scripts developed by the software developers to ensure they match business requirements and technical specifications

Included in this testing effort to ensure the quality of the data, the SQA team uses a sample of schools and LEAs, which is selected based on multiple criteria. A few are identified below.

- Unique student testing records
- Students completed testing
- Students partially completed testing
- Invalidated students

Working together with the data processing and data analysis teams allows for timely and precise turnaround if any data anomalies are found. Test cases are tied to tickets outlining required work to allow for full transparency and cohesive teamwork in validation of the data. Included in the final execution, the SQA team executes test cases validating student printed reports and student labels for accuracy in consistency with the report design specifications. Once all the test cases are passed, the SQA team notifies the Cognia Client Services department for final signoff.

# Section 7. Student Characteristics

## Summary Statistics

This section presents summary statistics for the Winter, Spring, and Summer 2022 administrations of MCAP Government and MCAP Life Science MISA. Summary statistics (N-count, mean, and standard deviation) of scale scores in Table 7-1 are reported for all students and by grade for MCAP Government. Summary statistics (N-count, mean, and standard deviation) of scale scores in Table 7-2 are reported for all students and by grade for MCAP Life Science MISA. Table 7-3 reports the MCAP Government percentage passing rates over test years. Table 7-4 reports the MCAP Life Science MISA performance level percentage distributions over test windows and years.

**Table 7-1. Means and Standard Deviations Overall and by Grade for MCAP Government**

		N	Mean	SD
<b>Winter</b>				
<b>Overall</b>		7,393	397.39	43.55
<b>Not Specified</b>		17	--	--
<b>Grade</b>	<b>8</b>	0	--	--
	<b>9</b>	1,874	394.18	43.36
	<b>10</b>	3,719	406.84	41.65
	<b>11</b>	797	379.96	42.85
	<b>12</b>	986	382.91	40.80
<b>Spring</b>				
<b>Overall</b>		53,327	399.48	44.56
<b>Not Specified</b>		79	--	--
<b>Grade</b>	<b>8</b>	0	--	--
	<b>9</b>	20,678	393.42	45.39
	<b>10</b>	28,646	405.98	42.22
	<b>11</b>	2,572	388.37	48.27
	<b>12</b>	1,352	376.94	47.65
<b>Summer</b>				
<b>Overall</b>		443	369.08	40.66
<b>Not Specified</b>		0	--	--
<b>Grade</b>	<b>8</b>	0	--	--
	<b>9</b>	108	356.27	46.21
	<b>10</b>	171	372.35	39.06
	<b>11</b>	80	--	--
	<b>12</b>	84	--	--

*Note: Statistics not reported for sample size less than 50 ( $N < 50$ ). Grade not provided reflects the small number of students whose grade was not provided in the rostering data.*

**Table 7-2. Means and Standard Deviations Overall and by Grade for MCAP Life Science MISA**

		N	Mean	SD
<b>Winter</b>				
<b>Overall</b>		11,701	741.04	17.17
<b>Not Specified</b>		29	--	--
<b>Grade</b>	<b>8</b>	11	--	--
	<b>9</b>	1,866	739.89	17.29
	<b>10</b>	4,959	745.63	17.31
	<b>11</b>	3,193	738.33	16.00
	<b>12</b>	1,643	734.02	14.96
<b>Spring</b>				
<b>Overall</b>		55,868	743.12	17.42
<b>Not Specified</b>		77	--	--
<b>Grade</b>	<b>8</b>	0	--	--
	<b>9</b>	32,566	744.85	17.83
	<b>10</b>	19,717	741.59	16.23
	<b>11</b>	2,642	737.29	18.06
	<b>12</b>	866	731.06	13.26
<b>Summer</b>				
<b>Overall</b>		265	733.75	15.11
<b>Not Specified</b>		1	--	--
<b>Grade</b>	<b>8</b>	12	--	--
	<b>9</b>	97	--	--
	<b>10</b>	64	--	--
	<b>11</b>	34	--	--
	<b>12</b>	57	--	--

Note: Statistics not reported for sample size less than 50 ( $N < 50$ ). Grade not provided reflects the small number of students whose grade was not provided in the rostering data.

**Table 7-3. MCAP Government Historical Passing Rates Over Test Years**

Year	Mean Scaled Score	Percentage Passing	Percentage Passing—Winter <sup>1</sup>	Percentage Passing—Spring <sup>1</sup>	Percentage Passing—Summer <sup>1</sup>
2003	403.5	39.8	--	--	--
2004	406.5	54.6	--	--	--
2005	409.3	67.1	--	--	--
2006	418.5	74.1	--	--	--
2007	417.1	73.3	--	--	--
2008	417.1	71.5	--	--	--
2009	406.3	61.1	--	--	--
2010	408.6	61.7	--	--	--
2011	405.6	62.1	--	--	--
2012	--	*	--	--	--
2013	414.7	72.4	--	--	--
2014	417.6	76.5	--	--	--
2015	412.2	71.8	--	--	--
2016	405.4	62.7	--	--	--
2017	403.6	61.6	--	--	--
2018	403.2	62.5	--	--	--
2019	399.9	60.3	26.4	69.8	29.4
2020 <sup>2</sup>	375.9	29.1	29.1	--	--
2021 <sup>3</sup>	405.8	67.2	67.2	--	--
2022	399.0	59.7	57.1	60.4	27.1

\* The Government test was not administered after the Spring 2011 administration until January 2013, when it was introduced into the HSAs.

<sup>1</sup> Prior to 2019, the percent of students passing was not disaggregated by testing window (i.e., Winter, Spring, and Summer).

<sup>2</sup> In 2020, MCAP Government was only administered in Winter.

<sup>3</sup> In 2021, MCAP Government was only administered in Winter.

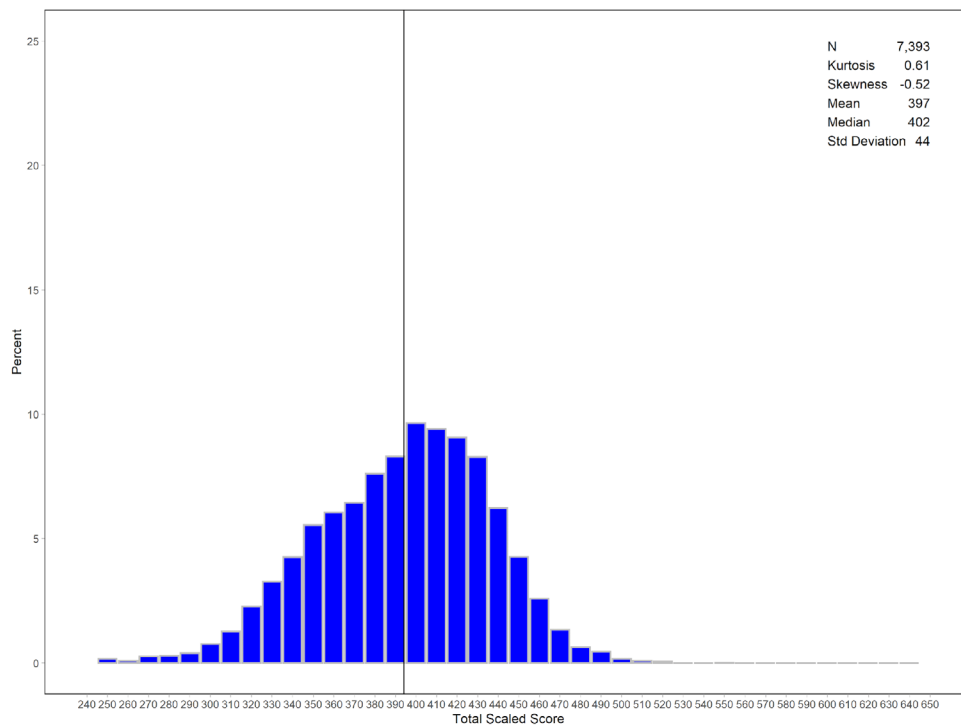
The MCAP Life Science MISA performance level percentages per administration and year are presented in Table 7-4.

**Table 7-4. MCAP Life Science MISA Performance Level Percentage Distributions**

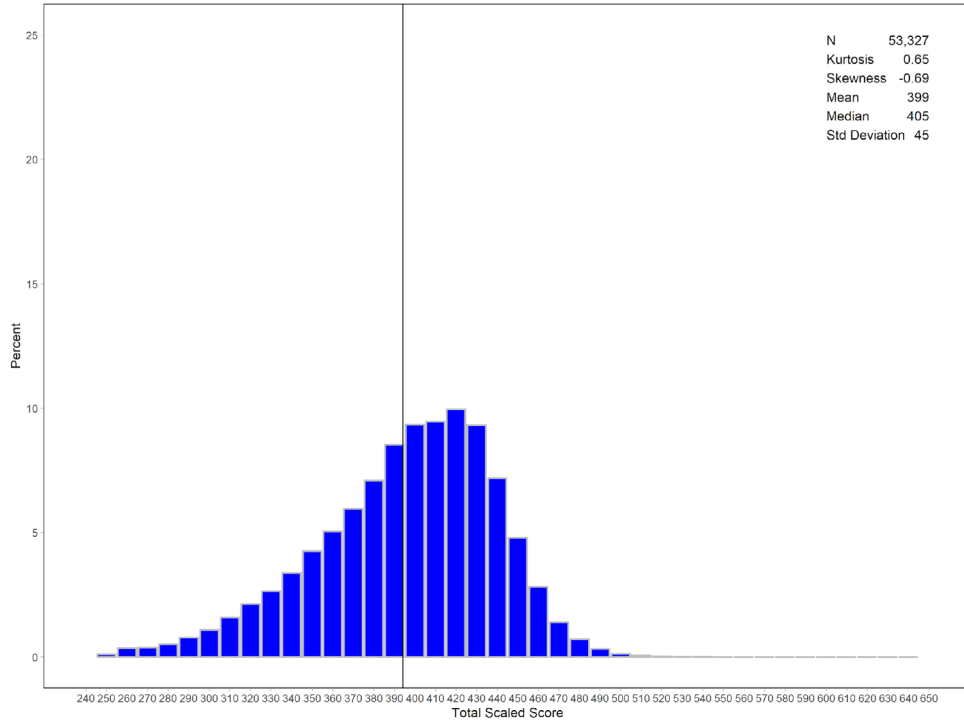
Admin/Year	Beginning Learner	Developing Learner	Proficient Learner	Distinguished Learner
Winter 2022	28.4	41.1	27.5	3.0
Spring 2022	23.8	40.2	32.5	3.5
Summer 2022	45.7	41.5	11.7	1.1
2022 – Overall	24.6	40.4	31.5	3.4

Summary statistics on MCAP Government and MCAP Life Science MISA for all students and for subgroups based on gender, special education programs, ethnicity, and English language proficiency are presented in Appendix G. These tables include the numbers of students tested for whom valid scores were available, mean scale scores, and standard deviations of scale scores.

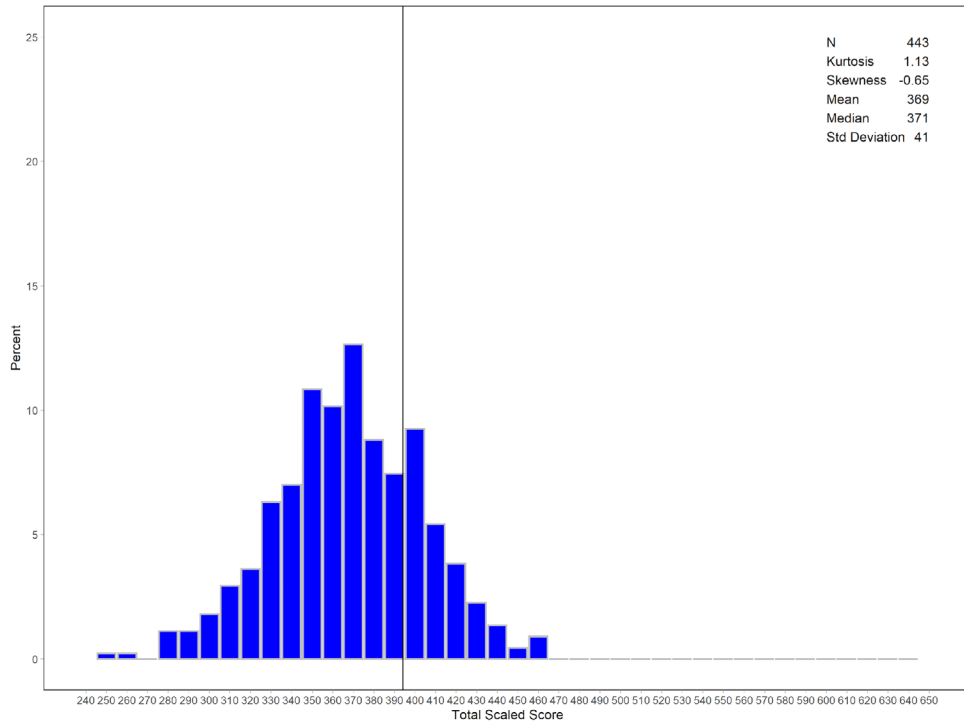
Figures 7-1, 7-2, and 7-3 show the distribution of total scale scores for MCAP Government for the Winter, Spring, and Summer 2022 administrations, respectively. Figures 7-4, 7-5, and 7-6 show the distribution of total scale scores for MCAP Life Science MISA for the Winter, Spring, and Summer 2022 administrations, respectively. The vertical lines in these figures represent the scaled score cut scores.



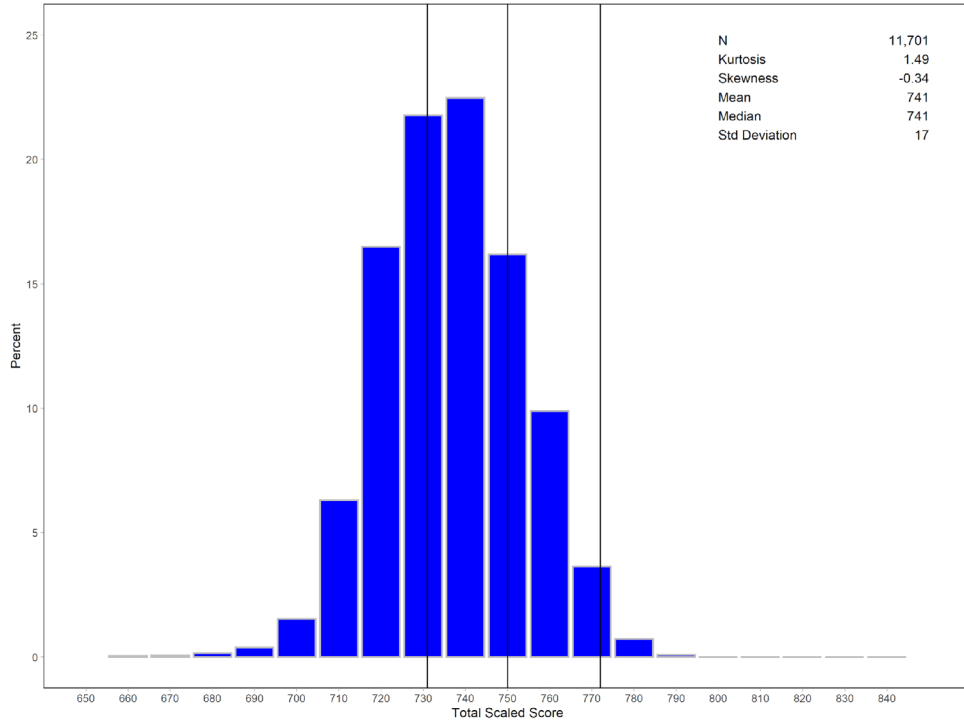
**Figure 7-1. Total Scale Score Distribution for MCAP Government Winter Administration**



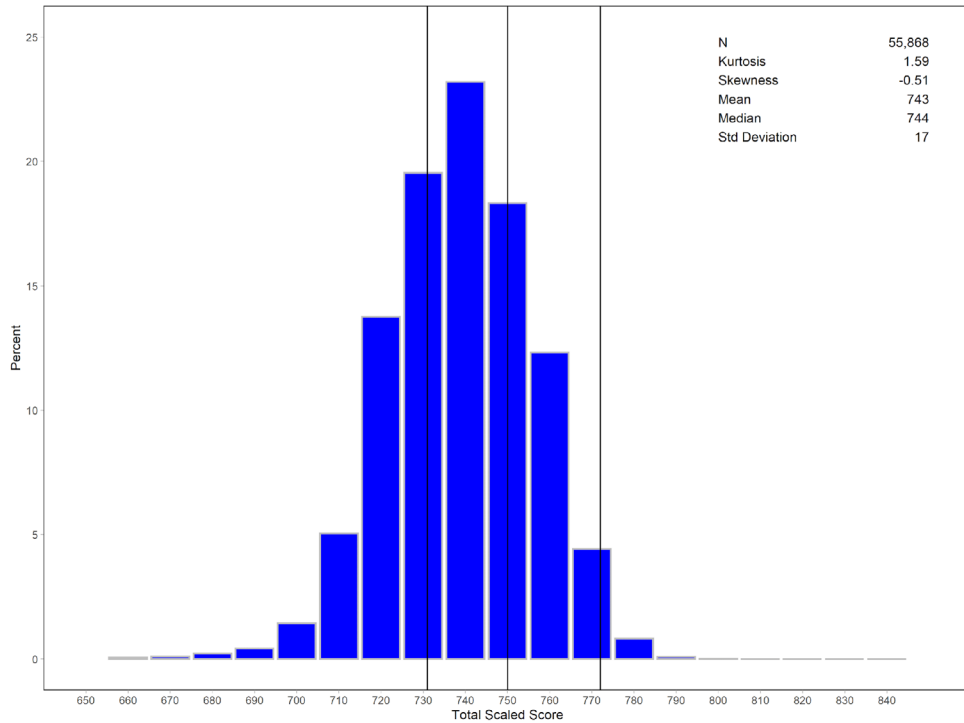
**Figure 7-2. Total Scale Score Distribution for MCAP Government Spring Administration**



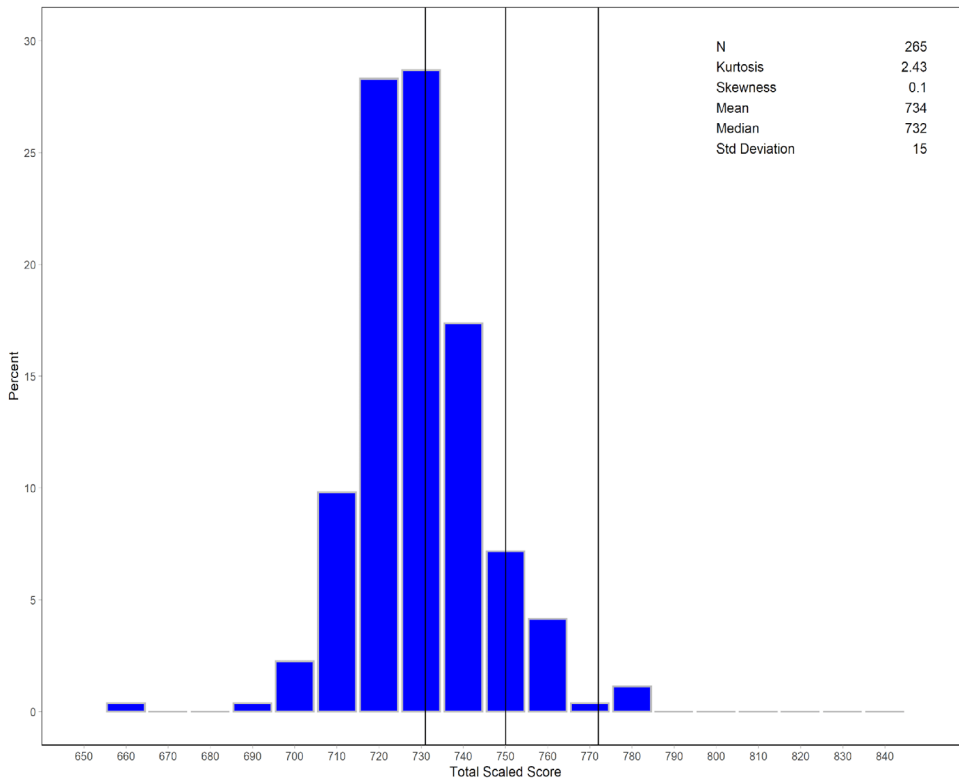
**Figure 7-3. Total Scale Score Distribution for MCAP Government Summer Administration**



**Figure 7-4. Total Scale Score Distribution for MCAP Life Science MISA Winter Administration**



**Figure 7-5. Total Scale Score Distribution for MCAP Life Science MISA Spring Administration**



**Figure 7-6. Total Scale Score Distribution for MCAP Life Science MISA Summer Administration**

## Demographic Characteristics

Demographic characteristics of the students who took the MCAP Government and MCAP Life Science MISA tests in the Winter, Spring, and summer administrations are presented in Appendix H. Demographic variables reported include gender, ethnicity.



# Section 8. Classical Item Analysis

Following the receipt of the final score file from eMetric for each administration, classical item statistics were calculated on the operational items on the Maryland Comprehensive Assessment Program Government (MCAP Government) and the Life Science Maryland Integrated Science Assessment (MCAP Life Science MISA) tests. Classical item statistics provide key information about the quality of the items from an empirical perspective. The following outlines the classical item statistics estimated. The criteria for flagging the items for content specialists' review are also 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 selected-response (SR) items, it is equivalent to the proportion of test takers in the sample that answered the item correctly. For constructed-response (CR) items, the average item score is divided by the maximum score points to obtain the  $p$ -value. Desired  $p$ -values for SR items 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 on 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.

**Table 8.1 Distribution of  $p$ -Values for MCAP Government Field Test Items for the Winter and Spring Test Administrations**

Item P-Value	Multiple-Choice (MC) Items				Non-Multiple-Choice Items			
	Winter 2022		Spring 2022		Winter 2022		Spring 2022	
	# of Items	% of Items	# of Items	% of Items	# of Items	% of Items	# of Items	% of Items
$p < 0.1$	0	0.0	0	0.0	0	0.0	0	0.0
$0.1 \leq p < 0.2$	0	0.0	1	2.0	2	18.2	1	1.8
$0.2 \leq p < 0.3$	2	16.7	2	3.9	1	9.1	6	10.9
$0.3 \leq p < 0.4$	4	33.3	5	9.8	1	9.1	5	9.1
$0.4 \leq p < 0.5$	2	16.7	12	23.5	3	27.3	7	12.7
$0.5 \leq p < 0.6$	2	16.7	9	17.6	1	9.1	12	21.8
$0.6 \leq p < 0.7$	0	0.0	14	27.5	2	18.2	18	32.7
$0.7 \leq p < 0.8$	1	8.3	7	13.7	1	9.1	5	9.1
$0.8 \leq p < 0.9$	1	8.3	1	2.0	0	0.0	1	1.8
$p \geq 0.9$	0	0.0	0	0.0	0	0.0	0	0.0
<b>Descriptive Statistics</b>								
Number of Items	12		51		11		55	
Mean	0.44		0.55		0.44		0.53	
SD	0.17		0.15		0.20		0.16	
Min	0.24		0.16		0.12		0.18	
Max	0.80		0.84		0.76		0.84	

**Table 8.2 Distribution of Item-Total Correlations (r) for MCAP Government Field Test Items for the Winter and Spring Test Administrations**

Item P-Value	Multiple-Choice (MC) Items				Non-Multiple-Choice Items			
	Winter 2022		Spring 2022		Winter 2022		Spring 2022	
	# of Items	% of Items	# of Items	% of Items	# of Items	% of Items	# of Items	% of Items
$p < 0.1$	0	0.0	0	0.0	1	8.3	0	0.0
$0.1 \leq p < 0.2$	3	21.4	2	5.0	3	25.0	6	16.7
$0.2 \leq p < 0.3$	3	21.4	4	10.0	3	25.0	9	25.0
$0.3 \leq p < 0.4$	6	42.9	15	37.5	3	25.0	6	16.7
$0.4 \leq p < 0.5$	2	14.3	7	17.5	1	8.3	6	16.7
$0.5 \leq p < 0.6$	0	0.0	7	17.5	1	8.3	6	16.7
$0.6 \leq p < 0.7$	0	0.0	5	12.5	0	0.0	3	8.3
$0.7 \leq p < 0.8$	0	0.0	0	0.0	0	0.0	0	0.0
$0.8 \leq p < 0.9$	0	0.0	0	0.0	0	0.0	0	0.0
$p \geq 0.9$	0	0.0	0	0.0	0	0.0	0	0.0
<b>Descriptive Statistics</b>								
Number of Items	14		40		12		36	
Mean	0.32		0.41		0.28		0.36	
SD	0.10		0.13		0.14		0.16	
Min	0.15		0.11		0.08		0.14	
Max	0.45		0.62		0.54		0.69	

**Classical item discrimination (item-total correlation):** This statistic describes the relationship between performance on the specific item and performance on the total test, including the item under study. For dichotomously scored items, the item-total correlation is the point-biserial correlation between the key and the total raw score. For polytomously scored items, the item-total correlation is the point-polyserial correlation between the item score and the total raw score. Values less than 0.20 are generally considered to indicate a weaker than desired relationship; therefore, these items receive careful consideration by Cognia and MSDE staff before including them on future forms. Items with negative correlations may indicate serious problems with the item content (e.g., multiple correct answers, incorrect key, unusually complex content, or unfamiliarity with the test content).

**Table 8.3 Distribution of p-Values for MCAP Life Science MISA Field Test Items for the Winter and Spring Test Administrations**

Item P-Value	Multiple-Choice (MC) Items				Non-Multiple-Choice Items			
	Winter 2022		Spring 2022		Winter 2022		Spring 2022	
	# of Items	% of Items	# of Items	% of Items	# of Items	% of Items	# of Items	% of Items
$r < 0.1$	0	0.0	1	2.0	0	0.0	2	3.6
$0.1 \leq r < 0.2$	2	16.7	1	2.0	1	9.1	0	0.0
$0.2 \leq r < 0.3$	1	8.3	4	7.8	1	9.1	4	7.3
$0.3 \leq r < 0.4$	3	25.0	8	15.7	0	0.0	5	9.1
$0.4 \leq r < 0.5$	4	33.3	17	33.3	2	18.2	13	23.6
$0.5 \leq r < 0.6$	2	16.7	19	37.3	5	45.5	20	36.4
$0.6 \leq r < 0.7$	0	0.0	1	2.0	2	18.2	11	20.0
$0.7 \leq r < 0.8$	0	0.0	0	0.0	0	0.0	0	0.0
$0.8 \leq r < 0.9$	0	0.0	0	0.0	0	0.0	0	0.0
$r \geq 0.9$	0	0.0	0	0.0	0	0.0	0	0.0
<b>Descriptive Statistics</b>								
Number of Items	12		51		11		55	
Mean	0.37		0.44		0.49		0.49	
SD	0.11		0.11		0.15		0.15	
Min	0.16		0.06		0.17		-0.09	
Max	0.51		0.63		0.70		0.70	

**Table 8.4 Distribution of Item-Total Correlations (r) for MCAP Life Science MISA Field Test Items for the Winter and Spring Test Administrations**

Item P-Value	Multiple-Choice (MC) Items				Non-Multiple-Choice Items			
	Winter 2022		Spring 2022		Winter 2022		Spring 2022	
	# of Items	% of Items	# of Items	% of Items	# of Items	% of Items	# of Items	% of Items
$r < 0.1$	4	28.6	6	15.0	1	8.3	2	5.6
$0.1 \leq r < 0.2$	5	35.7	7	17.5	0	0.0	3	8.3
$0.2 \leq r < 0.3$	3	21.4	11	27.5	3	25.0	4	11.1
$0.3 \leq r < 0.4$	2	14.3	10	25.0	3	25.0	4	11.1
$0.4 \leq r < 0.5$	0	0.0	5	12.5	2	16.7	8	22.2
$0.5 \leq r < 0.6$	0	0.0	1	2.5	1	8.3	8	22.2
$0.6 \leq r < 0.7$	0	0.0	0	0.0	2	16.7	7	19.4
$0.7 \leq r < 0.8$	0	0.0	0	0.0	0	0.0	0	0.0
$0.8 \leq r < 0.9$	0	0.0	0	0.0	0	0.0	0	0.0
$r \geq 0.9$	0	0.0	0	0.0	0	0.0	0	0.0
<b>Descriptive Statistics</b>								
Number of Items	14		40		12		36	
Mean	0.14		0.25		0.38		0.43	
SD	0.16		0.14		0.23		0.18	
Min	-0.11		-0.05		-0.17		0.03	
Max	0.37		0.52		0.69		0.67	

**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. When the magnitude of a point-biserial correlation for an incorrect answer is strong relative to the correct answer, the item is 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.

**Percentage 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, at least 95 percent of them should attempt to answer each question. When a pattern of omit percentages exceeds 5 percent for a series of SR/TE items or 15 percent for CR items at the end of a timed section, this may indicate insufficient time for students to complete all items. For individual items, if the omit percentage is greater than 5 percent for a single SR/TE item or 15 percent for a CR 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.

**Proportion of students choosing each response option (SR items):** This statistic indicates the proportion of test takers selecting each answer choice, or option. Options not selected by any students or selected by a very low proportion of students may 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.

**Proportion of students receiving each CR score point:** Observation of the distribution of scores is useful to identify how well the item is functioning. If no students are assigned the top score point, this may indicate that the item is not functioning with respect to the scoring rubric, there are problems with the item content, or students have not been taught the content.

The following flagging criteria were applied to all field test items administered in 2022:

- Difficulty flag:  $p$ -value is less than 0.10 or greater than 0.90.

- Discrimination flag: Item-total correlation is less than 0.10.
- Distractor flag: SR point-biserial correlation is positive for an incorrect option, or the magnitude of a point-biserial correlation for an incorrect answer is strong relative to the correct answer.
- Omit flag:
  - Percentage omitted is greater than 5 percent for SR or TE items.
  - Percentage omitted is greater than 15 percent for CR items.

The full set of tables of classical item statistics appears in Appendices B and C.

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# Appendices

# Appendix A. Maryland Cognitive Complexity Framework Rubric

Cognitive Complexity	Stimuli	Science and Engineering Practice (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
<p><b>High</b></p> <p>Little to no Scaffolding</p> <p>Far Transfer</p>	<p><b>Emphasis</b> Addressing a rich and puzzling phenomenon or problem presented with <u>high-degree uncertainty</u>.</p> <ul style="list-style-type: none"> <li>• The stimuli present A real, authentic, and <u>unique</u> phenomenon or problem that is not immediately explainable by students.</li> <li>• Often involves multiple appropriate ways to engage and pursue the labset items.</li> </ul>	<p><b>Emphasis</b> Figuring out a phenomenon or problem using the SEPs in service of authentic sensemaking.</p> <ul style="list-style-type: none"> <li>• The item requires students to engage with SEP elements in unexpected, unconventional, or unfamiliar ways.</li> <li>• High degree of student agency in the selection and use of SEPs in ambiguous situations with high-degrees of uncertainty experienced.</li> <li>• Sensemaking requires the use of multiple SEPs.</li> </ul>	<p><b>Emphasis</b> <u>Non-routine</u> use of domain specific science ideas as part of sensemaking.</p> <ul style="list-style-type: none"> <li>• The item requires students to use and engage in non-typical reasoning with multiple science ideas.</li> <li>• High degree of student agency is needed in selection and use of science ideas [content needed is variable or not immediately obvious].</li> </ul>	<p><b>Emphasis</b> Selection and use of conceptual understanding of crosscutting ideas is necessary and expands students' thinking.</p> <ul style="list-style-type: none"> <li>• The item requires students to engage in complex sensemaking that leverages the CCCs.</li> <li>• High degree of student agency is needed in selection, use, and application of the CCCs.</li> </ul>
<p><b>Medium</b></p> <p>Some Scaffolding</p> <p>Near Transfer</p>	<p><b>Emphasis</b> Addressing phenomenon or problem with <u>some level of uncertainty</u>.</p> <ul style="list-style-type: none"> <li>• The stimuli present a relatively new phenomenon that students might have some familiarity with, but do not fully understand the specific uncertainty the labset items are focused on.</li> <li>• The stimulus includes multiple facets of information for students to interpret.</li> </ul>	<p><b>Emphasis</b> Representation of ideas; use of skills that are relatively complex.</p> <ul style="list-style-type: none"> <li>• The item requires students to engage in SEPs in expected or well-practiced ways.</li> <li>• Students are required to demonstrate some understanding of how/why to use the SEP.</li> <li>• This may involve the use of multiple SEPs.</li> </ul>	<p><b>Emphasis</b> Supported application of science ideas in <u>typical contexts</u>.</p> <ul style="list-style-type: none"> <li>• The item requires students to use science ideas as part of student reasoning in typical contexts with routine, well-practiced ways.</li> <li>• Addressing the item may require students to connect multiple ideas in routine ways.</li> </ul>	<p><b>Emphasis</b> Specific crosscutting concept understanding is needed and is used to focus students' thinking.</p> <ul style="list-style-type: none"> <li>• The item requires students to engage in CCCs in scaffolded/ cued ways to focus students' thinking.</li> </ul>
<p><b>Low</b></p> <p>Heavily Scaffolded</p> <p>No Transfer</p>	<p><b>Emphasis</b> Addressing routinely encountered or <u>highly simplified stimulus</u>.</p> <ul style="list-style-type: none"> <li>• The stimuli provide a problem or a phenomenon that students are already familiar with how to explain or solve.</li> </ul>	<p><b>Emphasis</b> Using the mechanics, skills, and specific knowledge associated with practices <u>isolated from sensemaking</u>.</p> <ul style="list-style-type: none"> <li>• The item requires students to demonstrate simple, procedural, and mechanical aspects of engaging in SEPs (reading graphs/charts, drawing diagrams, etc.).</li> <li>• Students may be provided with a script/set of defined procedures to follow to engage with the SEP, with limited student thinking required about which, how, or why practices are engaged.</li> <li>• The Performance Expectation's SEP is used but not to the level identified in the SEP foundation box.</li> </ul>	<p><b>Emphasis</b> Producing previously learned ideas and conceptual procedures in routine, well-practiced ways.</p> <ul style="list-style-type: none"> <li>• The item requires direct representation of previously learned ideas and concepts, including well-developed procedures related to concepts.</li> <li>• The item does not require relating science ideas to one another, reasoning with ideas or using them in service of sensemaking.</li> </ul>	<p><b>Emphasis</b> Crosscutting concepts are <u>implicitly engaged</u> or practiced but are not consciously used by students in service of sensemaking.</p> <ul style="list-style-type: none"> <li>• The item inherently involves the CCCs (e.g., explanation involving a cause and effect) but does not require students to demonstrate that they understand and can use elements of the CCCs.</li> <li>• If CCC is included as part of the DCI. (DCI cognitive level should be identified as either medium or high due to this relationship)</li> <li>• The Performance Expectation's CCC is used but not to the level identified in the CCC foundation box.</li> </ul>



# Appendix B. Classical Item Statistics—Operational Items

For the data in tables C-1 through C-4:

- Item Type = Type + Point Value, where Type is one of the following:
  - BCR (brief constructed-response items worth 4 points),
  - CR (constructed-response items worth 2, 3, or 4 points),
  - MSR (multi-select items worth either 1 or 2 points),
  - SR (selected-response items), or
  - TE (technology-enhanced items worth either 1 or 2 points).
- Common = whether the item appears on other forms in this administration
  - L= item is common across all forms in this administration,
  - O = item is in one or more but not all forms in this administration.
- Forms = the forms on which the item appears in this administration,
- P\_Val =  $p$ -value,
- R\_ITT = item-total correlation,
- P\_BIS1 – P\_BIS $n$  = option-total correlations for  $n$  options, and
- %Omits = percentage of omitted responses.

**Table B-1. Classical Item Statistics, Operational Items: MCAP Government—Winter 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	0050Y8	6,954	0.68	0.49	0.49	-0.18	-0.29	-0.14	3.28
SR	0050YB	6,954	0.54	0.63	-0.30	-0.29	-0.18	0.63	2.52
SR	0053BC	6,954	0.61	0.49	-0.13	-0.18	-0.27	0.49	2.83
SR	0053BV	6,954	0.62	0.46	-0.20	-0.22	0.46	-0.14	3.11
SR	0053CY	6,954	0.48	0.37	-0.18	-0.03	-0.22	0.37	0.91
SR	0053D1	6,954	0.63	0.39	-0.22	0.39	-0.13	-0.13	2.86
SR	0053E4	6,954	0.51	0.51	0.51	-0.25	-0.23	-0.14	1.42
SR	0053E5	6,954	0.50	0.45	-0.20	-0.25	-0.11	0.45	2.64
SR	0053F1	6,954	0.83	0.49	-0.20	0.49	-0.29	-0.24	1.57
SR	005AKX	6,954	0.54	0.56	-0.20	0.56	-0.27	-0.22	2.29
SR	005ALJ	6,954	0.57	0.44	-0.13	-0.24	0.44	-0.17	3.12
SR	005AMT	6,954	0.40	0.29	0.11	-0.17	-0.26	0.29	2.52
SR	005AN0	6,954	0.39	0.41	-0.15	-0.17	0.41	-0.14	2.36
SR	005AOG	6,954	0.45	0.35	-0.15	-0.15	0.35	-0.07	2.92
SR	005AT7	6,954	0.30	0.21	0.08	-0.16	0.21	-0.12	2.60
SR	005ATM	6,954	0.57	0.41	-0.13	-0.24	0.41	-0.15	1.55
SR	005AUH	6,954	0.68	0.52	-0.29	0.52	-0.21	-0.25	0.67
SR	005AUS	6,954	0.58	0.52	-0.16	-0.21	0.52	-0.29	2.55
SR	005AUY	6,954	0.52	0.33	0.33	-0.19	-0.17	-0.04	1.29
SR	005AXM	6,954	0.54	0.34	0.04	-0.25	0.34	-0.17	3.14
SR	005B30	6,954	0.59	0.40	0.40	-0.27	-0.24	0.00	1.80
SR	005B53	6,954	0.76	0.47	0.47	-0.18	-0.25	-0.26	1.02
SR	005B7W	6,954	0.35	0.36	-0.15	-0.07	-0.15	0.36	1.55
SR	005BA7	6,954	0.32	0.21	0.12	0.21	-0.07	-0.16	3.26
SR	005BCZ	6,954	0.27	0.28	-0.02	0.28	-0.09	-0.17	1.21
SR	005BE1	6,954	0.43	0.38	-0.15	-0.18	0.38	-0.13	0.79
SR	005BLO	6,954	0.45	0.30	-0.02	-0.14	0.30	-0.19	1.73
SR	005EOX	6,954	0.74	0.49	0.49	-0.24	-0.23	-0.16	2.94
SR	005EPH	6,954	0.49	0.51	0.51	-0.23	-0.14	-0.21	2.51
SR	005ET4	6,954	0.56	0.56	-0.25	-0.29	-0.13	0.56	2.94
SR	005ET5	6,954	0.69	0.40	-0.26	0.40	-0.17	-0.19	1.86
SR	005F7X	6,954	0.83	0.47	0.47	-0.27	-0.25	-0.19	0.82
SR	005FBE	6,954	0.74	0.42	-0.19	0.42	-0.28	-0.10	2.47
SR	005FC0	6,954	0.60	0.38	-0.23	0.38	-0.12	-0.18	2.33
SR	005FEE	6,954	0.47	0.41	-0.25	-0.05	-0.25	0.41	1.92
SR	005FF7	6,954	0.66	0.52	-0.31	0.52	-0.24	-0.11	3.04
SR	005FIP	6,954	0.59	0.30	-0.15	-0.15	0.30	-0.14	0.71
SR	005STU	6,954	0.33	0.32	-0.08	-0.07	-0.15	0.32	1.54
SR	005STV	6,954	0.43	0.19	0.10	-0.12	0.19	-0.22	1.66
SR	005STW	6,954	0.29	0.28	0.28	-0.04	-0.11	-0.14	1.70
SR	005STY	6,954	0.31	0.31	-0.04	0.31	-0.08	-0.17	1.53
SR	00627L	6,954	0.59	0.59	-0.31	-0.32	0.59	-0.16	1.02
SR	006J4P	6,954	0.69	0.51	-0.28	0.51	-0.22	-0.21	1.17
Mean (SR)			0.54	0.41	-0.02	-0.02	-0.02	-0.04	2.04
SD (SR)			0.15	0.11	0.27	0.29	0.28	0.25	0.81
CR-4	0053IG	6,954	0.23	0.73	--	--	--	--	10.83
CR-4	005B2B	6,954	0.27	0.67	--	--	--	--	6.46
Mean (CR-4)			0.25	0.70	--	--	--	--	8.65
SD (CR-4)			0.03	0.04	--	--	--	--	3.09
CR-5	005STZ	6,954	0.33	0.71	--	--	--	--	6.33
TE-2	0060YX	6,954	0.59	0.39	--	--	--	--	1.34
TE-2	0060Z3	6,954	0.65	0.61	--	--	--	--	2.91

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
TE-2	0061WS	6,954	0.67	0.59	--	--	--	--	4.50
TE-2	0061XD	6,954	0.57	0.60	--	--	--	--	2.46
TE-2	0062F1	6,954	0.52	0.41	--	--	--	--	0.94
Mean (TE-2)			0.60	0.52	--	--	--	--	2.43
SD (TE-2)			0.06	0.11	--	--	--	--	1.41

**Table B-2. Classical Item Statistics, Operational Items: MCAP Government—Spring 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	0050Y2	19,916	0.74	0.54	0.54	-0.27	-0.27	-0.18	2.55
SR	0053AE	19,916	0.79	0.51	-0.20	-0.24	0.51	-0.25	3.67
SR	0053AZ	29,769	0.50	0.31	-0.14	0.31	-0.21	-0.05	1.26
SR	0053B8	29,769	0.37	0.26	-0.14	0.02	0.26	-0.13	1.95
SR	0053BK	19,916	0.68	0.41	-0.16	0.41	-0.25	-0.14	1.98
SR	0053BL	29,769	0.51	0.37	-0.11	-0.09	-0.21	0.37	2.90
SR	0053BQ	49,685	0.83	0.24	0.24	-0.06	-0.18	-0.11	1.27
SR	0053C0	29,769	0.32	0.29	-0.06	-0.21	0.29	0.05	3.97
SR	0053CN	29,769	0.45	0.36	-0.14	-0.12	0.36	-0.09	3.08
SR	0053CS	49,685	0.62	0.35	-0.22	0.35	-0.21	-0.03	1.49
SR	0053D5	19,916	0.39	0.36	-0.11	-0.15	-0.09	0.36	3.11
SR	0053EK	49,685	0.47	0.48	-0.17	0.48	-0.20	-0.12	3.59
SR	0053EO	19,916	0.58	0.44	-0.19	-0.24	0.44	-0.14	1.31
SR	0053F0	49,685	0.55	0.33	-0.07	-0.15	0.33	-0.15	2.82
SR	005AP3	49,685	0.30	0.33	0.05	-0.23	-0.22	0.33	1.40
SR	005ARW	49,685	0.72	0.51	-0.19	-0.26	-0.25	0.51	2.33
SR	005ASI	49,685	0.62	0.42	0.42	-0.26	-0.14	-0.16	1.55
SR	005ASZ	19,916	0.49	0.37	-0.13	-0.19	0.37	-0.07	3.61
SR	005AZQ	29,769	0.73	0.59	-0.25	-0.25	-0.29	0.59	3.90
SR	005B0J	19,916	0.67	0.43	-0.25	-0.11	-0.23	0.43	1.89
SR	005B1L	49,685	0.74	0.41	-0.18	-0.21	0.41	-0.16	1.92
SR	005B3Y	29,769	0.50	0.30	-0.04	0.30	-0.19	-0.12	1.86
SR	005B4T	49,685	0.46	0.40	-0.19	0.40	-0.05	-0.22	3.86
SR	005B4Y	29,769	0.38	0.12	-0.08	0.03	-0.04	0.12	1.79
SR	005B5H	49,685	0.35	0.33	0.33	-0.15	-0.09	-0.02	3.17
SR	005B5V	49,685	0.47	0.46	-0.09	0.46	-0.22	-0.21	3.50
SR	005B7U	49,685	0.71	0.42	-0.19	-0.22	0.42	-0.16	1.39
SR	005BAX	29,769	0.32	0.26	-0.02	-0.12	-0.08	0.26	2.10
SR	005BGT	49,685	0.63	0.55	-0.18	-0.20	-0.29	0.55	2.86
SR	005BGX	49,685	0.46	0.12	0.19	0.12	-0.17	-0.14	3.28
SR	005BHQ	49,685	0.60	0.51	-0.13	0.51	-0.27	-0.20	3.54
SR	005B18	49,685	0.79	0.52	-0.22	0.52	-0.30	-0.22	2.05
SR	005BKY	49,685	0.48	0.38	-0.16	-0.15	0.38	-0.06	3.36
SR	005EPB	49,685	0.74	0.51	-0.24	0.51	-0.26	-0.19	2.26
SR	005EYU	49,685	0.77	0.52	-0.24	0.52	-0.27	-0.16	3.12
SR	005EZ7	29,769	0.75	0.55	0.55	-0.22	-0.28	-0.21	3.12
SR	005EZI	49,685	0.54	0.51	-0.23	-0.28	-0.17	0.51	3.41
SR	005F1Z	29,769	0.62	0.44	-0.24	-0.30	-0.09	0.44	1.93
SR	005F3G	19,916	0.57	0.38	0.38	-0.07	-0.29	-0.22	2.70
SR	005F3M	19,916	0.51	0.46	-0.08	-0.28	-0.19	0.46	3.07
SR	005F7J	29,769	0.48	0.54	-0.25	-0.29	0.54	-0.10	2.80
SR	005FBC	49,685	0.70	0.47	0.47	-0.25	-0.24	-0.16	1.47
SR	005FEQ	19,916	0.66	0.54	-0.21	0.54	-0.30	-0.22	1.94

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	005FFI	49,685	0.31	0.30	-0.11	0.00	0.30	-0.11	3.27
SR	005FFR	49,685	0.68	0.52	0.52	-0.26	-0.29	-0.21	1.34
SR	005SUJ	29,769	0.61	0.47	-0.22	0.47	-0.29	-0.17	1.98
SR	005SUK	29,769	0.44	0.43	-0.12	0.43	-0.21	-0.14	1.99
SR	005SUL	29,769	0.65	0.60	0.60	-0.29	-0.32	-0.19	1.96
SR	005SUM	29,769	0.74	0.61	-0.28	-0.25	-0.33	0.61	2.01
SR	005SUO	19,916	0.56	0.56	0.56	-0.28	-0.28	-0.15	1.99
SR	005SUP	19,916	0.59	0.44	-0.15	0.44	-0.22	-0.20	2.08
SR	005SUQ	19,916	0.37	0.48	-0.20	-0.12	-0.20	0.48	2.05
SR	005SUR	19,916	0.36	0.31	-0.11	-0.19	0.31	0.01	2.05
SR	005VWU	19,916	0.41	0.38	0.38	-0.21	-0.23	-0.06	2.12
SR	005YW8	19,916	0.32	0.10	-0.12	-0.04	0.10	0.10	1.81
SR	0061BD	29,769	0.66	0.46	-0.18	-0.15	-0.23	0.46	2.92
SR	0061C8	49,685	0.39	0.34	0.34	-0.12	-0.06	-0.13	2.75
SR	0061CG	49,685	0.61	0.36	-0.14	-0.20	0.36	-0.12	1.49
SR	0062DC	19,916	0.61	0.47	-0.06	-0.26	-0.28	0.47	2.72
SR	0065K0	49,685	0.54	0.46	-0.13	0.46	-0.21	-0.17	2.97
Mean (SR)			0.56	0.41	-0.03	-0.01	-0.07	0.02	2.46
SD (SR)			0.15	0.11	0.26	0.29	0.26	0.27	0.78
CR-4	005YW9	49,685	0.39	0.71	--	--	--	--	7.45
CR-4	0061EF	49,685	0.33	0.74	--	--	--	--	6.47
Mean (CR-4)			0.36	0.73	--	--	--	--	6.96
SD (CR-4)			0.04	0.02	--	--	--	--	0.69
CR-5	005SUN	29,769	0.37	0.70	--	--	--	--	5.04
CR-5	005SUS	19,916	0.34	0.70	--	--	--	--	5.19
Mean (CR-5)			0.36	0.70	--	--	--	--	5.12
SD (CR-5)			0.02	0.00	--	--	--	--	0.11
TE-2	0060YG	19,916	0.69	0.60	--	--	--	--	3.20
TE-2	0061CN	49,685	0.52	0.41	--	--	--	--	2.87
TE-2	0061Y5	49,685	0.37	0.50	--	--	--	--	3.83
TE-2	0062C1	49,685	0.54	0.41	--	--	--	--	1.73
TE-2	0062S8	49,685	0.45	0.50	--	--	--	--	2.03
TE-2	006498	29,769	0.68	0.53	--	--	--	--	3.41
Mean (TE-2)			0.54	0.49	--	--	--	--	2.85
SD (TE-2)			0.13	0.07	--	--	--	--	0.82

**Table B-3. Classical Item Statistics, Operational Items: MCAP Government—Summer 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	00503X	415	0.60	0.34	-0.15	-0.23	0.34	-0.09	0.68
SR	00507C	415	0.27	0.39	0.39	-0.11	-0.18	-0.09	0.68
SR	0050OD	415	0.38	0.39	-0.13	0.39	-0.14	-0.14	3.16
SR	0053AH	415	0.24	0.15	0.15	0.18	-0.20	-0.20	0.68
SR	0053AO	415	0.47	0.38	-0.04	-0.20	-0.25	0.38	1.13
SR	0053DX	415	0.73	0.48	-0.16	0.48	-0.24	-0.19	3.84
SR	005AKS	415	0.28	0.38	0.38	-0.13	-0.10	-0.09	2.93
SR	005ALQ	415	0.25	0.29	-0.10	-0.08	-0.02	0.29	3.39
SR	005AM1	415	0.40	0.44	-0.11	-0.17	-0.13	0.44	3.61
SR	005ANA	415	0.44	0.33	-0.05	-0.20	0.33	-0.15	1.35
SR	005AQT	415	0.37	0.31	-0.15	0.31	-0.04	-0.16	1.81
SR	005ARP	415	0.29	0.24	0.24	-0.04	-0.12	-0.04	2.71
SR	005ATR	415	0.18	0.04	0.04	0.04	-0.11	0.00	0.68

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	005ATY	415	0.48	0.28	0.05	-0.12	0.28	-0.21	3.61
SR	005AYK	415	0.33	0.47	-0.08	-0.24	-0.19	0.47	1.35
SR	005AYL	415	0.41	0.52	0.52	-0.29	-0.16	-0.11	2.71
SR	005AZP	415	0.54	0.46	-0.15	0.46	-0.24	-0.22	0.68
SR	005B57	415	0.52	0.44	0.44	-0.26	-0.20	-0.08	1.13
SR	005B60	415	0.34	0.39	-0.24	0.39	-0.15	-0.02	1.13
SR	005B99	415	0.27	0.23	0.23	-0.23	0.06	-0.06	3.16
SR	005B9T	415	0.47	0.51	-0.21	-0.25	-0.12	0.51	2.71
SR	005BB1	415	0.57	0.49	-0.21	0.49	-0.20	-0.19	2.71
SR	005BFO	415	0.29	0.14	-0.18	0.04	0.03	0.14	2.71
SR	005BIM	415	0.37	0.19	-0.05	0.06	-0.23	0.19	1.13
SR	005BIN	415	0.27	0.16	0.23	-0.27	0.16	-0.07	2.71
SR	005EPG	415	0.36	0.48	-0.16	-0.17	-0.19	0.48	2.71
SR	005ESF	415	0.52	0.36	0.36	-0.16	-0.09	-0.14	3.61
SR	005EX3	415	0.51	0.21	-0.18	-0.03	0.21	-0.03	2.71
SR	005F38	415	0.45	0.18	0.06	0.18	-0.12	-0.12	2.71
SR	005F6V	415	0.54	0.52	0.52	-0.25	-0.34	-0.09	2.48
SR	005FDE	415	0.52	0.29	-0.16	-0.15	0.29	0.02	3.39
SR	005FEW	415	0.32	0.47	-0.05	-0.18	-0.22	0.47	2.48
SR	005FGZ	415	0.49	0.40	-0.12	-0.20	0.40	-0.09	3.61
SR	005FHU	415	0.71	0.48	0.48	-0.23	-0.26	-0.20	2.71
SR	005FJ4	415	0.19	-0.05	-0.05	-0.07	-0.03	0.15	1.13
SR	005TLV	415	0.33	0.11	0.06	-0.04	0.11	-0.12	1.35
SR	005TLX	415	0.40	0.35	-0.08	-0.16	-0.14	0.35	1.58
SR	005TLY	415	0.52	0.36	0.00	0.36	-0.24	-0.19	1.35
SR	005TZQ	415	0.38	0.40	-0.15	-0.17	0.40	-0.10	2.26
SR	00625T	415	0.30	0.45	-0.02	-0.20	-0.14	0.45	3.61
SR	00628M	415	0.55	0.51	0.51	-0.21	-0.21	-0.15	3.61
SR	00629P	415	0.42	0.15	-0.04	0.15	-0.18	0.14	2.48
SR	0062LW	415	0.31	0.31	-0.10	0.31	-0.12	0.00	3.16
SR	0064N4	415	0.33	0.21	0.21	0.00	-0.25	0.02	1.13
Mean (SR)			0.41	0.33	0.04	-0.03	-0.07	0.03	2.28
SD (SR)			0.13	0.14	0.23	0.24	0.20	0.23	1.02
CR-4	005B0H	415	0.21	0.65	--	--	--	--	11.06
CR-4	005BGM	415	0.25	0.64	--	--	--	--	13.09
Mean (CR-4)			0.23	0.65	--	--	--	--	12.08
SD (CR-4)			0.03	0.01	--	--	--	--	1.44
CR-5	005TLW	415	0.14	0.63	--	--	--	--	11.74
TE-2	005Y3F	415	0.31	0.24	--	--	--	--	1.45
TE-2	0060Y3	415	0.35	0.31	--	--	--	--	2.65
TE-2	00616S	415	0.36	0.55	--	--	--	--	1.45
TE-2	0061BZ	415	0.47	0.58	--	--	--	--	5.54
TE-2	0061XN	415	0.53	0.63	--	--	--	--	2.65
Mean (TE-2)			0.40	0.46	--	--	--	--	2.75
SD (TE-2)			0.09	0.17	--	--	--	--	1.67

**Table B-4. Classical Item Statistics, Operational Items: MCAP Life Science MISA—Winter 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	004ZJA	11,116	0.62	0.49	-0.18	-0.18	-0.28	0.49	2.87
SR	00518P	11,116	0.35	0.33	0.06	-0.18	-0.23	0.33	3.06
SR	0054AK	11,116	0.37	0.30	-0.23	0.30	-0.06	0.00	3.48
SR	006LDF	11,116	0.39	0.41	-0.03	-0.25	-0.20	0.41	1.43
SR	006LFO	11,116	0.41	0.34	-0.09	0.34	-0.17	-0.10	1.94
SR	006LF3	11,116	0.33	0.36	-0.16	-0.11	-0.11	0.36	2.14
SR	006LXP	7,419	0.19	0.18	0.05	-0.17	-0.01	0.18	1.27
SR	006LXQ	11,116	0.31	0.20	-0.12	0.20	0.05	-0.15	2.01
SR	006LZP	7,387	0.45	0.38	0.38	-0.26	-0.10	-0.08	2.40
SR	006LZQ	7,426	0.37	0.51	-0.18	-0.19	-0.21	0.51	2.51
SR	0076P4	3,727	0.27	0.14	0.14	0.15	-0.17	-0.07	3.81
SR	0076P5	3,686	0.25	0.17	-0.13	-0.18	0.11	0.17	3.48
SR	0076PB	7,430	0.32	0.17	0.15	0.17	-0.17	-0.13	3.52
SR	0076PC	3,686	0.39	0.21	-0.11	-0.17	0.21	0.09	3.42
SR	0076QG	3,703	0.50	0.45	-0.15	-0.17	-0.21	0.45	3.23
SR	0076QY	3,686	0.41	0.31	-0.12	-0.09	0.31	-0.09	3.58
SR	0076QZ	3,703	0.31	0.11	0.04	0.07	-0.13	0.11	3.40
SR	007AHF	11,116	0.33	0.33	0.33	-0.06	-0.13	-0.16	3.43
SR	007BB9	3,687	0.47	0.23	-0.02	0.23	-0.19	-0.06	0.97
SR	007BBA	3,699	0.73	0.40	-0.23	-0.27	0.40	-0.09	0.90
SR	007BBB	7,417	0.50	0.29	-0.07	0.29	-0.15	-0.13	1.25
SR	007BBC	3,699	0.41	0.44	0.44	-0.08	-0.25	-0.19	1.02
SR	007BBD	3,687	0.36	0.13	-0.11	-0.03	0.13	0.01	1.05
SR	007BBE	3,699	0.32	0.15	-0.02	0.15	-0.24	0.10	0.90
SR	007BBF	3,687	0.62	0.50	-0.23	0.50	-0.29	-0.19	1.08
SR	007BBG	3,730	0.26	0.13	0.13	-0.12	-0.16	0.14	1.25
SR	007BBH	3,730	0.65	0.47	-0.17	0.47	-0.26	-0.22	1.28
SR	007BBO	7,429	0.33	0.20	-0.12	-0.10	0.20	0.04	1.18
SR	007BBP	3,699	0.31	0.18	-0.13	0.18	0.10	-0.20	1.18
SR	007GR7	7,426	0.45	0.23	-0.17	0.23	-0.21	0.07	0.41
SR	007GRC	3,690	0.27	0.29	0.00	-0.18	-0.12	0.29	0.43
SR	007GRD	3,729	0.42	0.38	0.38	-0.14	-0.16	-0.18	0.45
SR	007GRL	7,419	0.37	0.14	-0.02	0.14	-0.05	-0.11	0.62
SR	007GRM	3,697	0.49	0.25	-0.20	-0.01	0.25	-0.19	0.58
SR	007GRP	7,426	0.25	0.07	-0.13	0.07	0.04	0.01	0.79
SR	007GSF	3,690	0.38	0.34	-0.21	-0.07	0.34	-0.12	0.97
Mean (SR)			0.39	0.28	-0.03	0.01	-0.06	0.04	1.87
SD (SR)			0.12	0.13	0.18	0.21	0.19	0.22	1.14
CR-2	004ZQ9	11,116	0.29	0.67	--	--	--	--	9.30
CR-2	006LZR	3,729	0.29	0.64	--	--	--	--	7.46
CR-2	006LZS	7,387	0.32	0.66	--	--	--	--	5.87
Mean (CR-2)			0.30	0.66	--	--	--	--	7.54
SD (CR-2)			0.02	0.02	--	--	--	--	1.71
CR-3	006LFF	11,116	0.15	0.69	--	--	--	--	7.83
CR-3	0076R0	3,727	0.10	0.63	--	--	--	--	9.33
CR-3	0076R2	7,389	0.13	0.63	--	--	--	--	11.66
CR-3	007GSK	3,729	0.30	0.75	--	--	--	--	6.02
CR-3	007GSN	7,387	0.24	0.66	--	--	--	--	5.69
Mean (CR-3)			0.18	0.67	--	--	--	--	8.10
SD (CR-3)			0.08	0.05	--	--	--	--	2.47
CR-4	007BBS	3,687	0.07	0.58	--	--	--	--	5.68
CR-4	007BBU	7,429	0.10	0.66	--	--	--	--	6.86

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
Mean (CR-4)			0.09	0.62	--	--	--	--	6.27
SD (CR-4)			0.02	0.06	--	--	--	--	0.83
MSR-1	006LDO	11,116	0.19	0.40	--	--	--	--	1.87
MSR-1	007GSJ	7,387	0.26	0.45	--	--	--	--	0.78
Mean (MSR-1)			0.23	0.43	--	--	--	--	1.33
SD (MSR-1)			0.05	0.04	--	--	--	--	0.77
MSR-2	006LY5	3,697	0.37	0.50	--	--	--	--	1.18
MSR-2	006R82	11,116	0.38	0.36	--	--	--	--	1.73
Mean (MSR-2)			0.38	0.43	--	--	--	--	1.46
SD (MSR-2)			0.01	0.10	--	--	--	--	0.39
TE-1	0076PE	3,727	0.39	0.49	--	--	--	--	4.21
TE-1	007BBI	3,687	0.07	0.27	--	--	--	--	1.32
TE-1	007CG0	3,730	0.58	0.23	--	--	--	--	1.41
Mean (TE-1)			0.35	0.33	--	--	--	--	2.31
SD (TE-1)			0.26	0.14	--	--	--	--	1.64
TE-2	005126	11,116	0.36	0.55	--	--	--	--	3.38
TE-2	0054LN	11,116	0.37	0.58	--	--	--	--	2.94
TE-2	006LXS	3,729	0.19	0.43	--	--	--	--	3.73
TE-2	006LY9	7,419	0.52	0.44	--	--	--	--	1.94
TE-2	006LZD	3,690	0.33	0.66	--	--	--	--	2.07
TE-2	006LZF	3,697	0.53	0.62	--	--	--	--	1.41
TE-2	0076NX	3,686	0.07	0.26	--	--	--	--	3.53
TE-2	0076OI	3,703	0.32	0.35	--	--	--	--	3.26
TE-2	0076P2	3,727	0.35	0.45	--	--	--	--	3.95
TE-2	007GRE	3,690	0.07	0.23	--	--	--	--	0.89
TE-2	007GRK	3,697	0.31	0.42	--	--	--	--	0.51
TE-2	007GRT	3,729	0.31	0.66	--	--	--	--	3.06
Mean (TE-2)			0.31	0.47	--	--	--	--	2.56
SD (TE-2)			0.14	0.15	--	--	--	--	1.16

**Table B-5. Classical Item Statistics, Operational Items: MCAP Life Science MISA—Spring 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	004ZJA	52,918	0.67	0.48	-0.20	-0.16	-0.28	0.48	2.96
SR	00518P	52,918	0.37	0.35	0.03	-0.18	-0.22	0.35	3.19
SR	0054AK	52,918	0.39	0.34	-0.23	0.34	-0.10	-0.03	3.45
SR	006LDF	52,918	0.44	0.44	-0.05	-0.25	-0.21	0.44	2.15
SR	006LF0	52,918	0.44	0.37	-0.11	0.37	-0.18	-0.11	2.51
SR	006LF3	52,918	0.36	0.35	-0.14	-0.12	-0.10	0.35	2.72
SR	006LXP	35,266	0.21	0.20	0.07	-0.15	-0.05	0.20	2.07
SR	006LXQ	52,918	0.33	0.21	-0.11	0.21	0.04	-0.14	2.78
SR	006LZP	35,275	0.46	0.39	0.39	-0.27	-0.09	-0.09	3.15
SR	006LZQ	35,295	0.40	0.53	-0.19	-0.18	-0.23	0.53	3.36
SR	007BB9	17,623	0.45	0.23	0.02	0.23	-0.21	-0.06	1.55
SR	007BBA	17,652	0.74	0.38	-0.20	-0.24	0.38	-0.08	1.97
SR	007BBB	35,266	0.51	0.31	-0.08	0.31	-0.14	-0.14	1.83
SR	007BBC	17,652	0.41	0.43	0.43	-0.08	-0.23	-0.17	2.01
SR	007BBD	17,623	0.35	0.11	-0.11	0.00	0.11	0.01	1.61
SR	007BBE	17,652	0.32	0.16	0.00	0.16	-0.22	0.08	1.90
SR	007BBF	17,623	0.65	0.52	-0.23	0.52	-0.29	-0.20	1.67
SR	007BBG	17,643	0.27	0.12	0.12	-0.13	-0.15	0.15	1.90
SR	007BBH	17,643	0.68	0.46	-0.16	0.46	-0.24	-0.22	1.93
SR	007BBO	35,295	0.33	0.22	-0.12	-0.08	0.22	0.01	2.01

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	007BBP	17,652	0.33	0.22	-0.15	0.22	0.08	-0.19	2.02
SR	007GR7	35,295	0.44	0.24	-0.17	0.24	-0.21	0.08	1.44
SR	007GRC	17,623	0.28	0.26	0.06	-0.17	-0.14	0.26	1.26
SR	007GRD	17,643	0.47	0.44	0.44	-0.17	-0.18	-0.18	1.55
SR	007GRL	35,266	0.38	0.18	-0.02	0.18	-0.06	-0.12	1.45
SR	007GRM	17,652	0.49	0.24	-0.21	0.02	0.24	-0.18	1.56
SR	007GRP	35,295	0.25	0.08	-0.11	0.08	0.06	-0.01	1.69
SR	007GSF	17,623	0.39	0.34	-0.21	-0.09	0.34	-0.09	1.49
SR	008VYR	11,741	0.30	0.42	-0.13	-0.18	-0.06	0.42	3.60
SR	008VZ6	5,851	0.32	0.30	-0.11	0.30	-0.02	-0.16	3.50
SR	008W13	5,851	0.37	0.27	-0.12	0.27	-0.06	-0.05	3.61
SR	008W52	5,851	0.47	0.32	-0.02	-0.19	0.32	-0.15	3.49
SR	008W55	11,741	0.40	0.29	-0.20	-0.04	0.29	-0.06	3.66
SR	008W5F	5,860	0.29	0.02	0.12	-0.05	0.02	-0.01	3.75
SR	008WEX	11,732	0.21	0.23	-0.02	-0.08	-0.03	0.23	3.73
SR	008WFD	5,881	0.27	0.20	-0.06	-0.04	-0.02	0.20	3.76
SR	008WFR	11,711	0.25	0.09	0.09	-0.01	0.03	-0.03	3.82
SR	009PKI	11,798	0.22	0.06	0.25	-0.14	0.06	-0.15	3.48
SR	009PKK	5,871	0.21	0.01	0.33	0.01	-0.22	-0.14	3.61
SR	009PLE	11,767	0.50	0.52	-0.21	-0.25	0.52	-0.15	3.77
SR	009PLP	11,798	0.47	0.37	0.00	-0.17	-0.21	0.37	3.64
SR	009PLU	11,773	0.23	0.05	0.08	0.05	0.02	-0.08	3.71
SR	009Q6X	5,901	0.25	0.00	0.21	0.00	-0.11	-0.05	3.32
SR	009Q6Y	11,756	0.28	0.07	-0.11	0.07	0.07	0.06	3.84
SR	009Q70	11,770	0.39	0.32	0.00	0.32	-0.24	-0.07	3.49
SR	009QLW	5,901	0.42	0.27	-0.02	0.27	-0.13	-0.12	3.24
SR	009QLX	5,869	0.30	0.36	0.36	-0.15	-0.18	-0.01	3.77
SR	009QLZ	5,869	0.37	0.21	-0.08	-0.02	-0.05	0.21	3.87
SR	009QM0	11,788	0.27	0.17	0.17	0.05	-0.15	-0.03	3.52
SR	009QM1	5,869	0.28	0.09	0.07	0.02	0.09	-0.09	3.95
SR	009QM2	5,887	0.13	-0.07	-0.07	0.03	0.08	0.04	3.69
Mean (SR)			0.37	0.26	-0.01	0.02	-0.04	0.02	2.80
SD (SR)			0.13	0.15	0.18	0.20	0.19	0.20	0.91
CR-2	004ZQ9	52,918	0.33	0.66	--	--	--	--	8.27
CR-2	006LZR	17,643	0.32	0.64	--	--	--	--	8.03
CR-2	006LZS	35,275	0.36	0.65	--	--	--	--	6.10
CR-2	009PKS	5,896	0.16	0.59	--	--	--	--	8.97
CR-2	009PKT	11,773	0.29	0.66	--	--	--	--	9.28
Mean (CR-2)			0.29	0.64	--	--	--	--	8.13
SD (CR-2)			0.08	0.03	--	--	--	--	1.24
CR-3	006LFF	52,918	0.17	0.69	--	--	--	--	7.22
CR-3	007GSK	17,643	0.34	0.76	--	--	--	--	5.99
CR-3	007GSN	35,275	0.26	0.67	--	--	--	--	5.37
Mean (CR-3)			0.26	0.71	--	--	--	--	6.19
SD (CR-3)			0.09	0.05	--	--	--	--	0.94
CR-4	007BBS	17,623	0.09	0.58	--	--	--	--	5.03
CR-4	007BBU	35,295	0.10	0.64	--	--	--	--	6.14
CR-4	008WFQ	11,711	0.11	0.64	--	--	--	--	10.15
CR-4	008WFS	5,881	0.08	0.62	--	--	--	--	10.10
CR-4	009QYT	5,901	0.14	0.67	--	--	--	--	8.80
CR-4	009QYX	11,756	0.11	0.64	--	--	--	--	10.05
Mean (CR-4)			0.11	0.63	--	--	--	--	8.38
SD (CR-4)			0.02	0.03	--	--	--	--	2.25
MSR-1	006LDO	52,918	0.22	0.41	--	--	--	--	2.47
MSR-1	007GSJ	35,275	0.29	0.45	--	--	--	--	1.61
									continued



Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
MSR-1	009QM7	5,887	0.13	0.15	--	--	--	--	3.77
Mean (MSR-1)			0.21	0.34	--	--	--	--	2.62
SD (MSR-1)			0.08	0.16	--	--	--	--	1.09
MSR-2	006LY5	17,652	0.39	0.51	--	--	--	--	2.23
MSR-2	006R82	52,918	0.40	0.36	--	--	--	--	2.30
MSR-2	009PKR	5,896	0.12	0.20	--	--	--	--	3.78
MSR-2	009PLS	5,871	0.16	0.40	--	--	--	--	3.70
Mean (MSR-2)			0.27	0.37	--	--	--	--	3.00
SD (MSR-2)			0.15	0.13	--	--	--	--	0.85
TE-1	007BBI	17,623	0.08	0.26	--	--	--	--	1.82
TE-1	007CG0	17,643	0.60	0.20	--	--	--	--	1.94
TE-1	008VZ2	5,860	0.34	0.41	--	--	--	--	3.86
TE-1	008VZH	5,881	0.10	0.14	--	--	--	--	4.11
TE-1	009Q6Z	5,887	0.36	0.38	--	--	--	--	3.72
TE-1	009QM5	5,901	0.58	-0.05	--	--	--	--	3.66
Mean (TE-1)			0.34	0.22	--	--	--	--	3.18
SD (TE-1)			0.22	0.17	--	--	--	--	1.03
TE-2	5126	52,918	0.40	0.57	--	--	--	--	3.41
TE-2	0054LN	52,918	0.42	0.57	--	--	--	--	3.12
TE-2	006LXS	17,643	0.20	0.46	--	--	--	--	3.97
TE-2	006LY9	35,266	0.54	0.46	--	--	--	--	2.64
TE-2	006LZD	17,623	0.36	0.63	--	--	--	--	2.86
TE-2	006LZF	17,652	0.56	0.61	--	--	--	--	2.42
TE-2	007GRE	17,623	0.07	0.19	--	--	--	--	1.44
TE-2	007GRK	17,652	0.35	0.42	--	--	--	--	1.54
TE-2	007GRT	17,643	0.36	0.66	--	--	--	--	3.31
TE-2	009OZK	5,896	0.45	0.39	--	--	--	--	3.82
TE-2	009OZQ	5,871	0.35	0.55	--	--	--	--	3.68
TE-2	009OZY	5,902	0.32	0.32	--	--	--	--	3.44
TE-2	009PLT	5,902	0.38	0.53	--	--	--	--	3.66
Mean (TE-2)			0.37	0.49	--	--	--	--	3.02
SD (TE-2)			0.13	0.13	--	--	--	--	0.82

**Table B-6. Classical Item Statistics, Operational Items: MCAP Life Science MISA—Summer 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	004ZJA	249	0.43	0.40	-0.15	-0.17	-0.12	0.40	4.53
SR	00518P	249	0.31	0.17	0.20	-0.11	-0.20	0.17	4.15
SR	0054AK	249	0.37	0.20	-0.12	0.20	-0.11	0.11	4.15
SR	006LDF	249	0.27	0.32	-0.02	-0.15	-0.11	0.32	2.64
SR	006LF0	249	0.42	0.40	-0.12	0.40	-0.23	-0.11	2.64
SR	006LF3	249	0.29	0.32	-0.16	-0.14	-0.01	0.32	3.02
SR	006LXQ	249	0.27	0.25	-0.13	0.25	0.02	-0.15	0.38
SR	006LZP	249	0.35	0.38	0.38	-0.23	-0.05	-0.15	0.75
SR	006LZQ	249	0.22	0.42	-0.12	-0.08	-0.19	0.42	0.38
SR	0076PB	249	0.33	0.10	0.20	0.10	-0.19	-0.03	4.15
SR	0076QG	249	0.37	0.39	-0.05	-0.23	-0.07	0.39	4.15
SR	0076QZ	249	0.29	0.17	0.00	-0.02	-0.05	0.17	4.15
SR	007AHF	249	0.24	0.31	0.31	-0.04	-0.12	-0.05	4.53
SR	007BBA	249	0.62	0.37	-0.23	-0.16	0.37	-0.07	1.89
SR	007BBC	249	0.26	0.43	0.43	-0.04	-0.19	-0.16	2.26
SR	007BBE	249	0.29	0.08	0.00	0.08	-0.22	0.17	1.89
SR	007BBO	249	0.27	0.13	-0.12	-0.02	0.13	0.06	1.89
SR	007BBP	249	0.29	0.15	0.01	0.15	0.03	-0.18	1.89

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	007GR7	249	0.41	0.18	-0.14	0.18	-0.13	0.06	0.00
SR	007GRM	249	0.43	0.24	-0.16	-0.10	0.24	-0.07	0.00
SR	007GRP	249	0.24	0.03	-0.08	0.03	0.05	-0.01	0.38
Mean (SR)			0.33	0.26	0.00	0.00	-0.05	0.08	2.37
SD (SR)			0.09	0.13	0.19	0.17	0.16	0.20	1.62
CR-2	004ZQ9	249	0.15	0.61	--	--	--	--	12.83
CR-2	006LZS	249	0.18	0.61	--	--	--	--	5.28
Mean (CR-2)			0.17	0.61	--	--	--	--	9.06
SD (CR-2)			0.02	0.00	--	--	--	--	5.34
CR-3	006LFF	249	0.10	0.71	--	--	--	--	10.94
CR-3	0076R2	249	0.07	0.54	--	--	--	--	14.34
CR-3	007GSN	249	0.15	0.63	--	--	--	--	7.55
Mean (CR-3)			0.11	0.63	--	--	--	--	10.94
SD (CR-3)			0.04	0.09	--	--	--	--	3.40
CR-4	007BBU	249	0.05	0.62	--	--	--	--	9.81
MSR-1	006LDO	249	0.11	0.36	--	--	--	--	2.26
MSR-1	007GSJ	249	0.16	0.56	--	--	--	--	0.00
Mean (MSR-1)			0.14	0.46	--	--	--	--	1.13
SD (MSR-1)			0.04	0.14	--	--	--	--	1.60
MSR-2	006LY5	249	0.30	0.53	--	--	--	--	0.38
MSR-2	006R82	249	0.35	0.34	--	--	--	--	2.26
Mean (MSR-2)			0.33	0.44	--	--	--	--	1.32
SD (MSR-2)			0.04	0.13	--	--	--	--	1.33
TE-2	005126	249	0.25	0.47	--	--	--	--	4.15
TE-2	0054LN	249	0.25	0.53	--	--	--	--	4.15
TE-2	006LZF	249	0.44	0.49	--	--	--	--	0.38
TE-2	0076OI	249	0.32	0.34	--	--	--	--	4.15
TE-2	007GRK	249	0.29	0.35	--	--	--	--	0.38
Mean (TE-2)			0.31	0.44	--	--	--	--	2.64
SD (TE-2)			0.08	0.09	--	--	--	--	2.07

# Appendix C. Classical Item Statistics—Field Test

For the data in tables B-1 through B-4:

- Item Type = Type + Point Value, where Type is one of the following:
  - BCR (brief constructed-response items worth 4 points),
  - CR (constructed-response items worth 2, 3, or 4 points),
  - MSR (multi-select items worth either 1 or 2 points),
  - SR (selected-response items), or
  - TE (technology-enhanced items worth either 1 or 2 points).
- Common = whether the item appears on other forms in this administration
  - L= item is common across all forms in this administration,
  - O = item is in one or more but not all forms in this administration.
- Forms = the forms on which the item appears in this administration,
- P\_Val =  $p$ -value,
- R\_ITT = item-total correlation,
- P\_BIS1 – P\_BIS $n$  = option-total correlations for  $n$  options, and
- %Omits = percentage of omitted responses.

**Table C-1. Classical Item Statistics, Field-Test Items: MCAP Government—Winter 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	0083MH	3,487	0.41	0.30	0.06	-0.11	-0.22	0.30	3.06
SR	0083NF	3,487	0.24	0.16	0.10	0.16	-0.29	0.04	2.45
SR	0083O4	3,467	0.34	0.36	-0.05	-0.16	-0.11	0.36	3.08
SR	0083OO	3,487	0.52	0.39	0.39	-0.17	-0.12	-0.14	2.58
SR	0085UV	3,467	0.80	0.51	0.51	-0.30	-0.21	-0.23	2.00
SR	0085V8	3,487	0.54	0.42	-0.14	-0.19	0.42	-0.20	1.95
SR	0085VC	3,487	0.71	0.51	0.51	-0.23	-0.23	-0.21	3.21
SR	0085VD	3,467	0.40	0.40	-0.04	-0.15	0.40	-0.22	3.63
SR	0085VE	3,487	0.38	0.47	-0.07	-0.25	-0.15	0.47	4.09
SR	0085VG	3,467	0.36	0.34	0.34	-0.11	-0.16	-0.05	5.28
SR	0085VI	3,487	0.34	0.43	-0.24	-0.03	-0.22	0.43	4.12
SR	0085VJ	3,467	0.26	0.18	-0.02	-0.03	-0.04	0.18	5.51
Mean (SR)			0.44	0.37	0.11	-0.13	-0.08	0.06	3.41
SD (SR)			0.17	0.11	0.26	0.12	0.24	0.27	1.17
CR-4	0083ML	1,770	0.12	0.51	--	--	--	--	6.99
CR-4	0083MN	1,620	0.16	0.57	--	--	--	--	5.36
Mean (CR-4)			0.14	0.54	--	--	--	--	6.18
SD (CR-4)			0.03	0.04	--	--	--	--	1.16
CR-5	0075DE	1,751	0.32	0.70	--	--	--	--	1.94
MSR-2	009FFH	3,487	0.48	0.49	--	--	--	--	3.18
MSR-2	009FFO	3,467	0.50	0.17	--	--	--	--	2.54
MSR-2	009FG8	3,467	0.29	0.28	--	--	--	--	3.37
MSR-2	009FLO	3,487	0.62	0.56	--	--	--	--	1.34
Mean (MSR-2)			0.47	0.38	--	--	--	--	2.61
SD (MSR-2)			0.14	0.18	--	--	--	--	0.92
TE-2	0083NK	3,467	0.76	0.52	--	--	--	--	1.43
TE-2	0083R5	3,467	0.42	0.43	--	--	--	--	3.31
TE-2	008CD1	3,467	0.66	0.51	--	--	--	--	3.28
TE-2	009FM7	3,487	0.46	0.62	--	--	--	--	3.18
Mean (TE-2)			0.58	0.52	--	--	--	--	2.80
SD (TE-2)			0.16	0.08	--	--	--	--	0.92

**Table C-2. Classical Item Statistics, Field-Test Items: MCAP Life Science MISA—Winter 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	007L6F	3,686	0.45	0.26	-0.12	-0.18	0.26	0.00	3.15
SR	007L6V	3,727	0.39	-0.02	0.35	-0.21	-0.02	-0.21	3.36
SR	007L8K	7,389	0.34	0.24	0.24	-0.06	-0.22	0.05	3.10
SR	007L8S	7,430	0.44	0.37	0.01	-0.20	-0.25	0.37	3.33
SR	007L8T	3,686	0.18	-0.09	-0.09	-0.07	0.27	-0.11	3.23
SR	007L90	7,430	0.37	0.19	-0.02	0.19	-0.06	-0.08	3.16
SR	008UZ5	7,385	0.37	0.19	-0.10	-0.11	0.01	0.19	2.54
SR	008UZE	3,731	0.17	-0.11	-0.03	-0.11	-0.24	0.31	2.61
SR	008UZF	7,418	0.29	0.13	-0.07	-0.15	0.11	0.13	2.62
SR	008V2W	3,698	0.39	0.26	-0.13	-0.18	0.26	0.06	2.45
SR	008V2Y	11,116	0.29	0.17	-0.03	0.17	-0.22	0.07	2.63
SR	008V2Z	3,687	0.39	0.31	-0.13	-0.02	0.31	-0.22	2.61
SR	008V35	7,429	0.29	0.15	0.09	0.15	-0.17	-0.01	2.69
SR	008V3E	3,698	0.15	-0.08	-0.15	-0.10	0.31	-0.08	2.52
Mean (SR)			0.32	0.14	-0.01	-0.06	0.03	0.03	2.86
SD (SR)			0.10	0.16	0.15	0.14	0.22	0.18	0.34

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
CR-2	007L9C	1,717	0.15	0.56	--	--	--	--	1.79
CR-2	007L9U	1,904	0.15	0.43	--	--	--	--	2.80
Mean (CR-2)			0.15	0.50	--	--	--	--	2.30
SD (CR-2)			0.00	0.09	--	--	--	--	0.71
CR-4	008V3G	1,749	0.17	0.67	--	--	--	--	1.34
CR-4	008V3I	1,912	0.22	0.69	--	--	--	--	3.10
Mean (CR-4)			0.20	0.68	--	--	--	--	2.22
SD (CR-4)			0.04	0.01	--	--	--	--	1.25
MSR-2	007L58	3,703	0.47	0.39	--	--	--	--	3.05
MSR-2	007L5W	3,686	0.54	0.47	--	--	--	--	3.18
MSR-2	007L78	3,727	0.39	0.36	--	--	--	--	3.52
Mean (MSR-2)			0.47	0.41	--	--	--	--	3.25
SD (MSR-2)			0.08	0.06	--	--	--	--	0.24
TE-1	008V1W	3,731	0.35	0.28	--	--	--	--	2.64
TE-1	008V3B	3,687	0.08	-0.17	--	--	--	--	2.59
Mean (TE-1)			0.22	0.06	--	--	--	--	2.61
SD (TE-1)			0.19	0.32	--	--	--	--	0.04
TE-2	007L4Q	3,727	0.24	0.25	--	--	--	--	3.55
TE-2	007L7S	3,686	0.27	0.25	--	--	--	--	3.13
TE-2	007L89	3,703	0.33	0.36	--	--	--	--	3.14
Mean (TE-2)		0	0.28	0.29	--	--	--	--	3.27
SD (TE-2)		0	0.05	0.06	--	--	--	--	0.24

**Table C-3. Classical Item Statistics, Field-Test Items: MCAP Government—Spring 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	005SY5	4,922	0.57	0.37	0.37	-0.22	-0.05	-0.11	3.84
SR	005SY6	4,922	0.67	0.54	-0.21	-0.21	-0.26	0.54	3.88
SR	005SY7	4,952	0.64	0.42	-0.18	-0.20	-0.13	0.42	4.24
SR	005SY8	4,952	0.62	0.45	-0.22	-0.23	0.45	-0.07	4.20
SR	005T04	4,964	0.41	0.56	-0.16	-0.27	-0.19	0.56	4.30
SR	005T05	4,964	0.44	0.47	-0.09	0.47	-0.21	-0.23	4.29
SR	005T08	4,964	0.48	0.32	-0.10	-0.18	0.32	-0.07	4.32
SR	005T09	5,013	0.53	0.41	-0.08	-0.19	0.41	-0.16	4.07
SR	005T0D	4,960	0.62	0.59	0.59	-0.27	-0.23	-0.25	3.91
SR	005T0H	4,958	0.16	0.06	-0.08	0.23	-0.17	0.06	3.59
SR	005T0J	4,960	0.59	0.52	-0.15	-0.25	0.52	-0.22	3.89
SR	005T0K	4,958	0.40	0.39	-0.12	-0.06	0.39	-0.20	3.61
SR	005T0O	4,998	0.66	0.55	-0.26	-0.22	-0.24	0.55	3.52
SR	005T0Q	4,992	0.54	0.54	0.54	-0.21	-0.26	-0.17	3.81
SR	005T0T	4,998	0.61	0.54	-0.16	-0.24	-0.26	0.54	3.58
SR	005T0V	4,992	0.69	0.52	-0.11	0.52	-0.31	-0.22	3.73
SR	006141	4,952	0.66	0.42	-0.12	-0.29	0.42	-0.10	2.81
SR	006173	5,013	0.44	0.22	0.22	-0.14	-0.21	0.13	3.93
SR	00617B	4,960	0.62	0.45	-0.16	-0.21	0.45	-0.16	3.81
SR	00617O	4,922	0.67	0.40	0.40	-0.22	-0.18	-0.12	2.19
SR	0061H4	5,013	0.72	0.45	-0.20	-0.26	0.45	-0.13	2.55
SR	0061IM	4,952	0.62	0.45	-0.21	-0.21	0.45	-0.14	2.44
SR	0063ZQ	4,960	0.77	0.51	-0.21	-0.24	0.51	-0.21	3.06
SR	00645A	4,992	0.48	0.43	0.43	-0.17	-0.21	-0.06	2.68
SR	00645U	4,964	0.44	0.47	-0.22	-0.14	0.47	-0.19	2.44
SR	006624	4,989	0.72	0.55	0.55	-0.26	-0.27	-0.18	3.87

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	006625	4,937	0.46	0.28	0.28	-0.11	-0.05	-0.11	3.73
SR	006629	4,989	0.77	0.55	-0.21	0.55	-0.30	-0.21	3.89
SR	00662C	9,926	0.43	0.37	-0.05	0.37	-0.15	-0.15	3.74
SR	0069NL	4,998	0.38	0.41	-0.04	-0.19	-0.19	0.41	2.76
SR	006Q8L	5,013	0.47	0.44	0.02	-0.25	-0.26	0.44	3.97
SR	006Q8O	5,013	0.49	0.42	0.42	-0.20	-0.06	-0.16	4.09
SR	006QOP	4,958	0.54	0.52	-0.18	-0.25	-0.18	0.52	2.82
SR	006QOS	4,998	0.25	0.17	-0.24	0.17	0.08	-0.02	2.48
SR	006QP8	4,989	0.72	0.63	-0.24	-0.31	-0.28	0.63	3.07
SR	006QP9	4,992	0.29	0.29	-0.15	-0.17	0.04	0.29	2.44
SR	006QPA	4,937	0.84	0.51	-0.24	-0.23	-0.23	0.51	3.56
SR	006QQR	4,964	0.38	0.33	0.02	0.33	-0.31	0.05	3.22
SR	006QSS	4,964	0.57	0.56	-0.24	-0.24	-0.25	0.56	4.16
SR	006QSX	4,937	0.67	0.39	0.39	-0.23	-0.24	-0.07	2.59
SR	006QSZ	4,989	0.58	0.43	-0.11	-0.25	0.43	-0.17	2.55
SR	006QT0	4,964	0.76	0.52	-0.28	0.52	-0.25	-0.15	2.90
SR	006QTJ	4,958	0.39	0.31	0.31	-0.19	-0.03	-0.08	2.76
SR	006QTW	4,922	0.39	0.51	-0.04	-0.25	-0.23	0.51	3.13
SR	006RD5	4,992	0.39	0.30	-0.08	-0.08	-0.09	0.30	3.75
SR	006RD7	4,998	0.68	0.58	-0.20	0.58	-0.28	-0.28	3.60
SR	006RDA	4,937	0.56	0.41	-0.17	-0.10	-0.18	0.41	3.63
SR	006T39	4,960	0.55	0.35	-0.06	0.35	-0.15	-0.19	3.89
SR	006T3A	4,958	0.75	0.54	-0.23	-0.26	0.54	-0.22	3.65
SR	006T3J	4,922	0.62	0.50	-0.14	-0.24	0.50	-0.21	3.78
SR	006T3P	4,952	0.46	0.41	-0.01	-0.19	-0.21	0.41	4.30
Mean (SR)			0.55	0.44	-0.03	-0.09	-0.01	0.06	3.47
SD (SR)			0.15	0.11	0.25	0.26	0.30	0.30	0.62
CR-4	0061F1	1,852	0.18	0.67	--	--	--	--	3.08
CR-4	006QS8	1,898	0.28	0.67	--	--	--	--	1.05
CR-4	006QTB	1,887	0.37	0.67	--	--	--	--	1.21
Mean (CR-4)			0.28	0.67	--	--	--	--	1.78
SD (CR-4)			0.10	0.00	--	--	--	--	1.13
CR-5	005SY9	1,922	0.31	0.65	--	--	--	--	0.96
CR-5	005T0B	1,530	0.31	0.65	--	--	--	--	0.59
CR-5	005T0N	1,932	0.34	0.70	--	--	--	--	1.12
CR-5	005T0Y	1,912	0.31	0.69	--	--	--	--	0.90
Mean (CR-5)			0.32	0.67	--	--	--	--	0.89
SD (CR-5)			0.02	0.03	--	--	--	--	0.22
MSR-2	00851H	4,964	0.84	0.50	--	--	--	--	4.36
MSR-2	0085BY	4,937	0.55	0.58	--	--	--	--	3.42
MSR-2	0085BZ	4,989	0.71	0.67	--	--	--	--	3.33
MSR-2	0085C1	4,960	0.54	0.45	--	--	--	--	3.37
MSR-2	0085CO	5,013	0.55	0.50	--	--	--	--	3.23
MSR-2	0085CR	4,998	0.58	0.55	--	--	--	--	2.48
MSR-2	0085CS	4,992	0.59	0.53	--	--	--	--	2.42
MSR-2	0085PI	4,989	0.41	0.27	--	--	--	--	2.83
MSR-2	0085PP	4,937	0.65	0.63	--	--	--	--	2.53
MSR-2	0085PX	4,922	0.63	0.53	--	--	--	--	3.70
MSR-2	0085SF	4,989	0.65	0.53	--	--	--	--	3.79
MSR-2	0085TB	4,958	0.74	0.63	--	--	--	--	3.61
MSR-2	00860D	5,013	0.61	0.58	--	--	--	--	3.45
MSR-2	00860G	4,922	0.51	0.51	--	--	--	--	2.95
MSR-2	0087XS	4,964	0.29	0.46	--	--	--	--	3.47
MSR-2	0087XY	4,952	0.60	0.51	--	--	--	--	4.18

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
MSR-2	0087XZ	4,964	0.48	0.32	--	--	--	--	1.93
MSR-2	0087Y1	4,992	0.20	0.02	--	--	--	--	3.69
MSR-2	0087Y3	4,937	0.56	0.44	--	--	--	--	2.86
MSR-2	0087Y4	4,960	0.61	0.59	--	--	--	--	2.04
MSR-2	0087Y6	4,958	0.44	0.29	--	--	--	--	3.07
MSR-2	0087Y7	4,952	0.49	0.53	--	--	--	--	3.15
Mean (MSR-2)			0.56	0.48	--	--	--	--	3.17
SD (MSR-2)			0.14	0.15	--	--	--	--	0.63
TE-2	006QPF	4,952	0.63	0.55	--	--	--	--	4.22
TE-2	006QPH	5,013	0.30	0.44	--	--	--	--	4.03
TE-2	006QPK	4,922	0.66	0.48	--	--	--	--	1.81
TE-2	006QPL	5,013	0.49	0.30	--	--	--	--	2.35
TE-2	006QPM	4,998	0.22	-0.09	--	--	--	--	1.80
TE-2	006QPR	4,992	0.60	0.38	--	--	--	--	3.65
TE-2	006QPX	5,013	0.55	0.46	--	--	--	--	3.97
TE-2	006QQ2	4,958	0.66	0.59	--	--	--	--	1.75
TE-2	006QQ7	4,960	0.46	0.21	--	--	--	--	3.81
TE-2	006QQ8	4,922	0.51	0.48	--	--	--	--	3.82
TE-2	006QSD	4,992	0.68	0.33	--	--	--	--	3.39
TE-2	006QSG	4,992	0.71	0.59	--	--	--	--	2.08
TE-2	006QSH	4,952	0.65	0.52	--	--	--	--	3.66
TE-2	006QSI	4,998	0.70	0.52	--	--	--	--	3.50
TE-2	006QSM	4,922	0.77	0.62	--	--	--	--	3.66
TE-2	006QTH	4,937	0.77	0.55	--	--	--	--	3.63
TE-2	006QTI	4,989	0.63	0.48	--	--	--	--	3.75
TE-2	006QTN	4,989	0.60	0.54	--	--	--	--	2.16
TE-2	006QU9	4,958	0.56	0.38	--	--	--	--	3.39
TE-2	006QUD	4,960	0.62	0.45	--	--	--	--	1.79
TE-2	006QUE	4,952	0.67	0.39	--	--	--	--	1.84
TE-2	006QUF	4,960	0.53	0.48	--	--	--	--	3.85
TE-2	006QUJ	4,958	0.61	0.51	--	--	--	--	3.63
TE-2	006QUK	4,998	0.25	0.45	--	--	--	--	3.44
TE-2	00851D	4,998	0.57	0.49	--	--	--	--	3.50
TE-2	009615	4,937	0.48	0.47	--	--	--	--	1.90
Mean (TE-2)			0.57	0.45	--	--	--	--	3.09
SD (TE-2)			0.14	0.14	--	--	--	--	0.88

**Table C-4. Classical Item Statistics, Field-Test Items: MCAP Life Science MISA—Spring 2022**

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	0066P4	5,896	0.56	0.35	-0.03	0.35	-0.22	-0.17	2.58
SR	0066P6	11,767	0.31	0.23	0.23	-0.09	-0.14	0.06	2.74
SR	0066PA	11,773	0.52	0.41	0.41	-0.16	-0.20	-0.13	2.59
SR	0066PF	5,896	0.39	0.11	0.07	0.03	0.11	-0.19	2.73
SR	0066PH	11,767	0.30	0.19	0.02	0.00	-0.23	0.19	2.78
SR	0066PK	11,773	0.51	0.38	-0.11	0.38	-0.23	-0.10	2.70
SR	0066PY	5,896	0.39	0.08	0.20	0.08	-0.14	-0.17	2.70
SR	0066TO	5,902	0.54	0.44	-0.14	-0.26	0.44	-0.12	2.52
SR	007KS6	11,770	0.56	0.27	0.01	0.27	-0.22	-0.11	3.25
SR	007KSD	11,756	0.55	0.35	-0.06	-0.22	0.35	-0.13	3.46
SR	007KTZ	5,869	0.33	0.07	0.07	-0.13	-0.10	0.21	3.60
SR	007KU0	5,901	0.39	0.36	0.36	-0.19	-0.17	-0.02	3.12

continued

Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
SR	007KU3	5,887	0.38	0.01	0.29	-0.18	0.01	-0.12	3.48
SR	007KU8	11,788	0.40	0.26	0.02	-0.04	-0.23	0.26	3.35
SR	008T84	11,767	0.48	0.28	-0.06	-0.25	0.28	0.01	3.34
SR	008TQ0	11,798	0.61	0.52	0.52	-0.28	-0.26	-0.11	3.25
SR	008TQ2	17,669	0.22	-0.03	0.04	-0.05	-0.03	0.11	3.37
SR	008TW2	11,773	0.60	0.33	-0.17	0.33	-0.08	-0.18	3.36
SR	008YH7	11,756	0.37	0.42	-0.14	-0.15	-0.14	0.42	2.71
SR	008YH8	5,901	0.34	0.03	-0.02	-0.07	0.03	0.14	2.56
SR	008YKC	17,657	0.62	0.38	-0.16	-0.15	-0.18	0.38	2.53
SR	008YKD	11,788	0.60	0.30	0.30	-0.12	-0.12	-0.10	2.51
SR	008YKF	11,770	0.11	-0.05	-0.04	-0.05	-0.13	0.26	2.56
SR	008YKG	5,887	0.32	0.33	0.33	-0.21	-0.01	-0.07	2.65
SR	009U9E	5,881	0.40	0.20	0.12	0.20	-0.22	-0.11	3.37
SR	009U9I	5,860	0.35	0.32	0.32	-0.26	-0.14	0.10	3.52
SR	009U9M	5,851	0.32	0.20	-0.12	-0.10	0.05	0.20	3.26
SR	009U9V	5,860	0.43	0.43	-0.16	-0.09	-0.26	0.43	3.62
SR	009UA6	11,741	0.23	0.16	0.16	-0.09	0.04	-0.01	3.57
SR	009UAE	11,732	0.32	0.22	0.09	0.22	-0.15	-0.08	3.41
SR	009UB3	11,732	0.33	0.13	-0.03	-0.05	0.01	0.13	3.36
SR	009UB6	5,851	0.46	0.35	-0.13	-0.04	-0.23	0.35	3.33
SR	009XEZ	11,711	0.55	0.38	-0.10	-0.24	0.38	-0.14	2.74
SR	009XFH	11,732	0.42	0.23	0.23	-0.14	-0.06	-0.01	2.61
SR	009YFZ	11,732	0.44	0.28	-0.06	-0.16	0.28	-0.08	2.51
SR	009YMQ	5,881	0.19	0.10	0.02	0.10	0.03	-0.06	2.75
SR	009YNT	5,860	0.39	0.26	0.04	-0.15	-0.12	0.26	2.85
SR	009YO6	11,711	0.28	0.11	0.09	-0.02	0.11	-0.12	2.83
SR	009YP3	11,732	0.36	0.16	-0.02	-0.20	0.16	0.05	2.61
SR	009YRI	5,860	0.60	0.41	0.41	-0.11	-0.27	-0.12	3.02
Mean (SR)			0.41	0.25	0.07	-0.06	-0.05	0.03	2.99
SD (SR)			0.13	0.14	0.18	0.17	0.19	0.18	0.38
CR-2	008YZL	2,029	0.35	0.61	--	--	--	--	0.64
CR-2	008YZM	2,022	0.30	0.59	--	--	--	--	1.38
Mean (CR-2)			0.33	0.60	--	--	--	--	1.01
SD (CR-2)			0.04	0.01	--	--	--	--	0.53
CR-3	008TQA	2,017	0.29	0.65	--	--	--	--	1.83
CR-3	008TQB	2,011	0.17	0.66	--	--	--	--	1.16
CR-3	008YH9	2,020	0.22	0.59	--	--	--	--	0.73
CR-3	008YHB	2,023	0.14	0.52	--	--	--	--	1.46
CR-3	009U92	2,025	0.15	0.53	--	--	--	--	1.76
CR-3	009U94	2,003	0.17	0.56	--	--	--	--	0.94
Mean (CR-3)			0.19	0.59	--	--	--	--	1.31
SD (CR-3)			0.06	0.06	--	--	--	--	0.44
CR-4	0066TW	2,016	0.14	0.63	--	--	--	--	0.76
CR-4	0066U5	2,036	0.15	0.60	--	--	--	--	1.69
CR-4	009YLC	2,036	0.20	0.67	--	--	--	--	1.79
CR-4	009YLF	2,019	0.20	0.64	--	--	--	--	0.76
Mean (CR-4)			0.17	0.64	--	--	--	--	1.25
SD (CR-4)			0.03	0.03	--	--	--	--	0.57
MSR-1	0066PI	5,902	0.27	0.44	--	--	--	--	2.49
MSR-2	007KRA	5,887	0.42	0.44	--	--	--	--	3.48
MSR-2	007KTF	5,901	0.33	0.25	--	--	--	--	3.08
MSR-2	008T87	11,798	0.40	0.37	--	--	--	--	3.29
Mean (MSR-2)			0.38	0.35	--	--	--	--	3.29
SD (MSR-2)			0.05	0.10	--	--	--	--	0.20

continued



Item Type	ItemID	Number	P_Val	R_ITT	P_BIS1	P_BIS2	P_BIS3	P_BIS4	%Omits
TE-1	0066P1	5,871	0.50	0.38	--	--	--	--	2.83
TE-1	0066PO	5,902	0.25	0.03	--	--	--	--	3.27
TE-1	009XEK	5,881	0.68	0.44	--	--	--	--	2.94
TE-1	009XFD	5,860	0.26	0.21	--	--	--	--	3.09
Mean (TE-1)			0.42	0.27	--	--	--	--	3.03
SD (TE-1)			0.21	0.18	--	--	--	--	0.19
TE-2	007KSP	5,887	0.35	0.05	--	--	--	--	3.75
TE-2	007KTR	5,869	0.33	0.14	--	--	--	--	3.58
TE-2	008T8G	5,902	0.46	0.54	--	--	--	--	3.85
TE-2	008T8R	5,871	0.48	0.47	--	--	--	--	3.29
TE-2	008T8W	5,896	0.55	0.27	--	--	--	--	3.44
TE-2	008TPZ	5,871	0.31	0.16	--	--	--	--	3.34
TE-2	008YGW	5,887	0.52	0.49	--	--	--	--	2.58
TE-2	008YGY	5,869	0.52	0.47	--	--	--	--	2.71
TE-2	008YGZ	5,901	0.52	0.49	--	--	--	--	2.61
TE-2	008YH3	5,869	0.63	0.45	--	--	--	--	2.74
TE-2	008YZU	5,869	0.49	0.33	--	--	--	--	3.80
TE-2	008YZY	5,901	0.39	0.15	--	--	--	--	3.14
TE-2	009U9C	5,860	0.69	0.50	--	--	--	--	3.63
TE-2	009UAI	5,851	0.24	0.29	--	--	--	--	3.28
TE-2	009WU6	5,881	0.54	0.52	--	--	--	--	3.40
TE-2	009WU7	5,860	0.40	0.39	--	--	--	--	3.60
Mean (TE-2)			0.46	0.36	--	--	--	--	3.30
SD (TE-2)			0.12	0.16	--	--	--	--	0.43

# Appendix D. Reliability

**Table D-1. Test Reliability Estimates for MCAP Government Winter 2022 Operational Core 1**

		<i>N</i>	Alpha	SEM	IRT
Overall	Overall	6,959	0.919	16.760	0.914
Gender	Male	3,653	0.925	16.894	0.922
	Female	3,298	0.911	16.347	0.901
	Non-Binary	3	--	--	--
	Not Specified	0	--	--	--
Grade	8	0	--	--	--
	9	1,772	0.913	17.218	0.913
	10	3,533	0.919	15.865	0.904
	11	738	0.909	17.849	0.916
	12	911	0.901	17.413	0.904
	Not Specified	5	--	--	--
Ethnicity	American Indian/Alaskan Native	18	--	--	--
	Asian	218	0.932	14.552	0.904
	Black or African American	1,774	0.902	17.980	0.910
	Hispanic/Latino Ethnicity	928	0.908	18.161	0.917
	Native Hawaiian or Other Pacific Islander	11	--	--	--
	White	3,129	0.910	14.982	0.881
	Multi	0	--	--	--
	Not Specified	115	0.873	20.593	0.913
Econ. Dis.	Yes	0	--	--	--
	No	4,506	0.919	16.221	0.909
	Not Specified	5	--	--	--
Special Education	Yes	518	0.876	18.301	0.893
	No	5,729	0.918	16.597	0.912
	Exited	206	0.911	16.568	0.904
	Exited from 504	36	--	--	--
	504	465	0.914	16.693	0.908
	Not Specified	5	--	--	--
English Learner (EL) Status	Yes	386	0.774	22.853	0.881
	No	6,324	0.917	16.310	0.907
	Exited	244	0.879	16.672	0.873
	Not Specified	5	--	--	--

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

**Table D-2. Test Reliability Estimates for MCAP Government Winter 2022 Accommodated Form**

		<i>N</i>	<i>Alpha</i>	<i>SEM</i>	<i>IRT</i>
Overall	Overall	434	0.796	21.628	0.725
Gender	Male	269	0.794	21.840	0.728
	Female	153	0.720	22.242	0.657
	Non-Binary	0	--	--	--
	Not Specified	0	--	--	--
Grade	8	0	--	--	--
	9	102	0.829	22.744	0.787
	10	186	0.757	21.132	0.664
	11	59	0.797	19.621	0.667
	12	75	0.640	25.198	0.673
	Not Specified	12	--	--	--
Ethnicity	American Indian/Alaskan Native	3	--	--	--
	Asian	9	--	--	--
	Black or African American	121	0.839	19.522	0.727
	Hispanic/Latino Ethnicity	94	0.843	17.911	0.682
	Native Hawaiian or Other Pacific Islander	1	--	--	--
	White	128	0.882	15.681	0.682
	Multi	0	--	--	--
	Not Specified	12	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	198	0.803	22.107	0.744
	Not Specified	12	--	--	--
Special Education	Yes	288	0.770	22.627	0.721
	No	128	0.710	21.625	0.627
	Exited	0	--	--	--
	Exited from 504	3	--	--	--
	504	3	--	--	--
	Not Specified	12	--	--	--
English Learner (EL) Status	Yes	147	0.645	22.588	0.597
	No	260	0.798	21.946	0.735
	Exited	15	--	--	--
	Not Specified	12	--	--	--

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

**Table D-3. Test Reliability Estimates for MCAP Government Spring 2022 Operational Core 1**

		N	Alpha	SEM	IRT
Overall	Overall	29,769	0.915	17.509	0.917
Gender	Male	15,331	0.922	17.774	0.926
	Female	14,412	0.907	16.994	0.904
	Non-Binary	9	--	--	--
	Not Specified	17	--	--	--
Grade	8	0	--	--	--
	9	11,535	0.915	17.842	0.920
	10	16,127	0.911	16.940	0.907
	11	1,372	0.919	18.421	0.929
	12	734	0.910	19.751	0.931
	Not Specified	1	--	--	--
Ethnicity	American Indian/Alaskan Native	64	0.875	16.422	0.864
	Asian	1,827	0.914	15.640	0.895
	Black or African American	10,606	0.900	18.153	0.910
	Hispanic/Latino Ethnicity	4,173	0.906	19.176	0.924
	Native Hawaiian or Other Pacific Islander	45	--	--	--
	White	9,707	0.909	16.281	0.898
	Multi	0	--	--	--
	Not Specified	205	0.892	21.228	0.929
Econ. Dis.	Yes	0	--	--	--
	No	19,337	0.915	17.026	0.913
	Not Specified	0	--	--	--
Special Education	Yes	2,141	0.896	19.935	0.923
	No	24,728	0.913	17.279	0.913
	Exited	938	0.910	17.209	0.910
	Exited from 504	193	0.911	16.875	0.907
	504	1,769	0.915	16.849	0.910
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	1,824	0.837	22.810	0.910
	No	25,869	0.914	17.139	0.912
	Exited	2,076	0.882	15.856	0.862
	Not Specified	0	--	--	--

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

**Table D-4. Test Reliability Estimates for MCAP Government Spring 2022 Operational Core 2**

		N	Alpha	SEM	IRT
Overall	Overall	19,916	0.917	16.767	0.915
Gender	Male	10,247	0.924	16.917	0.923
	Female	9,651	0.910	16.429	0.904
	Non-Binary	5	--	--	--
	Not Specified	13	--	--	--
Grade	8	0	--	--	--
	9	7,759	0.917	17.159	0.918
	10	10,765	0.914	16.169	0.905
	11	880	0.923	17.623	0.928
	12	512	0.912	18.628	0.927
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	45	--	--	--
	Asian	1,164	0.912	15.026	0.887
	Black or African American	7,180	0.905	17.137	0.907
	Hispanic/Latino Ethnicity	2,783	0.909	18.540	0.924
	Native Hawaiian or Other Pacific Islander	42	--	--	--
	White	6,417	0.910	15.566	0.893
	Multi	0	--	--	--
	Not Specified	137	0.874	18.193	0.892
Econ. Dis.	Yes	0	--	--	--
	No	12,830	0.918	16.288	0.910
	Not Specified	0	--	--	--
Special Education	Yes	1,392	0.899	18.550	0.916
	No	16,553	0.916	16.610	0.912
	Exited	632	0.915	16.467	0.909
	Exited from 504	145	0.923	15.930	0.912
	504	1,194	0.912	16.303	0.905
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	1,166	0.847	21.442	0.907
	No	17,364	0.916	16.403	0.909
	Exited	1,386	0.888	15.456	0.866
	Not Specified	0	--	--	--

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

**Table D-5. Test Reliability Estimates for MCAP Government Spring 2022 Accommodated Form**

		<b>N</b>	<b>Alpha</b>	<b>SEM</b>	<b>IRT</b>
Overall	Overall	3,642	0.836	23.491	0.780
Gender	Male	2,172	0.840	23.672	0.788
	Female	1,390	0.817	23.483	0.756
	Non-Binary	2	--	--	--
	Not Specified	0	--	--	--
Grade	8	0	--	--	--
	9	1,384	0.811	24.531	0.771
	10	1,754	0.842	22.390	0.766
	11	320	0.821	24.569	0.782
	12	106	0.695	31.538	0.791
	Not Specified	78	0.915	19.777	0.833
Ethnicity	American Indian/Alaskan Native	4	--	--	--
	Asian	127	0.954	12.307	0.763
	Black or African American	1,023	0.856	21.507	0.767
	Hispanic/Latino Ethnicity	1,146	0.863	21.324	0.774
	Native Hawaiian or Other Pacific Islander	3	--	--	--
	White	625	0.920	16.779	0.780
	Multi	0	--	--	--
	Not Specified	108	0.907	21.549	0.846
Econ. Dis.	Yes	0	--	--	--
	No	1,604	0.854	22.790	0.790
	Not Specified	78	0.915	19.777	0.833
Special Education	Yes	2,189	0.827	23.338	0.766
	No	1,303	0.813	24.912	0.780
	Exited	13	--	--	--
	Exited from 504	15	--	--	--
	504	44	--	--	--
	Not Specified	78	0.915	19.777	0.833
English Learner (EL) Status	Yes	1,655	0.800	24.610	0.760
	No	1,792	0.849	23.134	0.790
	Exited	117	0.815	17.905	0.579
	Not Specified	78	0.915	19.777	0.833

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

**Table D-6. Test Reliability Estimates for MCAP Government Summer 2022 Operational Core 1**

		<i>N</i>	<i>Alpha</i>	<i>SEM</i>	<i>IRT</i>
Overall	Overall	415	0.879	19.656	0.844
Gender	Male	218	0.883	20.286	0.858
	Female	196	0.876	18.736	0.825
	Non-Binary	1	--	--	--
	Not Specified	0	--	--	--
Grade	8	0	--	--	--
	9	104	0.897	20.192	0.873
	10	161	0.873	19.326	0.831
	11	72	0.875	19.588	0.838
	12	78	0.851	18.646	0.790
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	0	--	--	--
	Asian	6	--	--	--
	Black or African American	282	0.874	19.923	0.842
	Hispanic/Latino Ethnicity	49	--	--	--
	Native Hawaiian or Other Pacific Islander	1	--	--	--
	White	44	--	--	--
	Multi	0	--	--	--
	Not Specified	5	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	200	0.883	19.276	0.843
	Not Specified	0	--	--	--
Special Education	Yes	57	0.807	24.731	0.849
	No	318	0.878	18.473	0.822
	Exited	15	--	--	--
	Exited from 504	1	--	--	--
	504	24	--	--	--
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	21	--	--	--
	No	386	0.878	19.663	0.843
	Exited	8	--	--	--
	Not Specified	0	--	--	--

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



**Table D-7. Test Reliability Estimates for MCAP Government Accommodated Form Accommodated Form**

		N	Alpha	SEM	IRT
Overall	Overall	28	--	--	--
Gender	Male	19	--	--	--
	Female	9	--	--	--
	Non-Binary	0	--	--	--
	Not Specified	0	--	--	--
Grade	8	0	--	--	--
	9	4	--	--	--
	10	10	--	--	--
	11	8	--	--	--
	12	6	--	--	--
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	0	--	--	--
	Asian	0	--	--	--
	Black or African American	6	--	--	--
	Hispanic/Latino Ethnicity	14	--	--	--
	Native Hawaiian or Other Pacific Islander	0	--	--	--
	White	3	--	--	--
	Multi	0	--	--	--
	Not Specified	1	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	11	--	--	--
	Not Specified	0	--	--	--
Special Education	Yes	13	--	--	--
	No	15	--	--	--
	Exited	0	--	--	--
	Exited from 504	0	--	--	--
	504	0	--	--	--
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	17	--	--	--
	No	10	--	--	--
	Exited	1	--	--	--
	Not Specified	0	--	--	--

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

**Table D-8. Test Reliability Estimates for MCAP Life Science MISA Winter 2022 Op. Core 1**

		<i>N</i>	<i>Alpha</i>	<i>SEM</i>	<i>IRT</i>
Overall	Overall	3,693	0.864	8.562	0.876
Gender	Male	1,911	0.871	8.436	0.878
	Female	1,780	0.855	8.648	0.871
	Non-Binary	2	--	--	--
	Not Specified	0	--	--	--
Grade	8	2	--	--	--
	9	586	0.847	8.897	0.871
	10	1,581	0.868	8.467	0.877
	11	1,017	0.847	8.174	0.848
	12	505	0.827	8.940	0.858
	Not Specified	2	--	--	--
Ethnicity	American Indian/Alaskan Native	11	--	--	--
	Asian	198	0.857	8.294	0.861
	Black or African American	1,038	0.803	8.887	0.839
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	4	--	--	--
	White	1,542	0.856	8.161	0.856
	Multi	0	--	--	--
	Not Specified	54	0.837	9.314	0.876
Econ. Dis.	Yes	0	--	--	--
	No	2,544	0.871	8.532	0.881
	Not Specified	0	--	--	--
Special Education	Yes	270	0.793	8.008	0.792
	No	3,042	0.862	8.622	0.876
	Exited	108	0.864	8.150	0.863
	Exited from 504	22	--	--	--
	504	251	0.864	8.381	0.871
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	193	0.544	9.609	0.726
	No	3,287	0.865	8.534	0.875
	Exited	213	0.834	8.307	0.841
	Not Specified	0	--	--	--

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

**Table D-9. Test Reliability Estimates for MCAP Life Science MISA Winter 2022 Op. Core 2**

		<b>N</b>	<b>Alpha</b>	<b>SEM</b>	<b>IRT</b>
Overall	Overall	3,724	0.863	8.723	0.867
Gender	Male	1,885	0.872	8.832	0.878
	Female	1,835	0.853	8.499	0.850
	Non-Binary	3	--	--	--
	Not Specified	1	--	--	--
Grade	8	0	--	--	--
	9	587	0.848	8.973	0.861
	10	1,603	0.868	8.520	0.865
	11	1,007	0.841	8.914	0.854
	12	525	0.811	8.826	0.826
	Not Specified	2	--	--	--
Ethnicity	American Indian/Alaskan Native	10	--	--	--
	Asian	198	0.879	8.611	0.878
	Black or African American	1,051	0.811	9.354	0.845
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	6	--	--	--
	White	1,564	0.853	8.032	0.833
	Multi	0	--	--	--
	Not Specified	54	0.744	11.194	0.859
Econ. Dis.	Yes	0	--	--	--
	No	2,550	0.868	8.625	0.869
	Not Specified	0	--	--	--
Special Education	Yes	259	0.786	9.136	0.819
	No	3,062	0.861	8.736	0.866
	Exited	117	0.850	8.355	0.843
	Exited from 504	26	--	--	--
	504	260	0.865	8.118	0.849
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	190	0.505	9.645	0.683
	No	3,338	0.864	8.726	0.868
	Exited	196	0.845	8.583	0.846
	Not Specified	0	--	--	--

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

**Table D-10. Test Reliability Estimates for MCAP Life Science MISA Winter 2022 Accommodated Form**

		N	Alpha	SEM	IRT
Overall	Overall	602	0.681	9.442	0.658
Gender	Male	364	0.687	9.970	0.697
	Female	217	0.648	8.532	0.546
	Non-Binary	0	--	--	--
	Not Specified	0	--	--	--
Grade	8	8	--	--	--
	9	92	0.562	10.275	0.631
	10	211	0.685	9.385	0.657
	11	157	0.699	10.051	0.712
	12	111	0.667	8.523	0.565
	Not Specified	23	--	--	--
Ethnicity	American Indian/Alaskan Native	1	--	--	--
	Asian	13	--	--	--
	Black or African American	171	0.712	8.646	0.625
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	1	--	--	--
	White	186	0.829	7.107	0.647
	Multi	0	--	--	--
	Not Specified	21	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	296	0.735	9.158	0.688
	Not Specified	21	--	--	--
Special Education	Yes	422	0.665	9.931	0.678
	No	146	0.557	8.535	0.461
	Exited	4	--	--	--
	Exited from 504	2	--	--	--
	504	7	--	--	--
	Not Specified	21	--	--	--
English Learner (EL) Status	Yes	153	0.480	8.605	0.409
	No	403	0.709	9.406	0.680
	Exited	25	--	--	--
	Not Specified	21	--	--	--

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

**Table D-11. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Op. Core 1**

		<b>N</b>	<b>Alpha</b>	<b>SEM</b>	<b>IRT</b>
Overall	Overall	5,902	0.869	8.349	0.885
Gender	Male	2,948	0.875	8.405	0.892
	Female	2,947	0.861	8.212	0.874
	Non-Binary	3	--	--	--
	Not Specified	4	--	--	--
Grade	8	0	--	--	--
	9	3,500	0.873	8.363	0.888
	10	2,057	0.852	8.265	0.869
	11	263	0.886	8.405	0.900
	12	82	0.656	8.734	0.755
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	9	--	--	--
	Asian	472	0.862	7.770	0.860
	Black or African American	1,754	0.825	8.792	0.865
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	16	--	--	--
	White	2,234	0.857	7.878	0.860
	Multi	0	--	--	--
	Not Specified	13	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	4,037	0.868	8.068	0.876
	Not Specified	0	--	--	--
Special Education	Yes	380	0.832	9.174	0.881
	No	4,906	0.867	8.234	0.880
	Exited	192	0.876	8.205	0.887
	Exited from 504	43	--	--	--
	504	381	0.861	8.274	0.876
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	314	0.688	8.954	0.785
	No	5,058	0.869	8.295	0.883
	Exited	530	0.833	8.421	0.859
	Not Specified	0	--	--	--

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

**Table D-12. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Op. Core 2**

		N	Alpha	SEM	IRT
Overall	Overall	5,901	0.847	9.283	0.862
Gender	Male	2,974	0.859	9.204	0.870
	Female	2,918	0.832	9.273	0.850
	Non-Binary	2	--	--	--
	Not Specified	7	--	--	--
Grade	8	0	--	--	--
	9	3,476	0.853	9.417	0.871
	10	2,070	0.824	9.063	0.836
	11	271	0.877	8.902	0.878
	12	84	0.757	8.780	0.767
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	10	--	--	--
	Asian	476	0.856	8.397	0.841
	Black or African American	1,816	0.802	9.963	0.849
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	0	--	--	--
	White	2,174	0.825	8.432	0.812
	Multi	0	--	--	--
	Not Specified	14	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	4,031	0.846	8.907	0.849
	Not Specified	0	--	--	--
Special Education	Yes	362	0.804	9.145	0.822
	No	4,951	0.846	9.274	0.861
	Exited	162	0.803	9.295	0.827
	Exited from 504	39	--	--	--
	504	387	0.842	8.899	0.846
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	330	0.672	12.352	0.849
	No	5,064	0.845	9.088	0.854
	Exited	507	0.830	9.010	0.839
	Not Specified	0	--	--	--

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

**Table D-13. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Op. Core 3**

		<b>N</b>	<b>Alpha</b>	<b>SEM</b>	<b>IRT</b>
Overall	Overall	5,896	0.866	8.831	0.877
Gender	Male	2,974	0.870	8.823	0.879
	Female	2,918	0.861	8.750	0.870
	Non-Binary	2	--	--	--
	Not Specified	2	--	--	--
Grade	8	0	--	--	--
	9	3,491	0.869	8.925	0.882
	10	2,034	0.855	8.666	0.862
	11	277	0.873	8.402	0.870
	12	94	0.783	10.143	0.855
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	15	--	--	--
	Asian	479	0.858	8.279	0.852
	Black or African American	1,854	0.824	9.375	0.859
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	11	--	--	--
	White	2,187	0.856	8.312	0.851
	Multi	0	--	--	--
	Not Specified	16	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	3,932	0.865	8.529	0.866
	Not Specified	0	--	--	--
Special Education	Yes	386	0.785	9.221	0.826
	No	4,938	0.866	8.819	0.876
	Exited	176	0.851	9.598	0.885
	Exited from 504	42	--	--	--
	504	354	0.877	8.182	0.867
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	329	0.703	11.384	0.850
	No	5,046	0.864	8.740	0.872
	Exited	521	0.853	8.256	0.846
	Not Specified	0	--	--	--

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

**Table D-14. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Op. Core 4**

		<b>N</b>	<b>Alpha</b>	<b>SEM</b>	<b>IRT</b>
Overall	Overall	5,887	0.859	9.130	0.869
Gender	Male	3,036	0.865	9.145	0.875
	Female	2,842	0.851	9.025	0.859
	Non-Binary	2	--	--	--
	Not Specified	7	--	--	--
Grade	8	0	--	--	--
	9	3,453	0.866	9.143	0.876
	10	2,090	0.839	9.032	0.849
	11	272	0.856	9.702	0.882
	12	72	0.749	9.198	0.783
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	20	--	--	--
	Asian	490	0.850	7.835	0.812
	Black or African American	1,801	0.806	9.874	0.850
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	8	--	--	--
	White	2,177	0.851	8.693	0.848
	Multi	0	--	--	--
	Not Specified	13	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	3,982	0.861	8.905	0.864
	Not Specified	0	--	--	--
Special Education	Yes	391	0.801	9.388	0.831
	No	4,922	0.858	9.061	0.866
	Exited	176	0.847	9.505	0.870
	Exited from 504	41	--	--	--
	504	357	0.863	9.113	0.872
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	323	0.662	10.998	0.807
	No	5,039	0.859	9.008	0.865
	Exited	525	0.836	9.116	0.849
	Not Specified	0	--	--	--

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



**Table D-15. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Op. Core 5**

		<i>N</i>	<i>Alpha</i>	<i>SEM</i>	<i>IRT</i>
Overall	Overall	5,881	0.864	8.412	0.874
Gender	Male	2,913	0.872	8.292	0.877
	Female	2,965	0.855	8.447	0.868
	Non-Binary	0	--	--	--
	Not Specified	3	--	--	--
Grade	8	0	--	--	--
	9	3,451	0.871	8.345	0.878
	10	2,060	0.843	8.501	0.859
	11	277	0.865	8.489	0.877
	12	93	0.778	8.548	0.810
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	23	--	--	--
	Asian	506	0.850	7.523	0.827
	Black or African American	1,827	0.816	8.951	0.854
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	13	--	--	--
	White	2,118	0.861	7.817	0.851
	Multi	0	--	--	--
	Not Specified	12	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	4,016	0.864	8.189	0.867
	Not Specified	0	--	--	--
Special Education	Yes	377	0.781	8.716	0.819
	No	4,883	0.862	8.363	0.871
	Exited	210	0.870	8.359	0.877
	Exited from 504	36	--	--	--
	504	375	0.866	8.362	0.874
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	326	0.649	10.324	0.809
	No	5,008	0.864	8.342	0.872
	Exited	547	0.841	8.141	0.845
	Not Specified	0	--	--	--

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

**Table D-16. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Op. Core 6**

		<b>N</b>	<b>Alpha</b>	<b>SEM</b>	<b>IRT</b>
Overall	Overall	5,871	0.867	8.486	0.873
Gender	Male	2,920	0.873	8.500	0.878
	Female	2,943	0.861	8.402	0.864
	Non-Binary	3	--	--	--
	Not Specified	5	--	--	--
Grade	8	0	--	--	--
	9	3,439	0.871	8.624	0.880
	10	2,097	0.850	8.223	0.848
	11	259	0.877	8.635	0.885
	12	76	0.776	7.492	0.737
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	17	--	--	--
	Asian	487	0.857	7.617	0.831
	Black or African American	1,803	0.835	9.038	0.863
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	8	--	--	--
	White	2,190	0.854	7.896	0.840
	Multi	0	--	--	--
	Not Specified	10	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	3,974	0.864	8.182	0.860
	Not Specified	0	--	--	--
Special Education	Yes	384	0.804	8.522	0.820
	No	4,904	0.866	8.470	0.871
	Exited	197	0.856	7.930	0.843
	Exited from 504	51	0.779	8.302	0.789
	504	335	0.870	8.390	0.872
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	324	0.692	9.835	0.801
	No	5,057	0.865	8.435	0.869
	Exited	490	0.845	7.857	0.829
	Not Specified	0	--	--	--

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

**Table D-17. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Op. Core 7**

		<b>N</b>	<b>Alpha</b>	<b>SEM</b>	<b>IRT</b>
Overall	Overall	5,869	0.861	8.694	0.874
Gender	Male	2,947	0.871	8.691	0.882
	Female	2,919	0.848	8.595	0.860
	Non-Binary	0	--	--	--
	Not Specified	3	--	--	--
Grade	8	0	--	--	--
	9	3,446	0.865	8.669	0.876
	10	2,042	0.843	8.630	0.856
	11	277	0.876	9.046	0.895
	12	104	0.800	9.056	0.838
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	21	--	--	--
	Asian	486	0.858	7.743	0.838
	Black or African American	1,834	0.803	9.389	0.851
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	7	--	--	--
	White	2,192	0.858	8.235	0.857
	Multi	0	--	--	--
	Not Specified	13	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	4,003	0.865	8.370	0.867
	Not Specified	0	--	--	--
Special Education	Yes	377	0.815	9.979	0.876
	No	4,862	0.858	8.562	0.868
	Exited	207	0.848	8.399	0.853
	Exited from 504	44	--	--	--
	504	379	0.876	8.700	0.886
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	303	0.713	9.752	0.809
	No	5,063	0.863	8.670	0.874
	Exited	503	0.822	8.109	0.818
	Not Specified	0	--	--	--

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

**Table D-18. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Op. Core 8**

		N	Alpha	SEM	IRT
Overall	Overall	5,860	0.867	8.739	0.872
Gender	Male	2,941	0.879	8.751	0.883
	Female	2,911	0.854	8.640	0.857
	Non-Binary	3	--	--	--
	Not Specified	5	--	--	--
Grade	8	0	--	--	--
	9	3,406	0.871	8.588	0.871
	10	2,094	0.853	8.803	0.862
	11	272	0.881	9.691	0.906
	12	88	0.712	8.991	0.760
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	7	--	--	--
	Asian	497	0.864	7.582	0.826
	Black or African American	1,864	0.820	9.354	0.853
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	8	--	--	--
	White	2,130	0.865	8.438	0.861
	Multi	0	--	--	--
	Not Specified	18	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	3,961	0.870	8.385	0.864
	Not Specified	0	--	--	--
Special Education	Yes	397	0.821	9.174	0.848
	No	4,880	0.865	8.603	0.866
	Exited	161	0.869	8.504	0.867
	Exited from 504	47	--	--	--
	504	375	0.863	9.364	0.885
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	331	0.672	9.005	0.734
	No	5,008	0.867	8.746	0.873
	Exited	521	0.846	8.408	0.842
	Not Specified	0	--	--	--

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

**Table D-19. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Op. Core 9**

		<b>N</b>	<b>Alpha</b>	<b>SEM</b>	<b>IRT</b>
Overall	Overall	5,850	0.855	8.867	0.865
Gender	Male	2,941	0.864	8.814	0.871
	Female	2,902	0.845	8.867	0.857
	Non-Binary	3	--	--	--
	Not Specified	4	--	--	--
Grade	8	0	--	--	--
	9	3,402	0.862	9.045	0.876
	10	2,084	0.836	8.578	0.839
	11	274	0.853	8.682	0.857
	12	90	0.704	8.680	0.736
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	21	--	--	--
	Asian	497	0.847	7.842	0.818
	Black or African American	1,850	0.809	9.573	0.851
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	7	--	--	--
	White	2,104	0.845	8.234	0.834
	Multi	0	--	--	--
	Not Specified	17	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	3,995	0.856	8.471	0.853
	Not Specified	0	--	--	--
Special Education	Yes	357	0.811	9.126	0.838
	No	4,866	0.852	8.749	0.859
	Exited	209	0.859	9.376	0.883
	Exited from 504	39	--	--	--
	504	379	0.860	9.155	0.878
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	315	0.668	9.435	0.755
	No	5,018	0.855	8.781	0.863
	Exited	517	0.829	9.151	0.852
	Not Specified	0	--	--	--

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

**Table D-20. Test Reliability Estimates for MCAP Life Science MISA Spring 2022 Accommodated Form**

		<i>N</i>	<i>Alpha</i>	<i>SEM</i>	<i>IRT</i>
Overall	Overall	2,951	0.665	9.480	0.656
Gender	Male	1,763	0.638	9.790	0.657
	Female	1,109	0.650	9.148	0.617
	Non-Binary	2	--	--	--
	Not Specified	0	--	--	--
Grade	8	0	--	--	--
	9	1,502	0.675	9.614	0.674
	10	1,089	0.621	9.486	0.622
	11	200	0.470	9.853	0.555
	12	83	0.426	8.435	0.362
	Not Specified	77	0.845	8.497	0.781
Ethnicity	American Indian/Alaskan Native	6	--	--	--
	Asian	103	0.920	4.738	0.621
	Black or African American	939	0.697	9.117	0.657
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	4	--	--	--
	White	555	0.829	6.815	0.627
	Multi	0	--	--	--
	Not Specified	101	0.842	8.535	0.779
Econ. Dis.	Yes	0	--	--	--
	No	1,393	0.696	9.280	0.668
	Not Specified	77	0.845	8.497	0.781
Special Education	Yes	2,011	0.608	9.680	0.627
	No	792	0.595	9.681	0.618
	Exited	7	--	--	--
	Exited from 504	10	--	--	--
	504	54	0.875	7.734	0.783
	Not Specified	77	0.845	8.497	0.781
English Learner (EL) Status	Yes	1,128	0.553	9.781	0.597
	No	1,656	0.673	9.521	0.665
	Exited	90	0.731	8.670	0.657
	Not Specified	77	0.845	8.497	0.781

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

**Table D-21. Test Reliability Estimates for MCAP Life Science MISA Summer 2022 Op. Core 1**

		<i>N</i>	<i>Alpha</i>	<i>SEM</i>	<i>IRT</i>
Overall	Overall	249	0.817	8.853	0.811
Gender	Male	143	0.822	8.733	0.810
	Female	106	0.811	8.917	0.807
	Non-Binary	0	--	--	--
	Not Specified	0	--	--	--
Grade	8	12	--	--	--
	9	91	0.726	8.946	0.736
	10	60	0.791	8.026	0.740
	11	33	--	--	--
	12	53	0.663	8.329	0.638
	Not Specified	0	--	--	--
Ethnicity	American Indian/Alaskan Native	2	--	--	--
	Asian	12	--	--	--
	Black or African American	132	0.755	8.309	0.721
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	1	--	--	--
	White	42	--	--	--
	Multi	0	--	--	--
	Not Specified	4	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	107	0.871	9.128	0.871
	Not Specified	0	--	--	--
Special Education	Yes	25	--	--	--
	No	203	0.814	9.066	0.816
	Exited	7	--	--	--
	Exited from 504	3	--	--	--
	504	11	--	--	--
	Not Specified	0	--	--	--
English Learner (EL) Status	Yes	10	--	--	--
	No	235	0.823	8.891	0.818
	Exited	4	--	--	--
	Not Specified	0	--	--	--

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

**Table D-22. Test Reliability Estimates for MCAP Life Science MISA Summer 2022 Accommodated Form**

		<i>N</i>	Alpha	SEM	IRT
Overall	Overall	16	--	--	--
Gender	Male	7	--	--	--
	Female	8	--	--	--
	Non-Binary	0	--	--	--
	Not Specified	0	--	--	--
Grade	8	0	--	--	--
	9	6	--	--	--
	10	4	--	--	--
	11	1	--	--	--
	12	4	--	--	--
	Not Specified	1	--	--	--
Ethnicity	American Indian/Alaskan Native	0	--	--	--
	Asian	1	--	--	--
	Black or African American	5	--	--	--
	Hispanic/Latino Ethnicity	0	--	--	--
	Native Hawaiian or Other Pacific Islander	0	--	--	--
	White	1	--	--	--
	Multi	0	--	--	--
	Not Specified	1	--	--	--
Econ. Dis.	Yes	0	--	--	--
	No	4	--	--	--
	Not Specified	1	--	--	--
Special Education	Yes	10	--	--	--
	No	5	--	--	--
	Exited	0	--	--	--
	Exited from 504	0	--	--	--
	504	0	--	--	--
	Not Specified	1	--	--	--
English Learner (EL) Status	Yes	6	--	--	--
	No	9	--	--	--
	Exited	0	--	--	--
	Not Specified	1	--	--	--

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



# Appendix E. Decision Accuracy and Consistency

**Table E-1. Decision Accuracy and Consistency: MCAP Government Winter 2022 Forms**

Index	Placement Scores	Basic	Proficient	Category Total*
OP Form 1 (N = 6,959)				
Decision Accuracy	240 - 393	0.357	0.035	0.392
	394 - 650	0.044	0.564	0.608
	<b>Estimated Proportion Accurately Classified*: Total = 0.921</b>			
Decision Consistency	240 - 393	0.344	0.056	0.400
	394 - 650	0.056	0.543	0.600
	Estimated Proportion Consistently Classified*: Total = 0.888			
<b>Accommodated Form (N = 434)</b>				
Decision Accuracy	240 - 393	0.889	0.111	1.000
	394 - 650	0.000	0.000	0.000
	<b>Estimated Proportion Accurately Classified*: Total = 0.889</b>			
Decision Consistency	240 - 393	0.806	0.082	0.888
	394 - 650	0.083	0.029	0.112
	<b>Estimated Proportion Consistently Classified*: Total = 0.835</b>			

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

**Table E-2. Decision Accuracy and Consistency: MCAP Government Spring 2022 Forms**

Index	Placement Scores	Basic	Proficient	Category Total*
OP Form 1 (N = 29,769)				
Decision Accuracy	240 - 393	0.315	0.031	0.346
	394 - 650	0.039	0.614	0.654
<b>Estimated Proportion Accurately Classified*: Total = 0.930</b>				
Decision Consistency	240 - 393	0.305	0.050	0.356
	394 - 650	0.049	0.595	0.644
<b>Estimated Proportion Consistently Classified*: Total = 0.900</b>				
OP Form 2 (N = 19,916)				
Decision Accuracy	240 - 393	0.338	0.033	0.371
	394 - 650	0.043	0.587	0.629
Estimated Proportion Accurately Classified*: Total = 0.924				
Decision Consistency	240 - 393	0.326	0.053	0.379
	394 - 650	0.054	0.567	0.621
<b>Estimated Proportion Consistently Classified*: Total = 0.893</b>				
Accommodated Form (N = 3,642)				
Decision Accuracy	240 - 393	0.761	0.103	0.865
	394 - 650	0.060	0.075	0.135
<b>Estimated Proportion Accurately Classified*: Total = 0.836</b>				
Decision Consistency	240 - 393	0.716	0.103	0.819
	394 - 650	0.105	0.075	0.181
<b>Estimated Proportion Consistently Classified*: Total = 0.791</b>				

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

**Table E-3. Decision Accuracy and Consistency: MCAP Government Summer 2022 Forms**

Index	Placement Scores	Basic	Proficient	Category Total*
OP Form 1 (N = 415)				
Decision Accuracy	240 - 393	0.611	0.061	0.672
	394 - 650	0.102	0.226	0.328
	<b>Estimated Proportion Accurately Classified*: Total = 0.838</b>			
Decision Consistency	240 - 393	0.593	0.100	0.693
	394 - 650	0.120	0.187	0.307
	<b>Estimated Proportion Consistently Classified*: Total = 0.780</b>			

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

**Note.** The number of students taking the accommodated form in Summer 2022 was 28, and as such decision accuracy and consistency was not estimated for that form.

**Table E-4. Decision Accuracy and Consistency: MCAP Life Science MISA Winter 2022 Forms**

Index	Placement Scores	Beginning	Developing	Proficient	Distinguished	Category Total*
Op. Core 1 (N = 3,693)						
Decision Accuracy	650 - 730	0.211	0.035	0.000	0.000	0.246
	731 - 749	0.050	0.321	0.055	0.000	0.427
	750 - 771	0.000	0.051	0.235	0.022	0.308
	772 - 850	0.000	0.000	0.005	0.015	0.020
	<b>Estimated Proportion Accurately Classified*: Total = 0.782</b>					
Decision Consistency	650 - 730	0.200	0.058	0.001	0.000	0.259
	731 - 749	0.060	0.273	0.071	0.000	0.405
	750 - 771	0.001	0.075	0.207	0.021	0.304
	772 - 850	0.000	0.000	0.016	0.016	0.032
	<b>Estimated Proportion Consistently Classified*: Total = 0.696</b>					
Op. Core 2 (N = 3,724)						
Decision Accuracy	650 - 730	0.217	0.036	0.000	0.000	0.253
	731 - 749	0.050	0.319	0.054	0.000	0.424
	750 - 771	0.000	0.060	0.234	0.027	0.321
	772 - 850	0.000	0.000	0.001	0.002	0.002
	<b>Estimated Proportion Accurately Classified*: Total = 0.772</b>					
Decision Consistency	650 - 730	0.207	0.060	0.001	0.000	0.268
	731 - 749	0.059	0.270	0.072	0.001	0.401
	750 - 771	0.001	0.085	0.203	0.022	0.311
	772 - 850	0.000	0.000	0.013	0.007	0.019
	<b>Estimated Proportion Consistently Classified*: Total = 0.686</b>					
Op. Core 3 (N = 3,682)						
Decision Accuracy	650 - 730	0.220	0.037	0.000	0.000	0.257
	731 - 749	0.054	0.317	0.057	0.000	0.429
	750 - 771	0.000	0.061	0.225	0.027	0.313

continued

Index	Placement Scores	Beginning	Developing	Proficient	Distinguished	Category Total*
	772 - 850	0.000	0.000	0.000	0.001	0.001
	<b>Estimated Proportion Accurately Classified*: Total = 0.763</b>					
<b>Decision Consistency</b>	650 - 730	0.209	0.062	0.001	0.000	0.273
	731 - 749	0.063	0.266	0.075	0.001	0.405
	750 - 771	0.002	0.087	0.194	0.022	0.304
	772 - 850	0.000	0.000	0.012	0.006	0.018
	<b>Estimated Proportion Consistently Classified*: Total = 0.675</b>					
Accommodated Form (N = 602)						
<b>Decision Accuracy</b>	650 - 730	0.351	0.060	0.001	0.002	0.414
	731 - 749	0.228	0.332	0.026	0.000	0.586
	750 - 771	0.000	0.000	0.000	0.000	0.000
	772 - 850	0.000	0.000	0.000	0.000	0.000
	<b>Estimated Proportion Accurately Classified*: Total = 0.683</b>					
<b>Decision Consistency</b>	650 - 730	0.378	0.150	0.009	0.000	0.537
	731 - 749	0.196	0.235	0.017	0.000	0.448
	750 - 771	0.005	0.008	0.001	0.000	0.013
	772 - 850	0.000	0.000	0.000	0.002	0.002
	<b>Estimated Proportion Consistently Classified*: Total = 0.615</b>					

**Table E-5. Decision Accuracy and Consistency: MCAP Life Science MISA Spring 2022 Forms**

Index	Placement Scores	Beginning	Developing	Proficient	Distinguished	Category Total*
Op. Core 1 (N = 5,902)						
<b>Decision Accuracy</b>	650 - 730	0.168	0.029	0.000	0.000	0.197
	731 - 749	0.041	0.316	0.053	0.000	0.410
	750 - 771	0.000	0.055	0.289	0.026	0.370
	772 - 850	0.000	0.000	0.007	0.016	0.023
	<b>Estimated Proportion Accurately Classified*: Total = 0.789</b>					
<b>Decision Consistency</b>	650 - 730	0.160	0.050	0.001	0.000	0.211
	731 - 749	0.048	0.272	0.072	0.000	0.393
	750 - 771	0.001	0.078	0.255	0.024	0.358
	772 - 850	0.000	0.000	0.020	0.018	0.038
	<b>Estimated Proportion Consistently Classified*: Total = 0.706</b>					
Op. Core 2 (N = 5,901)						
<b>Decision Accuracy</b>	650 - 730	0.173	0.030	0.000	0.000	0.203
	731 - 749	0.040	0.297	0.052	0.000	0.389
	750 - 771	0.000	0.079	0.294	0.035	0.408
	772 - 850	0.000	0.000	0.000	0.000	0.000
	<b>Estimated Proportion Accurately Classified*: Total = 0.764</b>					
<b>Decision Consistency</b>	650 - 730	0.165	0.052	0.001	0.000	0.219
	731 - 749	0.046	0.253	0.077	0.001	0.377
	750 - 771	0.001	0.100	0.255	0.030	0.387
	772 - 850	0.000	0.001	0.012	0.004	0.017
	<b>Estimated Proportion Consistently Classified*: Total = 0.677</b>					
Op. Core 3 (N = 5,896)						
<b>Decision Accuracy</b>	650 - 730	0.177	0.030	0.000	0.000	0.207
	731 - 749	0.039	0.301	0.049	0.000	0.389
	750 - 771	0.000	0.071	0.295	0.038	0.404

continued

Index	Placement Scores	Beginning	Developing	Proficient	Distinguished	Category Total*
Decision Consistency	772 - 850	0.000	0.000	0.000	0.000	0.000
	<b>Estimated Proportion Accurately Classified*: Total = 0.773</b>					
	650 - 730	0.169	0.052	0.001	0.000	0.222
	731 - 749	0.045	0.257	0.072	0.001	0.375
	750 - 771	0.001	0.093	0.257	0.031	0.381
	772 - 850	0.000	0.000	0.016	0.006	0.022
<b>Estimated Proportion Consistently Classified*: Total = 0.689</b>						
Op. Core 4 (N = 5,887)						
Decision Accuracy	650 - 730	0.184	0.031	0.000	0.000	0.215
	731 - 749	0.042	0.291	0.052	0.000	0.384
	750 - 771	0.000	0.071	0.290	0.039	0.401
	772 - 850	0.000	0.000	0.000	0.000	0.000
	<b>Estimated Proportion Accurately Classified*: Total = 0.765</b>					
Decision Consistency	650 - 730	0.176	0.053	0.001	0.000	0.230
	731 - 749	0.048	0.247	0.075	0.001	0.371
	750 - 771	0.001	0.093	0.250	0.032	0.376
	772 - 850	0.000	0.001	0.016	0.006	0.023
	<b>Estimated Proportion Consistently Classified*: Total = 0.679</b>					
Op. Core 5 (N = 5,881)						
Decision Accuracy	650 - 730	0.171	0.031	0.000	0.000	0.201
	731 - 749	0.042	0.325	0.053	0.000	0.420
	750 - 771	0.000	0.063	0.281	0.029	0.372
	772 - 850	0.000	0.000	0.002	0.004	0.007
	<b>Estimated Proportion Accurately Classified*: Total = 0.781</b>					
Decision Consistency	650 - 730	0.163	0.053	0.001	0.000	0.216
	731 - 749	0.049	0.279	0.073	0.000	0.401
	750 - 771	0.001	0.087	0.246	0.024	0.357
	772 - 850	0.000	0.000	0.016	0.009	0.026

continued



Index	Placement Scores	Beginning	Developing	Proficient	Distinguished	Category Total*
	<b>Estimated Proportion Consistently Classified*: Total = 0.696</b>					
	Op. Core 6 (N = 5,871)					
<b>Decision Accuracy</b>	650 - 730	0.180	0.029	0.000	0.000	0.210
	731 - 749	0.043	0.302	0.054	0.000	0.399
	750 - 771	0.000	0.062	0.293	0.033	0.387
	772 - 850	0.000	0.000	0.001	0.003	0.004
	<b>Estimated Proportion Accurately Classified*: Total = 0.778</b>					
<b>Decision Consistency</b>	650 - 730	0.172	0.051	0.001	0.000	0.223
	731 - 749	0.050	0.258	0.076	0.000	0.384
	750 - 771	0.001	0.084	0.255	0.026	0.366
	772 - 850	0.000	0.000	0.017	0.009	0.026
	<b>Estimated Proportion Consistently Classified*: Total = 0.693</b>					
	Op. Core 7 (N = 5,869)					
<b>Decision Accuracy</b>	650 - 730	0.173	0.030	0.000	0.000	0.204
	731 - 749	0.040	0.314	0.051	0.000	0.405
	750 - 771	0.000	0.067	0.288	0.035	0.391
	772 - 850	0.000	0.000	0.000	0.000	0.000
	<b>Estimated Proportion Accurately Classified*: Total = 0.776</b>					
<b>Decision Consistency</b>	650 - 730	0.166	0.052	0.001	0.000	0.219
	731 - 749	0.047	0.269	0.072	0.001	0.389
	750 - 771	0.001	0.090	0.251	0.028	0.370
	772 - 850	0.000	0.000	0.015	0.007	0.023
	<b>Estimated Proportion Consistently Classified*: Total = 0.692</b>					
	Op. Core 8 (N = 5,860)					
<b>Decision Accuracy</b>	650 - 730	0.185	0.032	0.000	0.000	0.217
	731 - 749	0.043	0.306	0.052	0.000	0.401
	750 - 771	0.000	0.066	0.275	0.039	0.380
	772 - 850	0.000	0.000	0.001	0.001	0.002

continued

Index	Placement Scores	Beginning	Developing	Proficient	Distinguished	Category Total*
	<b>Estimated Proportion Accurately Classified*: Total = 0.768</b>					
Decision Consistency	650 - 730	0.177	0.054	0.001	0.000	0.232
	731 - 749	0.050	0.260	0.072	0.001	0.383
	750 - 771	0.001	0.089	0.237	0.030	0.358
	772 - 850	0.000	0.000	0.017	0.009	0.026
	<b>Estimated Proportion Consistently Classified*: Total = 0.683</b>					
Op. Core 9 (N = 5,850)						
Decision Accuracy	650 - 730	0.178	0.031	0.000	0.000	0.209
	731 - 749	0.044	0.307	0.055	0.000	0.405
	750 - 771	0.000	0.067	0.283	0.037	0.386
	772 - 850	0.000	0.000	0.000	0.000	0.001
	<b>Estimated Proportion Accurately Classified*: Total = 0.767</b>					
Decision Consistency	650 - 730	0.170	0.054	0.001	0.000	0.224
	731 - 749	0.051	0.260	0.076	0.001	0.388
	750 - 771	0.001	0.090	0.244	0.029	0.364
	772 - 850	0.000	0.000	0.016	0.008	0.024
	<b>Estimated Proportion Consistently Classified*: Total = 0.682</b>					
Accommodated Form (N = 2,951)						
Decision Accuracy	650 - 730	0.396	0.066	0.001	0.001	0.463
	731 - 749	0.196	0.310	0.030	0.000	0.537
	750 - 771	0.000	0.000	0.000	0.000	0.000
	772 - 850	0.000	0.000	0.000	0.000	0.000
	<b>Estimated Proportion Accurately Classified*: Total = 0.706</b>					
Decision Consistency	650 - 730	0.401	0.138	0.009	0.000	0.549
	731 - 749	0.185	0.229	0.021	0.000	0.436
	750 - 771	0.005	0.008	0.001	0.000	0.014
	772 - 850	0.000	0.000	0.000	0.001	0.001
	<b>Estimated Proportion Consistently Classified*: Total = 0.633</b>					

**Table E-6. Decision Accuracy and Consistency: MCAP Life Science MISA Summer 2022 Forms**

Index	Placement Scores	Beginning	Developing	Proficient	Distinguished	Category Total*
		Op. Core 1 (N = 249)				
<b>Decision Accuracy</b>	650 - 730	0.367	0.064	0.000	0.000	0.432
	731 - 749	0.078	0.325	0.046	0.000	0.449
	750 - 771	0.000	0.028	0.078	0.009	0.115
	772 - 850	0.000	0.000	0.001	0.003	0.004
	<b>Estimated Proportion Accurately Classified*: Total = 0.774</b>					
<b>Decision Consistency</b>	650 - 730	0.344	0.094	0.002	0.000	0.439
	731 - 749	0.100	0.268	0.048	0.000	0.416
	750 - 771	0.002	0.056	0.071	0.008	0.137
	772 - 850	0.000	0.000	0.004	0.004	0.008
	<b>Estimated Proportion Consistently Classified*: Total = 0.687</b>					

**Note.** The number of students taking the accommodated form in Summer 2022 was 16, and as such decision accuracy and consistency was not estimated for that form.

# Appendix F. Score Reports

# MCAP Government

Sample LEA- and school-level reports are for January 2022 (Winter). Winter, Spring, and Summer reports have the same design. Due to the timing of the reporting, MCAP Government report titles still refer to LEAs as Districts.

- District Summary of Schools
- District Performance Level Summary Report
- School Performance Level Summary Report
- Student Roster Report
- Student Report
- Student Labels



# DISTRICT SUMMARY OF SCHOOLS

CONFIDENTIAL - DO NOT DISTRIBUTE

DEMONSTRATION DISTRICT A  
MARYLAND

JANUARY 2022

## HIGH SCHOOL GOVERNMENT ASSESSMENT, 2021-2022

PERFORMANCE DISTRIBUTION BY %	NUMBER OF VALID SCORES	AVERAGE SCALE SCORE	Social Studies Standards					
			Standard One: Civics*	Standard Two: Peoples of the Nation and World*	Standard Three: Geography*	Standard Four: Economics*	Standard Six: Skills and Processes*	
<b>STATE</b>	7,386	398						
<b>DISTRICT</b>	29	396						
<b>DEMONSTRATION SCHOOL 2</b>	29	396						

<b>1</b>	Has Not Yet Met Expectations (240-393)	<b>2</b>	Met Expectations (394-650)	Has Not Yet Met Expectations	Met Expectations
----------	--	----------	----------------------------	------------------------------	------------------

This report is NOT for public review. Distribution within your school/district must be in accordance with state and federal privacy laws, and local school board policy.  
\* Numbers are percentages

03/29/2022



# DISTRICT PERFORMANCE LEVEL SUMMARY REPORT

**CONFIDENTIAL - DO NOT DISTRIBUTE**

Demonstration District A  
MARYLAND

JANUARY 2022

**HIGH SCHOOL GOVERNMENT ASSESSMENT, 2021-2022**

**Purpose:** This report describes group achievement in terms of average scale scores and performance levels.

	Number of Valid Scores	Average Scale Score	Performance Levels			
			Level 1 Has Not Yet Met Expectations		Level 2 Met Expectations	
			#	%	#	%
<b>State</b>	<b>7,386</b>	<b>398</b>	<b>3,168</b>	<b>43</b>	<b>4,218</b>	<b>57</b>
District	29	396	13	45	16	55
<b>Gender</b>						
Female	12	405	5	42	7	58
Male	17	391	8	47	9	53
Non-Binary	0	0	0	0	0	0
<b>Ethnicity/Race</b>						
Hispanic or Latino	4	366	3	75	1	25
American Indian or Alaska Native	0	0	0	0	0	0
Asian	3	418	0	0	3	100
Black or African-American	12	371	9	75	3	25
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0
White	9	432	1	11	8	89
Two or more races	1	450	0	0	1	100
Not Indicated	0	0	0	0	0	0
<b>Economic Disadvantage</b>						
No	21	406	7	33	14	67
Yes	8	370	6	75	2	25
<b>Students with Disabilities</b>						
IEP - Yes	2	398	1	50	1	50
IEP - No	27	396	12	44	15	56
504	3	415	1	33	2	67
<b>EL</b>						
No	27	401	11	41	16	59
Yes	2	338	2	100	0	0

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# SCHOOL PERFORMANCE LEVEL SUMMARY REPORT

CONFIDENTIAL - DO NOT DISTRIBUTE

Demonstration School 2  
Demonstration District A  
MARYLAND

JANUARY 2022

## HIGH SCHOOL GOVERNMENT ASSESSMENT, 2021-2022

**Purpose:** This report describes group achievement in terms of average scale scores and performance levels.

	Number of Valid Scores	Average Scale Score	Performance Levels			
			Level 1 Has Not Yet Met Expectations		Level 2 Met Expectations	
			#	%	#	%
<b>State</b>	<b>7,386</b>	<b>398</b>	<b>3,168</b>	<b>43</b>	<b>4,218</b>	<b>57</b>
District	29	396	13	45	16	55
School	29	396	13	45	16	55
<b>Gender</b>						
Female	12	405	5	42	7	58
Male	17	391	8	47	9	53
Non-Binary	0	0	0	0	0	0
<b>Ethnicity/Race</b>						
Hispanic or Latino	4	366	3	75	1	25
American Indian or Alaska Native	0	0	0	0	0	0
Asian	3	418	0	0	3	100
Black or African-American	12	371	9	75	3	25
Native Hawaiian or Other Pacific Islander	0	0	0	0	0	0
White	9	432	1	11	8	89
Two or more races	1	450	0	0	1	100
Not Indicated	0	0	0	0	0	0
<b>Economic Disadvantage</b>						
No	21	406	7	33	14	67
Yes	8	370	6	75	2	25
<b>Students with Disabilities</b>						
IEP - Yes	2	398	1	50	1	50
IEP - No	27	396	12	44	15	56
504	3	415	1	33	2	67
<b>EL</b>						
No	27	401	11	41	16	59
Yes	2	338	2	100	0	0

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# STUDENT ROSTER REPORT

CONFIDENTIAL - DO NOT DISTRIBUTE

Demonstration School 2  
 Demonstration District A  
 MARYLAND

JANUARY 2022

## HIGH SCHOOL GOVERNMENT ASSESSMENT, 2021-2022

STUDENT	OVERALL SCALE SCORE	Social Studies Standards				
		Standard One: Civics*	Standard Two: Peoples of the Nation and World*	Standard Three: Geography*	Standard Four: Economics*	Standard Six: Skills and Processes*
STATE	398	43   57	48   52	47   53	44   56	31   69
DISTRICT	396	41   59	48   52	38   62	62   38	38   62
SCHOOL	396	41   59	48   52	38   62	62   38	38   62
LASTNAME10, FIRST10 M.	345	↓	↓	↓	↓	↓
LASTNAME104, FIRST104 M.	411	↑	↑	↑	↓	↑
LASTNAME113, FIRST113 M.	441	↑	↑	↑	↑	↑
LASTNAME114, PREFERRED114	395	↑	↓	↑	↓	↑
LASTNAME115, FIRST115 M.	328	↓	↓	↓	↓	↓
LASTNAME116, FIRST116 M.	441	↑	↑	↑	↑	↑
LASTNAME15, FIRST15 M.	382	↓	↓	↓	↓	↑
LASTNAME17, FIRST17 M.	450	↑	↑	↑	↑	↑

For more information on the MD Social Studies standards and frameworks, visit the Maryland Public Schools website: <http://marylandpublicschools.org/about/Pages/DCAA/Social-Studies/index.aspx>

1	Has Not Met Expectations (240-393)	2	Met Expectations (394-650)
---	------------------------------------	---	----------------------------

↓	Has Not Met Expectations	↑	Met Expectations
---	--------------------------	---	------------------

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 \* Numbers are percentages

03/29/2022



**Student Name:** FIRST10 M. LASTNAME10  
**SASID:** D00000010  
**Date of Birth:** 05/16/2006  
**Administration:** JANUARY 2022

**LSS Name:** Demonstration District A  
**School Name:** Demonstration School 2  
**Grade:** 10

## American Government Social Studies Assessment Report, 2021-2022

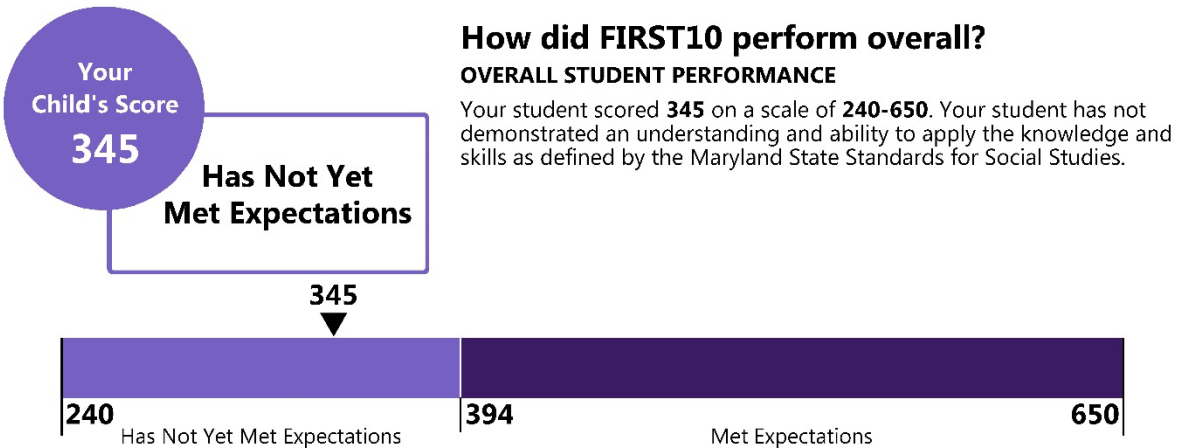
This report shows whether FIRST10 met assessment expectations in American Government and is on track for the graduation requirement. In order to satisfy the American Government graduation requirement, a student must earn one credit in a local, state, and national government course aligned with the MCAP government assessment, and take the government assessment.

### What are the learning outcomes and assessment limits for the MCAP government?

Learn more about Maryland's American Government program:  
<http://marylandpublicschools.org/about/Pages/DCAA/Social-Studies/AGHSH.aspx>

### What other assessments are required for graduation?

Learn more about Maryland's Comprehensive Assessment program:  
<http://marylandpublicschools.org/about/Pages/DAAIT/index.aspx>



### School, LSS\*, and State Comparisons

State Average	<b>398</b>
LSS Average	<b>396</b>
School Average	<b>396</b>

### Student Performance in Maryland

Percent of students who have met expectations






State Percentage	<b>57%</b>
LSS Percentage	<b>55%</b>
School Percentage	<b>55%</b>

\* Please note that LSS stands for Local School System.

Student Name: FIRST10 M. LASTNAME10

## How Did Your Child Perform in the Maryland State Standards for Social Studies?

In Maryland, there are six social studies standards. To learn more about the MD Social Studies standards through the frameworks, visit the Maryland Public Schools website: <http://marylandpublicschools.org/about/Pages/DCAA/Social-Studies/index.aspx>

	Civics	Your student performed about the same as a student who <b>has not yet met expectations</b> . Students meet expectations by demonstrating the historical development of the fundamental concepts and processes of authority, power, and influence with particular emphasis on civic reasoning in order to become informed, responsible citizens, engage in the political process, and contribute to society.
	Peoples of the Nations and World	Your student performed about the same as a student who <b>has not yet met expectations</b> . Students meet expectations by demonstrating the people of the United States and the world using a historically grounded, multidisciplinary approach in order to recognize multiple narratives and acknowledge the diversity and commonality of the human experience.
	Geography	Your student performed about the same as a student who <b>has not yet met expectations</b> . Students meet expectations by demonstrating the role of culture, technology, and the environment in the location, distribution, and impact of human activities using geographic tools and spatial thinking in order to demonstrate a significance of place.
	Economics	Your student performed about the same as a student who <b>has not yet met expectations</b> . Students meet expectations by demonstrating decisions made by individuals and groups using economic reasoning in order to understand the historical development and current status of economic principles, institutions, and processes needed to be effective citizens, consumers, and workers participating in local communities, the nation, and the world.
	Skills and Processes	Your student performed about the same as a student who <b>has not yet met expectations</b> . Students meet expectations by demonstrating civics, geography, economics, history, and people and nations of the world using disciplinary literacy skills and processes to critically evaluate content through a variety of source materials across disciplines and use reading, writing, and other forms of communication to develop, defend, and critique arguments in order to take informed action.

**LEGEND**

Your child performed about the same as a student who:



**Has Not Yet Met Expectations**



**Met Expectations**



January 2022 Maryland HSA - Government

LASTNAME10, FIRST10 M.

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 10 LEA ID: D0000010 DOB: 05/16/2006  
Score: 345  
Status: LEVEL 1 - HAS NOT YET MET EXPECTATIONS

January 2022 Maryland HSA - Government

LASTNAME104, FIRST104 M.

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 09 LEA ID: D00000104 DOB: 11/03/2006  
Score: 411  
Status: LEVEL 2 - MET EXPECTATIONS

January 2022 Maryland HSA - Government

LASTNAME113, FIRST113 M.

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 10 LEA ID: D00000113 DOB: 03/09/2006  
Score: 441  
Status: LEVEL 2 - MET EXPECTATIONS

January 2022 Maryland HSA - Government

LASTNAME114, PREFERRED114

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 12 LEA ID: D00000114 DOB: 03/20/2003  
Score: 395  
Status: LEVEL 2 - MET EXPECTATIONS

January 2022 Maryland HSA - Government

LASTNAME115, FIRST115 M.

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 12 LEA ID: D00000115 DOB: 09/09/2004  
Score: 328  
Status: LEVEL 1 - HAS NOT YET MET EXPECTATIONS

January 2022 Maryland HSA - Government

LASTNAME116, FIRST116 M.

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 10 LEA ID: D00000116 DOB: 07/06/2006  
Score: 441  
Status: LEVEL 2 - MET EXPECTATIONS

January 2022 Maryland HSA - Government

LASTNAME15, FIRST15 M.

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 11 LEA ID: D00000015 DOB: 07/25/2005  
Score: 382  
Status: LEVEL 1 - HAS NOT YET MET EXPECTATIONS

January 2022 Maryland HSA - Government

LASTNAME17, FIRST17 M.

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 10 LEA ID: D00000017 DOB: 07/09/2005  
Score: 450  
Status: LEVEL 2 - MET EXPECTATIONS

January 2022 Maryland HSA - Government

LASTNAME20, PREFERRED20 M.

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 12 LEA ID: D00000020 DOB: 02/05/2004  
Score: 318  
Status: LEVEL 1 - HAS NOT YET MET EXPECTATIONS

January 2022 Maryland HSA - Government

LASTNAME22, FIRST22 M.

LSS: Demonstration District A (DA)  
School: Demonstration School 2 (DEM2)  
Grade: 11 LEA ID: D00000022 DOB: 12/30/2003  
Score: 348  
Status: LEVEL 1 - HAS NOT YET MET EXPECTATIONS

# MCAP Life Science MISA

Sample LEA- and school-level reports are for January 2022 (Winter). Winter, Spring, and Summer reports have the same design.

- LEA Summary of Schools
- LEA Performance Level Summary Report
- School Performance Level Summary Report
- Student Roster Report
- Student Report
- Student Labels



# LEA SUMMARY OF SCHOOLS

CONFIDENTIAL - DO NOT DISTRIBUTE

DEMONSTRATION DISTRICT A  
MARYLAND

JANUARY 2022

## LIFE SCIENCE ASSESSMENT, 2021-2022

PERFORMANCE DISTRIBUTION BY %	NUMBER OF VALID SCORES	AVERAGE SCALE SCORE	SCIENCE AND ENGINEERING PRACTICES				LIFE SCIENCE TOPICS																			
			Investigating Practices*	Sensmaking Practices*	Critiquing Practices*	Structure and Function**	Matter and Energy in Organisms and Ecosystems*	Interdependent Relationships in Ecosystems*	Inheritance and Variation of Traits*	Natural Selection and Evolution**																
STATE	11,718	741	30	35	34	29	41	30	38	32	36	30	35	34	32	37	31	30	35	34	33	33	34	32	36	32
LEA	35	736	17	57	26	34	40	26	43	51	6	26	34	40	40	34	26	17	57	26	40	40	20	40	49	11
DEMONSTRATION SCHOOL 2	35	736	17	57	26	34	40	26	43	51	6	26	34	40	40	34	26	17	57	26	40	40	20	40	49	11

1	Beginning Learner (650-730)	2	Developing Learner (731-749)	3	Proficient Learner (750-771)	4	Distinguished Learner (772-850)
---	-----------------------------	---	------------------------------	---	------------------------------	---	---------------------------------

● Distinguished and Proficient Learners
 ● Developing Learner
 ● Beginning Learner

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 \* Numbers are percentages  
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# LEA PERFORMANCE LEVEL SUMMARY REPORT

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Demonstration District A  
MARYLAND

JANUARY 2022

## LIFE SCIENCE ASSESSMENT, 2021-2022

	Number of Valid Scores	Average Scale Score	Performance Levels									
			Level 1 Beginning Learner		Level 2 Developing Learner		Level 3 Proficient Learner		Level 4 Distinguished Learner		≥ Level 3 Distinguished and Proficient Learners	
			#	%	#	%	#	%	#	%	#	%
<b>State</b>	<b>11,718</b>	<b>741</b>	<b>3,321</b>	<b>28</b>	<b>4,819</b>	<b>41</b>	<b>3,229</b>	<b>28</b>	<b>349</b>	<b>3</b>	<b>3,578</b>	<b>31</b>
District	35	736	13	37	15	43	7	20	0	0	7	20
<b>Gender</b>												
Female	14	743	3	21	6	43	5	36	0	0	5	36
Male	21	732	10	48	9	43	2	10	0	0	2	10
Non-Binary	0	0	0	0	0	0	0	0	0	0	0	0
<b>Ethnicity/Race</b>												
Hispanic or Latino	4	723	4	100	0	0	0	0	0	0	0	0
American Indian or Alaska Native	1	752	0	0	0	0	1	100	0	0	1	100
Asian	3	753	0	0	1	33	2	67	0	0	2	67
Black or African-American	11	729	5	45	6	55	0	0	0	0	0	0
Native Hawaiian or Other Pacific Islander	2	744	0	0	2	100	0	0	0	0	0	0
White	13	740	4	31	5	38	4	31	0	0	4	31
Two or more races	0	0	0	0	0	0	0	0	0	0	0	0
Not Indicated	1	736	0	0	1	100	0	0	0	0	0	0
<b>Economic Disadvantage</b>												
No	27	737	8	30	13	48	6	22	0	0	6	22
Yes	8	733	5	63	2	25	1	13	0	0	1	13
<b>Students with Disabilities</b>												
IEP - Yes	3	730	2	67	1	33	0	0	0	0	0	0
IEP - No	32	737	11	34	14	44	7	22	0	0	7	22
504	3	743	0	0	2	67	1	33	0	0	1	33
<b>EL</b>												
No	33	737	11	33	15	45	7	21	0	0	7	21
Yes	2	722	2	100	0	0	0	0	0	0	0	0

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# SCHOOL PERFORMANCE LEVEL SUMMARY REPORT

**CONFIDENTIAL - DO NOT DISTRIBUTE**

Demonstration School 2  
 Demonstration District A  
 MARYLAND

JANUARY 2022

## LIFE SCIENCE ASSESSMENT, 2021-2022

	Number of Valid Scores	Average Scale Score	Performance Levels									
			Level 1 Beginning Learner		Level 2 Developing Learner		Level 3 Proficient Learner		Level 4 Distinguished Learner		≥ Level 3 Distinguished and Proficient Learners	
			#	%	#	%	#	%	#	%	#	%
<b>State</b>	<b>11,718</b>	<b>741</b>	<b>3,321</b>	<b>28</b>	<b>4,819</b>	<b>41</b>	<b>3,229</b>	<b>28</b>	<b>349</b>	<b>3</b>	<b>3,578</b>	<b>31</b>
District	35	736	13	37	15	43	7	20	0	0	7	20
School	35	736	13	37	15	43	7	20	0	0	7	20
<b>Gender</b>												
Female	14	743	3	21	6	43	5	36	0	0	5	36
Male	21	732	10	48	9	43	2	10	0	0	2	10
Non-Binary	0	0	0	0	0	0	0	0	0	0	0	0
<b>Ethnicity/Race</b>												
Hispanic or Latino	4	723	4	100	0	0	0	0	0	0	0	0
American Indian or Alaska Native	1	752	0	0	0	0	1	100	0	0	1	100
Asian	3	753	0	0	1	33	2	67	0	0	2	67
Black or African-American	11	729	5	45	6	55	0	0	0	0	0	0
Native Hawaiian or Other Pacific Islander	2	744	0	0	2	100	0	0	0	0	0	0
White	13	740	4	31	5	38	4	31	0	0	4	31
Two or more races	0	0	0	0	0	0	0	0	0	0	0	0
Not Indicated	1	736	0	0	1	100	0	0	0	0	0	0
<b>Economic Disadvantage</b>												
No	27	737	8	30	13	48	6	22	0	0	6	22
Yes	8	733	5	63	2	25	1	13	0	0	1	13
<b>Students with Disabilities</b>												
IEP - Yes	3	730	2	67	1	33	0	0	0	0	0	0
IEP - No	32	737	11	34	14	44	7	22	0	0	7	22
504	3	743	0	0	2	67	1	33	0	0	1	33
<b>EL</b>												
No	33	737	11	33	15	45	7	21	0	0	7	21
Yes	2	722	2	100	0	0	0	0	0	0	0	0

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10/11/2022





# STUDENT ROSTER REPORT

CONFIDENTIAL - DO NOT DISTRIBUTE

Demonstration School 2  
 Demonstration District A  
 MARYLAND  
 JANUARY 2022

## LIFE SCIENCE ASSESSMENT, 2021-2022

STUDENT	OVERALL SCALE SCORE	SCIENCE and ENGINEERING PRACTICES		
		Investigating Practices*	Sensemaking Practices*	Critiquing Practices*
STATE	741			
LEA	736			
SCHOOL	736			
LASTNAME10, FIRST10 M.	716			
LASTNAME101, FIRST101 M.	743			
LASTNAME11, FIRST11 M.	743			
LASTNAME112, FIRST112	668			
LASTNAME113, FIRST113 M.	752			
LASTNAME114, PREFERRED114	720			
LASTNAME118, FIRST118 M.	717			
LASTNAME119, PREFERRED119 M.	758			

<b>1</b> Beginning Learner (69-730)	<b>2</b> Developing Learner (731-749)	<b>3</b> Proficient Learner (750-771)	<b>4</b> Distinguished Learner (772-830)				
---	---	---	--	--	--	--	--

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 \* Numbers are percentages

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 10/11/2022



**Student Name:** FIRST10 M. LASTNAME10  
**SASID:** D00000010  
**Date of Birth:** 05/16/2006  
**Administration:** JANUARY 2022  
**LEA Name:** Demonstration District A  
**School Name:** Demonstration School 2  
**Grade:** 10

## Life Science Assessment Report, 2021-2022 How Can You Use This Report?

This report shows whether FIRST10 demonstrated proficiency in their life science course and is on track to be scientifically literate. The **Maryland Integrated Science Assessment (MISA)** is just one measure of how well your child is performing in high school science.

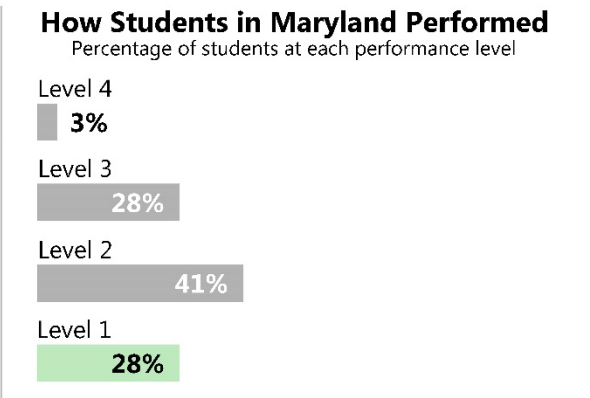
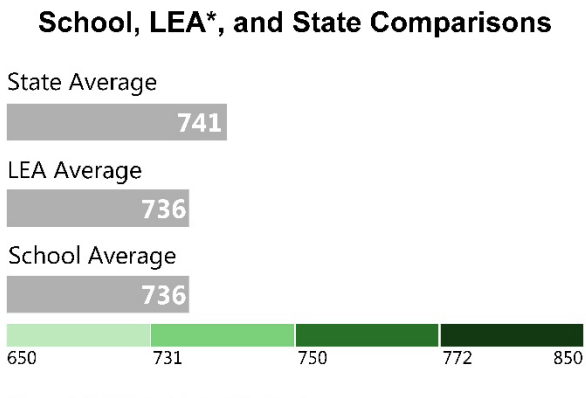
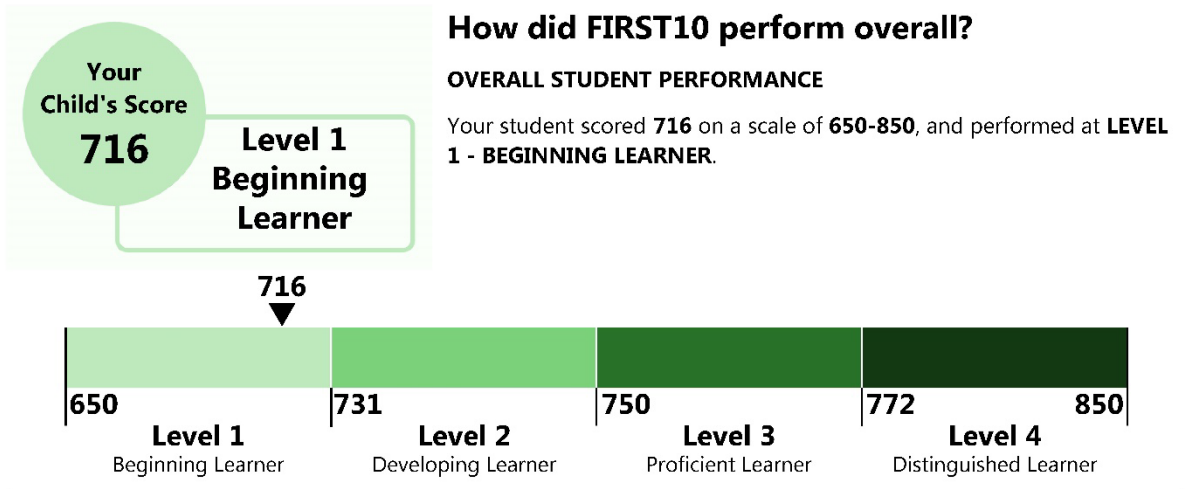
Ask your child's teachers:

- What do you see as my child's strengths and areas for improvement in science?
- How can these assessment results be used to help my child make progress in science?

To learn more about the Maryland Science Program and the assessment please visit: <http://marylandpublicschools.org/about/Pages/DAAIT/Assessment/MISA/index.aspx>.



See side 2 of this report for specific information on your child's performance in science.



**How are assessment results used?** Results from the assessment give your child's teacher, school, and district information about their science performance, and provide you with some insight on how your child is meeting expectations. These results never stand alone, but can be used with other assessments and class work when gauging student performance.



Student Name: FIRST10 M. LASTNAME10

## How Did Your Child Perform on the Life Science MISA?

The Life Science MISA assesses a student's ability to use the practices of scientific inquiry along with the practices of engineering design to demonstrate their understanding of life science core ideas.



### Investigating Science and Engineering Practices Integrated with Life Science

Your student performed about the same as students who **demonstrate partial proficiency**. Students **need additional academic support** to ask questions and conduct investigations about the natural world. Students **need additional academic support** to think algebraically and use computational tools to analyze and model data to better understand phenomenon, natural processes and systems.



### Sensemaking Science and Engineering Practices Integrated with Life Science

Your student performed about the same as students who **do not yet demonstrate proficiency**. Students **need substantial academic support** to demonstrate the ability to construct and revise explanations about the natural world based on evidence collected from models or data. Students **need substantial academic support** to analyze data using statistics, probability and models to better understand the relationships between systems or components of a system.



### Critiquing Science and Engineering Practices Integrated with Life Science

Your student performed about the same as students who **do not yet demonstrate proficiency**. Students **need substantial academic support** in the ability to communicate scientific information about the natural world and to critically evaluate the validity and reliability of claims in order to determine the merits of arguments.

#### LEGEND

Your child performed about the same as:



Beginning Learners



Developing Learners



Distinguished and Proficient Learners

## Life Science Performance Level Descriptions

### Level 4: Distinguished Learner

**Distinguished learners** demonstrate advanced proficiency in applying scientific thinking to understand the natural world and engineering design to find solutions to problems. Learners at this level think critically about how systems of cells function together to support the life processes; interactions among organisms and how those interactions influence the dynamics of ecosystems; the role of energy in the cycling of matter in organisms and ecosystems; the role of DNA in the unity of life on Earth; factors causing natural selection and the process of evolution of species over time; and how to optimize design solutions. Distinguished learners are well prepared in asking questions that lead to explanations supported by evidence, using mathematics to analyze data, and applying scientific ideas to develop, test, compare, and improve design solutions.

### Level 3: Proficient Learner

**Proficient learners** demonstrate proficiency in applying scientific thinking to understand the natural world and engineering design to find solutions to problems. Learners at this level explain how systems of cells function together to support the life processes; interactions among organisms and how those interactions influence the dynamics of ecosystems; the role of energy in the cycling of matter in organisms and ecosystems; the role of DNA in the unity of life on Earth; factors causing natural selection and the process of evolution of species over time; and how to optimize design solutions. Proficient learners are prepared in asking questions that can lead to reasonable predictions, using mathematics to describe data, and applying scientific ideas to evaluate a design solution.

### Level 2: Developing Learner

**Developing learners** demonstrate partial proficiency in applying scientific thinking to understand the natural world and engineering design to find solutions to problems. Learners at this level describe how systems of cells function together to support the life processes; interactions among organisms and how those interactions influence the dynamics of ecosystems; the role of energy in the cycling of matter in organisms and ecosystems; the role of DNA in the unity of life on Earth; factors causing natural selection and the process of evolution of species over time; and how to optimize design solutions. Developing learners need additional academic support in asking questions about changes in an investigation, organizing simple data sets to reveal patterns, and identifying scientific evidence used to support a claim.

### Level 1: Beginning Learner

**Beginning learners** do not yet demonstrate proficiency in applying scientific thinking to understand the natural world and engineering design to find solutions to problems. Learners at this level identify how systems of cells function together to support the life processes; interactions among organisms and how those interactions influence the dynamics of ecosystems; the role of energy in the cycling of matter in organisms and ecosystems; the role of DNA in the unity of life on Earth; factors causing natural selection and the process of evolution of species over time; and how to optimize design solutions. Beginning learners need substantial academic support in asking questions about changes in an investigation, organizing simple data sets to reveal patterns, and identifying scientific evidence used to support a claim.

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME10, FIRST10 M.**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 10 ID: D00000010 DOB: 05/16/2006

LS MISA Scale Score: 716

Performance Level: LEVEL 1 - BEGINNING LEARNER

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME114, PREFERRED114**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 12 ID: D00000114 DOB: 03/20/2003

LS MISA Scale Score: 720

Performance Level: LEVEL 1 - BEGINNING LEARNER

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME101, FIRST101 M.**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 10 ID: D00000101 DOB: 01/08/2006

LS MISA Scale Score: 743

Performance Level: LEVEL 2 - DEVELOPING LEARNER

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME118, FIRST118 M.**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 12 ID: D00000118 DOB: 08/13/2002

LS MISA Scale Score: 717

Performance Level: LEVEL 1 - BEGINNING LEARNER

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME11, FIRST11 M.**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 10 ID: D00000011 DOB: 10/03/2005

LS MISA Scale Score: 743

Performance Level: LEVEL 2 - DEVELOPING LEARNER

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME119, PREFERRED119 M.**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 11 ID: D00000119 DOB: 10/06/2004

LS MISA Scale Score: 758

Performance Level: LEVEL 3 - PROFICIENT LEARNER

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME112, FIRST112**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 09 ID: D00000112 DOB: 05/26/2006

LS MISA Scale Score: 668

Performance Level: LEVEL 1 - BEGINNING LEARNER

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME20, PREFERRED20 M.**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 12 ID: D00000020 DOB: 02/05/2004

LS MISA Scale Score: 723

Performance Level: LEVEL 1 - BEGINNING LEARNER

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME113, FIRST113 M.**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 10 ID: D00000113 DOB: 03/09/2006

LS MISA Scale Score: 752

Performance Level: LEVEL 3 - PROFICIENT LEARNER

**January 2022 Life Science Maryland Integrated Science Assessment  
(LS MISA)**

**LASTNAME21, FIRST21 M.**

LEA: Demonstration District A (DA)

School: Demonstration School 2 (DEM2)

Grade: 11 ID: D00000021 DOB: 06/24/2005

LS MISA Scale Score: 746

Performance Level: LEVEL 2 - DEVELOPING LEARNER

# Appendix G. Scaled Score Summary Statistics

**Table G-1. Scaled Score Summary Statistics for MCAP Government Winter Op. Core 1**

		Mean	SD	N	%
Overall	Overall	400.16	42.48	6,959	100.00
Gender	Male	398.39	44.56	3,653	52.49
	Female	402.37	39.60	3,298	47.39
	Non-Binary	--	--	3	0.04
	Not Specified	--	--	0	0.00
Grade	8	--	--	0	0.00
	9	396.69	42.18	1,772	25.46
	10	409.60	40.23	3,533	50.77
	11	382.13	42.86	738	10.60
	12	385.73	40.12	911	13.09
	Not Specified	--	--	5	0.07
Ethnicity	American Indian/Alaskan Native	--	--	18	0.26
	Asian	428.94	40.21	218	3.13
	Black or African American	381.84	41.57	1,774	25.49
	Hispanic/Latino Ethnicity	380.95	43.33	928	13.34
	Native Hawaiian or Other Pacific Islander	--	--	11	0.16
	White	415.68	36.07	3,129	44.96
	Multi	--	--	0	0.00
	Not Specified	375.75	42.16	115	1.65
Econ. Dis.	Yes	--	--	0	0.00
	No	407.97	41.22	4,506	64.75
	Not Specified	--	--	5	0.07
Special Education	Yes	370.28	38.02	518	7.44
	No	403.02	41.87	5,729	82.33
	Exited	397.25	40.18	206	2.96
	Exited from 504	--	--	36	0.52
	504	401.19	41.03	465	6.68
	Not Specified	--	--	5	0.07
English Learner (EL) Status	Yes	349.35	36.09	386	5.55
	No	403.55	40.90	6,324	90.88
	Exited	395.60	34.91	244	3.51
	Not Specified	--	--	5	0.07

**Table G-2. Scaled Score Summary Statistics for MCAP Government Winter Accommodated Form**

		Mean	SD	N	%
Overall	Overall	352.95	35.75	434	100.00
Gender	Male	350.92	35.93	269	61.98
	Female	354.66	32.04	153	35.25
	Non-Binary	--	--	0	0.00
	Not Specified	--	--	0	0.00
Grade	8	--	--	0	0.00
	9	350.69	40.64	102	23.50
	10	354.38	32.36	186	42.86
	11	352.92	32.49	59	13.59
	12	348.71	32.79	75	17.28
	Not Specified	--	--	12	2.76
Ethnicity	American Indian/Alaskan Native	--	--	3	0.69
	Asian	--	--	9	2.07
	Black or African American	341.52	35.88	121	27.88
	Hispanic/Latino Ethnicity	347.44	33.25	94	21.66
	Native Hawaiian or Other Pacific Islander	--	--	1	0.23
	White	361.63	33.27	128	29.49
	Multi	--	--	0	0.00
	Not Specified	--	--	12	2.76
Econ. Dis.	Yes	--	--	0	0.00
	No	355.63	37.07	198	45.62
	Not Specified	--	--	12	2.76
Special Education	Yes	352.28	35.47	288	66.36
	No	350.41	30.71	128	29.49
	Exited	--	--	0	0.00
	Exited from 504	--	--	3	0.69
	504	--	--	3	0.69
	Not Specified	--	--	12	2.76
English Learner (EL) Status	Yes	348.39	29.55	147	33.87
	No	353.88	36.40	260	59.91
	Exited	--	--	15	3.46
	Not Specified	--	--	12	2.76

**Table G-3. Scaled Score Summary Statistics for MCAP Government Spring Op. Core 1**

		Mean	SD	N	%
Overall	Overall	403.22	43.34	29,769	100.00
Gender	Male	400.74	45.88	15,331	51.50
	Female	405.81	40.29	14,412	48.41
	Non-Binary	--	--	9	0.03
	Not Specified	--	--	17	0.06
Grade	8	--	--	0	0.00
	9	397.08	44.13	11,535	38.75
	10	409.45	41.06	16,127	54.17
	11	394.54	46.75	1,372	4.61
	12	378.99	47.54	734	2.47
	Not Specified	--	--	1	0.00
Ethnicity	American Indian/Alaskan Native	402.72	33.92	64	0.21
	Asian	427.12	38.46	1,827	6.14
	Black or African American	392.88	41.69	10,606	35.63
	Hispanic/Latino Ethnicity	388.15	45.41	4,173	14.02
	Native Hawaiian or Other Pacific Islander	--	--	45	0.15
	White	417.50	39.12	9,707	32.61
	Multi	--	--	0	0.00
	Not Specified	368.77	46.91	205	0.69
Econ. Dis.	Yes	--	--	0	0.00
	No	410.32	42.32	19,337	64.96
	Not Specified	--	--	0	0.00
Special Education	Yes	370.77	44.92	2,141	7.19
	No	405.69	42.24	24,728	83.07
	Exited	401.73	41.59	938	3.15
	Exited from 504	404.45	40.97	193	0.65
	504	408.56	41.65	1,769	5.94
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	355.67	41.70	1,824	6.13
	No	406.15	42.16	25,869	86.90
	Exited	408.54	33.68	2,076	6.97
	Not Specified	--	--	0	0.00



**Table G-4. Scaled Score Summary Statistics for MCAP Government Spring Op. Core 2**

		Mean	SD	N	%
Overall	Overall	402.21	42.05	19,916	100.00
Gender	Male	400.00	44.13	10,247	51.45
	Female	404.50	39.58	9,651	48.46
	Non-Binary	--	--	5	0.03
	Not Specified	--	--	13	0.07
Grade	8	--	--	0	0.00
	9	396.45	43.00	7,759	38.96
	10	408.09	39.81	10,765	54.05
	11	392.96	45.79	880	4.42
	12	381.65	45.33	512	2.57
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	45	0.23
	Asian	427.97	36.57	1,164	5.84
	Black or African American	392.57	40.26	7,180	36.05
	Hispanic/Latino Ethnicity	386.37	44.45	2,783	13.97
	Native Hawaiian or Other Pacific Islander	--	--	42	0.21
	White	416.42	37.53	6,417	32.22
	Multi	--	--	0	0.00
	Not Specified	372.81	37.37	137	0.69
Econ. Dis.	Yes	--	--	0	0.00
	No	409.75	41.02	12,830	64.42
	Not Specified	--	--	0	0.00
Special Education	Yes	373.43	42.33	1,392	6.99
	No	404.28	41.34	16,553	83.11
	Exited	402.02	40.78	632	3.17
	Exited from 504	406.64	41.46	145	0.73
	504	406.58	39.82	1,194	6.00
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	354.28	40.37	1,166	5.85
	No	405.06	40.81	17,364	87.19
	Exited	406.76	33.59	1,386	6.96
	Not Specified	--	--	0	0.00

**Table G-5. Scaled Score Summary Statistics for MCAP Government Spring Accommodated Form**

		Mean	SD	N	%
Overall	Overall	353.97	42.81	3,642	100.00
Gender	Male	351.61	43.60	2,172	59.64
	Female	356.37	40.67	1,390	38.17
	Non-Binary	--	--	2	0.05
	Not Specified	--	--	0	0.00
Grade	8	--	--	0	0.00
	9	345.86	41.95	1,384	38.00
	10	361.04	41.46	1,754	48.16
	11	349.29	43.03	320	8.79
	12	340.01	43.89	106	2.91
	Not Specified	377.03	49.09	78	2.14
Ethnicity	American Indian/Alaskan Native	--	--	4	0.11
	Asian	366.50	41.25	127	3.49
	Black or African American	345.23	41.56	1,023	28.09
	Hispanic/Latino Ethnicity	351.59	42.19	1,146	31.47
	Native Hawaiian or Other Pacific Islander	--	--	3	0.08
	White	367.96	42.80	625	17.16
	Multi	--	--	0	0.00
	Not Specified	367.19	51.09	108	2.97
Econ. Dis.	Yes	--	--	0	0.00
	No	358.05	43.83	1,604	44.04
	Not Specified	377.03	49.09	78	2.14
Special Education	Yes	352.67	41.50	2,189	60.10
	No	352.90	42.81	1,303	35.78
	Exited	--	--	13	0.36
	Exited from 504	--	--	15	0.41
	504	--	--	44	1.21
	Not Specified	377.03	49.09	78	2.14
English Learner (EL) Status	Yes	352.08	40.98	1,655	45.44
	No	352.72	43.83	1,792	49.20
	Exited	384.46	30.93	117	3.21
	Not Specified	377.03	49.09	78	2.14

**Table G-6. Scaled Score Summary Statistics for MCAP Government Summer Op. Core 1**

		Mean	SD	N	%
Overall	Overall	369.97	41.20	415	100.00
Gender	Male	367.54	43.17	218	52.53
	Female	372.56	38.91	196	47.23
	Non-Binary	--	--	1	0.24
	Not Specified	--	--	0	0.00
Grade	8	--	--	0	0.00
	9	357.38	45.66	104	25.06
	10	373.24	39.66	161	38.80
	11	374.43	40.52	72	17.35
	12	375.86	35.54	78	18.80
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	0	0.00
	Asian	--	--	6	1.45
	Black or African American	366.39	40.93	282	67.95
	Hispanic/Latino Ethnicity	--	--	49	11.81
	Native Hawaiian or Other Pacific Islander	--	--	1	0.24
	White	--	--	44	10.60
	Multi	--	--	0	0.00
	Not Specified	--	--	5	1.20
Econ. Dis.	Yes	--	--	0	0.00
	No	373.93	41.14	200	48.19
	Not Specified	--	--	0	0.00
Special Education	Yes	342.84	41.86	57	13.73
	No	376.07	38.60	318	76.63
	Exited	--	--	15	3.61
	Exited from 504	--	--	1	0.24
	504	--	--	24	5.78
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	--	--	21	5.06
	No	369.64	41.10	386	93.01
	Exited	--	--	8	1.93
	Not Specified	--	--	0	0.00

**Table G-7. Scaled Score Summary Statistics for MCAP Government Summer Accommodated Form**

		Mean	SD	N	%
Overall	Overall	--	--	28	100.00
Gender	Male	--	--	19	67.86
	Female	--	--	9	32.14
	Non-Binary	--	--	0	0.00
	Not Specified	--	--	0	0.00
Grade	8	--	--	0	0.00
	9	--	--	4	14.29
	10	--	--	10	35.71
	11	--	--	8	28.57
	12	--	--	6	21.43
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	0	0.00
	Asian	--	--	0	0.00
	Black or African American	--	--	6	21.43
	Hispanic/Latino Ethnicity	--	--	14	50.00
	Native Hawaiian or Other Pacific Islander	--	--	0	0.00
	White	--	--	3	10.71
	Multi	--	--	0	0.00
	Not Specified	--	--	1	3.57
Econ. Dis.	Yes	--	--	0	0.00
	No	--	--	11	39.29
	Not Specified	--	--	0	0.00
Special Education	Yes	--	--	13	46.43
	No	--	--	15	53.57
	Exited	--	--	0	0.00
	Exited from 504	--	--	0	0.00
	504	--	--	0	0.00
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	--	--	17	60.71
	No	--	--	10	35.71
	Exited	--	--	1	3.57
	Not Specified	--	--	0	0.00

**Table G-8. Scaled Score Summary Statistics for MCAP Life Science MISA Winter Op. Core 1**

		Mean	SD	N	%
Overall	Overall	742.20	17.00	3,693	100.00
Gender	Male	740.73	17.15	1,911	51.75
	Female	743.80	16.70	1,780	48.20
	Non-Binary	--	--	2	0.05
	Not Specified	--	--	0	0.00
Grade	8	--	--	2	0.05
	9	741.05	16.72	586	15.87
	10	746.98	17.07	1,581	42.81
	11	739.09	15.39	1,017	27.54
	12	734.97	15.92	505	13.67
	Not Specified	--	--	2	0.05
Ethnicity	American Indian/Alaskan Native	--	--	11	0.30
	Asian	753.60	16.08	198	5.36
	Black or African American	734.83	14.92	1,038	28.11
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	4	0.11
	White	748.01	15.80	1,542	41.75
	Multi	--	--	0	0.00
	Not Specified	734.96	17.04	54	1.46
Econ. Dis.	Yes	--	--	0	0.00
	No	744.70	17.38	2,544	68.89
	Not Specified	--	--	0	0.00
Special Education	Yes	731.54	13.16	270	7.31
	No	743.17	17.02	3,042	82.37
	Exited	742.12	16.18	108	2.92
	Exited from 504	--	--	22	0.60
	504	741.49	16.66	251	6.80
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	727.25	11.45	193	5.23
	No	742.95	16.98	3,287	89.01
	Exited	744.28	15.05	213	5.77
	Not Specified	--	--	0	0.00

**Table G-9. Scaled Score Summary Statistics for MCAP Life Science MISA Winter Op. Core 2**

		Mean	SD	N	%
Overall	Overall	741.58	17.28	3,724	100.00
Gender	Male	739.66	18.01	1,885	50.62
	Female	743.56	16.27	1,835	49.27
	Non-Binary	--	--	3	0.08
	Not Specified	--	--	1	0.03
Grade	8	--	--	0	0.00
	9	740.94	16.91	587	15.76
	10	746.31	17.14	1,603	43.05
	11	738.76	16.49	1,007	27.04
	12	733.39	15.09	525	14.10
	Not Specified	--	--	2	0.05
Ethnicity	American Indian/Alaskan Native	--	--	10	0.27
	Asian	752.66	18.05	198	5.32
	Black or African American	733.97	15.98	1,051	28.22
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	6	0.16
	White	747.45	15.41	1,564	42.00
	Multi	--	--	0	0.00
	Not Specified	730.96	16.76	54	1.45
Econ. Dis.	Yes	--	--	0	0.00
	No	743.91	17.39	2,550	68.47
	Not Specified	--	--	0	0.00
Special Education	Yes	728.64	14.78	259	6.95
	No	742.50	17.20	3,062	82.22
	Exited	742.66	15.88	117	3.14
	Exited from 504	--	--	26	0.70
	504	742.90	16.21	260	6.98
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	728.15	11.17	190	5.10
	No	742.26	17.32	3,338	89.63
	Exited	743.17	16.05	196	5.26
	Not Specified	--	--	0	0.00

**Table G-10. Scaled Score Summary Statistics for MCAP Life Science MISA Winter Op. Core 3**

		Mean	SD	N	%
Overall	Overall	741.39	17.04	3,682	100.00
Gender	Male	739.94	17.77	1,854	50.35
	Female	742.88	16.16	1,825	49.57
	Non-Binary	--	--	3	0.08
	Not Specified	--	--	0	0.00
Grade	8	--	--	1	0.03
	9	739.92	17.94	601	16.32
	10	745.78	17.14	1,564	42.48
	11	738.64	15.94	1,012	27.49
	12	735.16	14.14	502	13.63
	Not Specified	--	--	2	0.05
Ethnicity	American Indian/Alaskan Native	--	--	11	0.30
	Asian	750.25	16.05	200	5.43
	Black or African American	734.16	15.83	1,061	28.82
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	8	0.22
	White	747.07	15.82	1,573	42.72
	Multi	--	--	0	0.00
	Not Specified	--	--	42	1.14
Econ. Dis.	Yes	--	--	0	0.00
	No	743.54	17.68	2,467	67.00
	Not Specified	--	--	0	0.00
Special Education	Yes	729.09	16.67	247	6.71
	No	742.20	16.67	3,025	82.16
	Exited	744.70	14.89	112	3.04
	Exited from 504	--	--	34	0.92
	504	741.66	18.09	264	7.17
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	727.08	14.09	208	5.65
	No	742.30	16.92	3,289	89.33
	Exited	741.41	15.01	185	5.02
	Not Specified	--	--	0	0.00

**Table G-11. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Accommodated Form**

		Mean	SD	N	%
Overall	Overall	728.41	12.90	602	100.00
Gender	Male	727.37	13.71	364	60.47
	Female	729.40	11.20	217	36.05
	Non-Binary	--	--	0	0.00
	Not Specified	--	--	0	0.00
Grade	8	--	--	8	1.33
	9	725.79	12.42	92	15.28
	10	729.23	12.89	211	35.05
	11	728.73	14.05	157	26.08
	12	727.47	11.44	111	18.44
	Not Specified	--	--	23	3.82
Ethnicity	American Indian/Alaskan Native	--	--	1	0.17
	Asian	--	--	13	2.16
	Black or African American	725.30	12.31	171	28.41
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	1	0.17
	White	731.02	12.69	186	30.90
	Multi	--	--	0	0.00
	Not Specified	--	--	21	3.49
Econ. Dis.	Yes	--	--	0	0.00
	No	730.11	13.51	296	49.17
	Not Specified	--	--	21	3.49
Special Education	Yes	727.50	13.30	422	70.10
	No	728.45	10.27	146	24.25
	Exited	--	--	4	0.66
	Exited from 504	--	--	2	0.33
	504	--	--	7	1.16
	Not Specified	--	--	21	3.49
English Learner (EL) Status	Yes	726.94	9.81	153	25.42
	No	728.62	13.33	403	66.94
	Exited	--	--	25	4.15
	Not Specified	--	--	21	3.49



**Table G-12. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Op. Core 1**

		Mean	SD	N	%
Overall	Overall	744.58	16.86	5,902	100.00
Gender	Male	742.76	17.38	2,948	49.95
	Female	746.38	16.14	2,947	49.93
	Non-Binary	--	--	3	0.05
	Not Specified	--	--	4	0.07
Grade	8	--	--	0	0.00
	9	746.32	17.12	3,500	59.30
	10	742.91	15.79	2,057	34.85
	11	739.08	18.11	263	4.46
	12	729.54	11.57	82	1.39
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	9	0.15
	Asian	755.90	15.31	472	8.00
	Black or African American	737.56	15.57	1,754	29.72
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	16	0.27
	White	750.28	15.31	2,234	37.85
	Multi	--	--	0	0.00
	Not Specified	--	--	13	0.22
Econ. Dis.	Yes	--	--	0	0.00
	No	748.08	16.28	4,037	68.40
	Not Specified	--	--	0	0.00
Special Education	Yes	731.54	16.55	380	6.44
	No	745.66	16.51	4,906	83.12
	Exited	743.45	17.01	192	3.25
	Exited from 504	--	--	43	0.73
	504	744.57	16.25	381	6.46
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	728.31	12.33	314	5.32
	No	745.68	16.75	5,058	85.70
	Exited	743.70	15.21	530	8.98
	Not Specified	--	--	0	0.00

**Table G-13. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Op. Core 2**

		Mean	SD	N	%
Overall	Overall	743.91	17.46	5,901	100.00
Gender	Male	742.08	17.96	2,974	50.40
	Female	745.76	16.74	2,918	49.45
	Non-Binary	--	--	2	0.03
	Not Specified	--	--	7	0.12
Grade	8	--	--	0	0.00
	9	745.43	18.03	3,476	58.91
	10	742.57	15.98	2,070	35.08
	11	738.50	18.52	271	4.59
	12	731.60	13.43	84	1.42
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	10	0.17
	Asian	755.59	16.25	476	8.07
	Black or African American	737.03	16.67	1,816	30.77
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	0	0.00
	White	749.63	14.93	2,174	36.84
	Multi	--	--	0	0.00
	Not Specified	--	--	14	0.24
Econ. Dis.	Yes	--	--	0	0.00
	No	747.36	16.69	4,031	68.31
	Not Specified	--	--	0	0.00
Special Education	Yes	731.49	15.36	362	6.13
	No	744.94	17.40	4,951	83.90
	Exited	741.99	15.59	162	2.75
	Exited from 504	--	--	39	0.66
	504	742.83	16.52	387	6.56
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	725.66	16.67	330	5.59
	No	744.97	16.98	5,064	85.82
	Exited	745.30	16.13	507	8.59
	Not Specified	--	--	0	0.00

**Table G-14. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Op. Core 3**

		Mean	SD	N	%
Overall	Overall	744.04	17.68	5,896	100.00
Gender	Male	741.85	17.88	2,974	50.44
	Female	746.27	17.21	2,918	49.49
	Non-Binary	--	--	2	0.03
	Not Specified	--	--	2	0.03
Grade	8	--	--	0	0.00
	9	745.41	18.04	3,491	59.21
	10	743.01	16.72	2,034	34.50
	11	738.60	17.24	277	4.70
	12	731.49	16.29	94	1.59
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	15	0.25
	Asian	755.54	16.14	479	8.12
	Black or African American	737.55	16.56	1,854	31.45
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	11	0.19
	White	749.58	16.08	2,187	37.09
	Multi	--	--	0	0.00
	Not Specified	--	--	16	0.27
Econ. Dis.	Yes	--	--	0	0.00
	No	747.69	16.99	3,932	66.69
	Not Specified	--	--	0	0.00
Special Education	Yes	732.67	14.89	386	6.55
	No	745.01	17.61	4,938	83.75
	Exited	742.06	18.27	176	2.99
	Exited from 504	--	--	42	0.71
	504	744.31	17.03	354	6.00
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	726.53	16.02	329	5.58
	No	745.03	17.37	5,046	85.58
	Exited	745.48	15.81	521	8.84
	Not Specified	--	--	0	0.00

**Table G-15. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Op. Core 4**

		Mean	SD	N	%
Overall	Overall	743.72	17.86	5,887	100.00
Gender	Male	741.70	18.24	3,036	51.57
	Female	745.85	17.18	2,842	48.28
	Non-Binary	--	--	2	0.03
	Not Specified	--	--	7	0.12
Grade	8	--	--	0	0.00
	9	745.50	18.31	3,453	58.65
	10	741.82	16.60	2,090	35.50
	11	738.80	18.78	272	4.62
	12	731.78	13.87	72	1.22
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	20	0.34
	Asian	756.68	14.89	490	8.32
	Black or African American	736.88	16.69	1,801	30.59
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	8	0.14
	White	748.82	16.56	2,177	36.98
	Multi	--	--	0	0.00
	Not Specified	--	--	13	0.22
Econ. Dis.	Yes	--	--	0	0.00
	No	747.02	17.49	3,982	67.64
	Not Specified	--	--	0	0.00
Special Education	Yes	731.00	15.69	391	6.64
	No	744.81	17.63	4,922	83.61
	Exited	741.61	17.88	176	2.99
	Exited from 504	--	--	41	0.70
	504	744.19	18.04	357	6.06
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	725.84	14.68	323	5.49
	No	744.71	17.57	5,039	85.60
	Exited	745.16	16.63	525	8.92
	Not Specified	--	--	0	0.00

**Table G-16. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Op. Core 5**

		Mean	SD	N	%
Overall	Overall	744.04	16.73	5,881	100.00
Gender	Male	742.11	16.94	2,913	49.53
	Female	745.92	16.31	2,965	50.42
	Non-Binary	--	--	0	0.00
	Not Specified	--	--	3	0.05
Grade	8	--	--	0	0.00
	9	745.96	16.96	3,451	58.68
	10	742.13	15.80	2,060	35.03
	11	738.33	16.92	277	4.71
	12	731.69	13.60	93	1.58
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	23	0.39
	Asian	756.04	14.28	506	8.60
	Black or African American	737.83	15.50	1,827	31.07
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	13	0.22
	White	748.92	15.39	2,118	36.01
	Multi	--	--	0	0.00
	Not Specified	--	--	12	0.20
Econ. Dis.	Yes	--	--	0	0.00
	No	747.29	16.29	4,016	68.29
	Not Specified	--	--	0	0.00
Special Education	Yes	731.34	13.96	377	6.41
	No	745.12	16.50	4,883	83.03
	Exited	741.58	16.95	210	3.57
	Exited from 504	--	--	36	0.61
	504	744.36	16.71	375	6.38
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	728.21	13.57	326	5.54
	No	744.90	16.57	5,008	85.16
	Exited	745.59	15.05	547	9.30
	Not Specified	--	--	0	0.00

**Table G-17. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Op. Core 6**

		Mean	SD	N	%
Overall	Overall	743.96	17.04	5,871	100.00
Gender	Male	742.26	17.41	2,920	49.74
	Female	745.61	16.51	2,943	50.13
	Non-Binary	--	--	3	0.05
	Not Specified	--	--	5	0.09
Grade	8	--	--	0	0.00
	9	745.74	17.57	3,439	58.58
	10	742.25	15.62	2,097	35.72
	11	737.83	17.95	259	4.41
	12	731.26	11.87	76	1.29
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	17	0.29
	Asian	756.26	14.80	487	8.30
	Black or African American	737.42	16.43	1,803	30.71
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	8	0.14
	White	749.25	15.18	2,190	37.30
	Multi	--	--	0	0.00
	Not Specified	--	--	10	0.17
Econ. Dis.	Yes	--	--	0	0.00
	No	747.67	16.23	3,974	67.69
	Not Specified	--	--	0	0.00
Special Education	Yes	731.16	14.32	384	6.54
	No	744.98	16.94	4,904	83.53
	Exited	743.60	15.36	197	3.36
	Exited from 504	743.41	13.23	51	0.87
	504	743.93	17.01	335	5.71
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	726.14	13.63	324	5.52
	No	744.96	16.82	5,057	86.14
	Exited	745.39	14.71	490	8.35
	Not Specified	--	--	0	0.00

**Table G-18. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Op. Core 7**

		Mean	SD	N	%
Overall	Overall	744.02	17.12	5,869	100.00
Gender	Male	741.89	17.71	2,947	50.21
	Female	746.15	16.23	2,919	49.74
	Non-Binary	--	--	0	0.00
	Not Specified	--	--	3	0.05
Grade	8	--	--	0	0.00
	9	746.05	17.27	3,446	58.72
	10	742.04	16.02	2,042	34.79
	11	737.69	18.72	277	4.72
	12	732.15	15.10	104	1.77
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	21	0.36
	Asian	756.78	15.08	486	8.28
	Black or African American	737.28	15.76	1,834	31.25
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	7	0.12
	White	748.80	16.05	2,192	37.35
	Multi	--	--	0	0.00
	Not Specified	--	--	13	0.22
Econ. Dis.	Yes	--	--	0	0.00
	No	747.17	16.67	4,003	68.21
	Not Specified	--	--	0	0.00
Special Education	Yes	731.18	17.23	377	6.42
	No	745.22	16.70	4,862	82.84
	Exited	741.60	15.86	207	3.53
	Exited from 504	--	--	44	0.75
	504	742.56	18.02	379	6.46
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	729.12	13.91	303	5.16
	No	744.77	17.15	5,063	86.27
	Exited	745.42	14.24	503	8.57
	Not Specified	--	--	0	0.00

**Table G-19. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Op. Core 8**

		Mean	SD	N	%
Overall	Overall	743.54	17.55	5,860	100.00
Gender	Male	742.06	18.34	2,941	50.19
	Female	745.02	16.58	2,911	49.68
	Non-Binary	--	--	3	0.05
	Not Specified	--	--	5	0.09
Grade	8	--	--	0	0.00
	9	745.34	17.45	3,406	58.12
	10	742.00	16.87	2,094	35.73
	11	737.17	20.45	272	4.64
	12	730.03	12.80	88	1.50
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	7	0.12
	Asian	756.28	15.04	497	8.48
	Black or African American	737.23	16.33	1,864	31.81
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	8	0.14
	White	748.53	16.81	2,130	36.35
	Multi	--	--	0	0.00
	Not Specified	--	--	18	0.31
Econ. Dis.	Yes	--	--	0	0.00
	No	746.93	16.98	3,961	67.59
	Not Specified	--	--	0	0.00
Special Education	Yes	730.58	16.07	397	6.77
	No	744.77	17.14	4,880	83.28
	Exited	742.88	17.21	161	2.75
	Exited from 504	--	--	47	0.80
	504	742.24	18.51	375	6.40
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	728.43	12.16	331	5.65
	No	744.45	17.57	5,008	85.46
	Exited	744.35	15.78	521	8.89
	Not Specified	--	--	0	0.00



**Table G-20. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Op. Core 9**

		Mean	SD	N	%
Overall	Overall	743.73	17.11	5,850	100.00
Gender	Male	742.25	17.48	2,941	50.27
	Female	745.21	16.59	2,902	49.61
	Non-Binary	--	--	3	0.05
	Not Specified	--	--	4	0.07
Grade	8	--	--	0	0.00
	9	745.20	17.87	3,402	58.15
	10	742.45	15.64	2,084	35.62
	11	738.53	16.63	274	4.68
	12	733.43	12.22	90	1.54
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	21	0.36
	Asian	755.99	14.74	497	8.50
	Black or African American	737.35	16.29	1,850	31.62
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	7	0.12
	White	749.02	15.41	2,104	35.97
	Multi	--	--	0	0.00
	Not Specified	--	--	17	0.29
Econ. Dis.	Yes	--	--	0	0.00
	No	747.07	16.38	3,995	68.29
	Not Specified	--	--	0	0.00
Special Education	Yes	732.46	15.59	357	6.10
	No	744.73	16.74	4,866	83.18
	Exited	741.64	18.34	209	3.57
	Exited from 504	--	--	39	0.67
	504	742.80	17.97	379	6.48
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	728.09	12.69	315	5.38
	No	744.68	16.95	5,018	85.78
	Exited	744.08	16.34	517	8.84
	Not Specified	--	--	0	0.00

**Table G-21. Scaled Score Summary Statistics for MCAP Life Science MISA Spring Accommodated Form**

		Mean	SD	N	%
Overall	Overall	728.31	12.69	2,951	100.00
Gender	Male	727.27	12.72	1,763	59.74
	Female	729.27	12.04	1,109	37.58
	Non-Binary	--	--	2	0.07
	Not Specified	--	--	0	0.00
Grade	8	--	--	0	0.00
	9	728.06	13.03	1,502	50.90
	10	728.60	12.11	1,089	36.90
	11	725.23	11.16	200	6.78
	12	727.18	9.32	83	2.81
	Not Specified	738.14	15.90	77	2.61
Ethnicity	American Indian/Alaskan Native	--	--	6	0.20
	Asian	734.84	12.10	103	3.49
	Black or African American	726.31	12.72	939	31.82
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	4	0.14
	White	732.10	12.20	555	18.81
	Multi	--	--	0	0.00
	Not Specified	734.33	15.83	101	3.42
Econ. Dis.	Yes	--	--	0	0.00
	No	729.18	12.93	1,393	47.20
	Not Specified	738.14	15.90	77	2.61
Special Education	Yes	728.10	12.20	2,011	68.15
	No	726.92	12.05	792	26.84
	Exited	--	--	7	0.24
	Exited from 504	--	--	10	0.34
	504	741.11	16.00	54	1.83
	Not Specified	738.14	15.90	77	2.61
English Learner (EL) Status	Yes	727.11	11.74	1,128	38.22
	No	728.35	12.87	1,656	56.12
	Exited	734.11	12.71	90	3.05
	Not Specified	738.14	15.90	77	2.61

**Table G-22. Scaled Score Summary Statistics for MCAP Life Science MISA Summer Op. Core 1**

		Mean	SD	N	%
Overall	Overall	734.13	15.37	249	100.00
Gender	Male	732.64	15.34	143	57.43
	Female	736.15	15.25	106	42.57
	Non-Binary	--	--	0	0.00
	Not Specified	--	--	0	0.00
Grade	8	--	--	12	4.82
	9	731.80	13.02	91	36.55
	10	734.43	13.13	60	24.10
	11	--	--	33	13.25
	12	732.72	11.12	53	21.29
	Not Specified	--	--	0	0.00
Ethnicity	American Indian/Alaskan Native	--	--	2	0.80
	Asian	--	--	12	4.82
	Black or African American	731.71	12.67	132	53.01
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	1	0.40
	White	--	--	42	16.87
	Multi	--	--	0	0.00
	Not Specified	--	--	4	1.61
Econ. Dis.	Yes	--	--	0	0.00
	No	736.28	18.60	107	42.97
	Not Specified	--	--	0	0.00
Special Education	Yes	--	--	25	10.04
	No	735.55	15.61	203	81.53
	Exited	--	--	7	2.81
	Exited from 504	--	--	3	1.20
	504	--	--	11	4.42
	Not Specified	--	--	0	0.00
English Learner (EL) Status	Yes	--	--	10	4.02
	No	734.36	15.67	235	94.38
	Exited	--	--	4	1.61
	Not Specified	--	--	0	0.00

**Table G-23. Scaled Score Summary Statistics for MCAP Life Science MISA Summer Accommodated Form**

		Mean	SD	N	%
Overall	Overall	--	--	16	100.00
Gender	Male	--	--	7	43.75
	Female	--	--	8	50.00
	Non-Binary	--	--	0	0.00
	Not Specified	--	--	0	0.00
Grade	8	--	--	0	0.00
	9	--	--	6	37.50
	10	--	--	4	25.00
	11	--	--	1	6.25
	12	--	--	4	25.00
	Not Specified	--	--	1	6.25
Ethnicity	American Indian/Alaskan Native	--	--	0	0.00
	Asian	--	--	1	6.25
	Black or African American	--	--	5	31.25
	Hispanic/Latino Ethnicity	--	--	0	0.00
	Native Hawaiian or Other Pacific Islander	--	--	0	0.00
	White	--	--	1	6.25
	Multi	--	--	0	0.00
	Not Specified	--	--	1	6.25
Econ. Dis.	Yes	--	--	0	0.00
	No	--	--	4	25.00
	Not Specified	--	--	1	6.25
Special Education	Yes	--	--	10	62.50
	No	--	--	5	31.25
	Exited	--	--	0	0.00
	Exited from 504	--	--	0	0.00
	504	--	--	0	0.00
	Not Specified	--	--	1	6.25
English Learner (EL) Status	Yes	--	--	6	37.50
	No	--	--	9	56.25
	Exited	--	--	0	0.00
	Not Specified	--	--	1	6.25

# Appendix H. Demographic Information

**Table H-1. Demographic Information for Winter 2022 MCAP Government**

<b>Group</b>	<b>Subgroup</b>	<b>N</b>	<b>Percent</b>
Overall		7,393	100.00
Gender	Male	3,922	53.05
	Female	3,451	46.68
	Non-Binary	3	0.04
	Not Specified	17	0.23
Grade	8	0	0.00
	9	1,874	25.35
	10	3,719	50.30
	11	797	10.78
	12	986	13.34
	Not Specified	17	0.23
Ethnicity	American Indian/Alaskan Native	21	0.28
	Asian	227	3.07
	Black or African American	1,895	25.63
	Hispanic/Latino Ethnicity	1,022	13.82
	Native Hawaiian or Other Pacific Islander	12	0.16
	White	3,257	44.06
	Multi	832	11.25
	Not Specified	127	1.72
Econ. Dis.	Yes	2,672	36.14
	No	4,704	63.63
	Not Specified	17	0.23
Special Education	Yes	806	10.90
	No	5,857	79.22
	Exited	206	2.79
	Exited from 504	39	0.53
	504	468	6.33
	Not Specified	17	0.23
English Learner (EL) Status	Yes	533	7.21
	No	6,584	89.06
	Exited	259	3.50
	Not Specified	17	0.23

**Table H-2. Demographic Information for Spring 2022 MCAP Government**

<b>Group</b>	<b>Subgroup</b>	<b>N</b>	<b>Percent</b>
Overall		53,327	100.00
Gender	Male	27,750	52.04
	Female	25,453	47.73
	Non-Binary	16	0.03
	Not Specified	108	0.20
Grade	8	0	0.00
	9	20,678	38.78
	10	28,646	53.72
	11	2,572	4.82
	12	1,352	2.54
	Not Specified	79	0.15
Ethnicity	American Indian/Alaskan Native	113	0.21
	Asian	3,118	5.85
	Black or African American	18,809	35.27
	Hispanic/Latino Ethnicity	8,102	15.19
	Native Hawaiian or Other Pacific Islander	90	0.17
	White	16,749	31.41
	Multi	5,896	11.06
	Not Specified	450	0.84
Econ. Dis.	Yes	19,478	36.53
	No	33,771	63.33
	Not Specified	78	0.15
Special Education	Yes	5,722	10.73
	No	42,584	79.85
	Exited	1,583	2.97
	Exited from 504	353	0.66
	504	3,007	5.64
	Not Specified	78	0.15
English Learner (EL) Status	Yes	4,645	8.71
	No	45,025	84.43
	Exited	3,579	6.71
	Not Specified	78	0.15

**Table H-3. Demographic Information for Summer 2022 MCAP Government**

<b>Group</b>	<b>Subgroup</b>	<b>N</b>	<b>Percent</b>
Overall		443	100.00
Gender	Male	237	53.50
	Female	205	46.28
	Non-Binary	1	0.23
	Not Specified	0	0.00
Grade	8	0	0.00
	9	108	24.38
	10	171	38.60
	11	80	18.06
	12	84	18.96
	Not Specified	0	0.00
Ethnicity	American Indian/Alaskan Native	0	0.00
	Asian	6	1.35
	Black or African American	288	65.01
	Hispanic/Latino Ethnicity	63	14.22
	Native Hawaiian or Other Pacific Islander	1	0.23
	White	47	10.61
	Multi	32	7.22
	Not Specified	6	1.35
Econ. Dis.	Yes	232	52.37
	No	211	47.63
	Not Specified	0	0.00
Special Education	Yes	70	15.80
	No	333	75.17
	Exited	15	3.39
	Exited from 504	1	0.23
	504	24	5.42
	Not Specified	0	0.00
English Learner (EL) Status	Yes	38	8.58
	No	396	89.39
	Exited	9	2.03
	Not Specified	0	0.00



**Table H-4. Demographic Information for Winter 2022 MCAP Life Science MISA**

<b>Group</b>	<b>Subgroup</b>	<b>N</b>	<b>Percent</b>
Overall		11,701	100.00
Gender	Male	6,014	51.40
	Female	5,657	48.35
	Non-Binary	8	0.07
	Not Specified	22	0.19
Grade	8	11	0.09
	9	1,866	15.95
	10	4,959	42.38
	11	3,193	27.29
	12	1,643	14.04
	Not Specified	29	0.25
Ethnicity	American Indian/Alaskan Native	33	0.28
	Asian	609	5.20
	Black or African American	3,321	28.38
	Hispanic/Latino Ethnicity	1,462	12.49
	Native Hawaiian or Other Pacific Islander	19	0.16
	White	4,865	41.58
	Multi	1,221	10.44
	Not Specified	171	1.46
Econ. Dis.	Yes	0	0.00
	No	7,857	67.15
	Not Specified	21	0.18
Special Education	Yes	1,198	10.24
	No	9,275	79.27
	Exited	341	2.91
	Exited from 504	84	0.72
	504	782	6.68
	Not Specified	21	0.18
English Learner (EL) Status	Yes	744	6.36
	No	10,317	88.17
	Exited	619	5.29
	Not Specified	21	0.18

**Table H-5. Demographic Information for Spring 2022 MCAP Life Science MISA**

<b>Group</b>	<b>Subgroup</b>	<b>N</b>	<b>Percent</b>
Overall		55,868	100.00
Gender	Male	28,357	50.76
	Female	27,374	49.00
	Non-Binary	20	0.04
	Not Specified	117	0.21
Grade	8	0	0.00
	9	32,566	58.29
	10	19,717	35.29
	11	2,642	4.73
	12	866	1.55
	Not Specified	77	0.14
Ethnicity	American Indian/Alaskan Native	149	0.27
	Asian	4,493	8.04
	Black or African American	17,342	31.04
	Hispanic/Latino Ethnicity	6,860	12.28
	Native Hawaiian or Other Pacific Islander	82	0.15
	White	20,061	35.91
	Multi	6,654	11.91
	Not Specified	227	0.41
Econ. Dis.	Yes	0	0.00
	No	37,324	66.81
	Not Specified	77	0.14
Special Education	Yes	5,422	9.71
	No	44,904	80.38
	Exited	1,697	3.04
	Exited from 504	392	0.70
	504	3,376	6.04
	Not Specified	77	0.14
English Learner (EL) Status	Yes	4,023	7.20
	No	47,017	84.16
	Exited	4,751	8.50
	Not Specified	77	0.14

**Table H-6. Demographic Information for Summer 2022 MCAP Life Science MISA**

<b>Group</b>	<b>Subgroup</b>	<b>N</b>	<b>Percent</b>
Overall		265	100.00
Gender	Male	150	56.60
	Female	114	43.02
	Non-Binary	0	0.00
	Not Specified	1	0.38
Grade	8	12	4.53
	9	97	36.60
	10	64	24.15
	11	34	12.83
	12	57	21.51
	Not Specified	1	0.38
Ethnicity	American Indian/Alaskan Native	2	0.75
	Asian	13	4.91
	Black or African American	137	51.70
	Hispanic/Latino Ethnicity	38	14.34
	Native Hawaiian or Other Pacific Islander	1	0.38
	White	43	16.23
	Multi	26	9.81
	Not Specified	5	1.89
Econ. Dis.	Yes	0	0.00
	No	111	41.89
	Not Specified	1	0.38
Special Education	Yes	35	13.21
	No	208	78.49
	Exited	7	2.64
	Exited from 504	3	1.13
	504	11	4.15
	Not Specified	1	0.38
English Learner (EL) Status	Yes	16	6.04
	No	244	92.08
	Exited	4	1.51
	Not Specified	1	0.38