Pearson

2017 Maryland Integrated Science Assessment: Standalone Field Test Technical Report

October 10, 2019

Prepared for the Maryland State Department of Education
Psychometrics & Testing Services
Pearson

2017 Maryland Integrated Student Assessment: Standalone Field Test Technical Report

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Introduction

In keeping with their aim of preparing their students in science literacy and STEM, the Maryland State Board of Education adopted the *Next Generation Science Standards* (NGSS) in June 2013 to replace the *Maryland State Curriculum: Science*.

The transition from the old set of standards to the new ones has required Maryland to change the measurement targets, test designs, items, and test administration conditions of their assessment system in order to accommodate the NGSS design. Development for the new test – called the Maryland Integrated Science Assessment (MISA) – began in fall 2015 and the items developed underwent content, bias, and sensitivity reviews during the summer of 2016.

In order develop the items necessary for the MISA program, a standalone field test (SAFT) was held March 13–31, 2017 with the purposes of

- Determining the psychometric characteristics of the items and items sets that had been developed up till then;
- Using the statistics to guide the construction of the first statewide operational MISA test forms that will be administered to all 5^{th} and 8^{th} grade students in spring 2018; and
- Beginning a preliminary investigation of the reliability and validity of the MISA test design based on the SAFT.

This document reports on the results of the 2017 SAFT. First, we provide an overview the MISA assessment design.

Next we describe the SAFT administration procedures, including the accessibility and accommodations that were field-tested in order to examine their effectiveness.

MISA Test Development

The Next Generation Science Standards

MISA was designed to align with the Next Generation Science Standards. The NGSS framework is based on a view of science as both a body of knowledge, and an evidence-based model and theory building enterprise. It defines *performance expectations* in science via three dimensions.

First, *scientific and engineering practices* (SEP) describe behaviors that scientists engage in as they investigate and build models and theories about the natural world, as well as the key set of practices that engineers use as they design and build models and systems.

Next, *crosscutting concepts* describe concepts that bridge disciplinary boundaries, having explanatory value throughout much of science and engineering. These crosscutting concepts have application across all domains of science and are a way of linking the different domains of science. These include:

- Patterns;
- Cause and Effect;
- Scale, Proportion and Quantity;
- Systems and System Models;
- Energy and Matter: Flows, Cycles, and Conservation;
- Structure and Function; and
- Stability and Change.

In science instruction, these concepts need to be made explicit for students because they provide an organizational schema for interrelating knowledge from various science fields into a coherent and scientifically-based view of the world.

Finally, *disciplinary core ideas* (DCI) have the power to focus K–12 science curriculum, instruction, and assessments on the most important aspects of science. To be considered core, the ideas met at least two of the following criteria and ideally all four:

1. Have **broad importance** across multiple sciences or engineering disciplines or be a key organizing concept of a single discipline;
2. Provide a **key tool** for understanding or investigating more complex ideas and solving problems;
3. Relate to the **interests and life experiences of students** or be connected to societal or personal concerns that require scientific or technological knowledge;
4. Be teachable and learnable over multiple grades at increasing levels of depth and sophistication.

Disciplinary ideas are grouped in four major domains: *physical sciences*; the *life sciences*; the *earth and space sciences*; and *engineering, technology and applications of science*.

Performance Expectations and Evidence Statements, Types, and Families

The focus of the MISA test development was to create sets of items that were related to a stimulus (phenomenon) and aligned to one or more of the NGSS performance expectations (PEs), and use them to elicit evidence of student achievement with respect to the standards.

PEs provide descriptions of what students should be able to do by the end of instruction for a given grade level or grade band. They are designed "to gather evidence of students' ability to apply the practices and their understanding of the crosscutting concepts in the contexts of specific applications in multiple disciplinary areas." (National Research Council, 2012, p. 218).

In an effort to describe more specifically what proficient student performance of the PEs would look like, *evidence statements* were developed for every PE in every grade level. These were intended to provide clear, measurable components that, if met, would satisfy each PE described within the NGSS (NGSS, 2015). Together, performance expectations and evidence statements were used to guide the development of the MISA tests and add to the framework of reporting MISA results to students, teachers, and others. The performance expectations that are assessed on MISA at each grade level are shown in Tables 1 and 2 below.

Table 1. MISA Grade 5 Performance Expectations

Earth & Space Science	Life Science	Physical Science
3-ESS2-1	3-LS1-1	3-PS2-1
3-ESS2-2	3-LS2-1	3-PS2-2
3-ESS3-1	3-LS3-1	3-PS2-3
4-ESS1-1	3-LS3-2	3-PS2-4
4-ESS2-1	3-LS4-1	4-PS3-1
4-ESS2-2	3-LS4-2	4-PS3-2
4-ESS3-1	3-LS4-3	4-PS3-3
4-ESS3-2	3-LS4-4	4-PS3-4
5-ESS1-1	4-LS1-1	4-PS4-1
5-ESS1-2	4-LS1-2	4-PS4-2
5-ESS2-1	5-LS1-1	4-PS4-3
5-ESS2-2	5-LS2-1	5-PS1-1
5-ESS3-1		5-PS1-2
		5-PS1-3
		5-PS1-4
		5-PS2-1
		5-PS3-1

Table 2. MISA Grade 8 Performance Expectations

Earth & Space Science	Life Science	Physical Science
MS-ESS1-1	MS-LS1-1	MS-PS1-1
MS-ESS1-2	MS-LS1-3	MS-PS1-2
MS-ESS1-3	MS-LS1-4	MS-PS1-4
MS-ESS1-4	MS-LS1-5	MS-PS1-5
MS-ESS2-2	MS-LS1-6	MS-PS1-6
MS-ESS2-3	MS-LS1-7	MS-PS2-1
MS-ESS2-4	MS-LS2-1	MS-PS2-3
MS-ESS2-5	MS-LS2-2	MS-PS2-4
MS-ESS2-6	MS-LS2-3	MS-PS2-5
MS-ESS3-1	MS-LS3-2	MS-PS3-1
MS-ESS3-2	MS-LS4-1	MS-PS3-2
MS-ESS3-3	MS-LS4-2	MS-PS3-3
MS-ESS3-4	MS-LS4-3	MS-PS3-4
MS-ESS3-5	MS-LS4-4	MS-PS3-5
	MS-LS4-5	MS-PS4-1
	MS-LS4-6	

While the granularity of the evidence statements for PEs was appropriate in focusing MISA item set development, it was decided that for scoring, reporting, and using MISA for instruction, it would be more useful if evidence statements could be aggregated at a higher level.

This aggregation was done by first extracting from the NGSS the headings that were used to group together the evidence statements for each content domain and performance expectation. These headings – now labelled *evidence types* – were reviewed by Pearson and MSDE, and then aggregated into clusters of headings for similar kinds of evidence. For example, the evidence types of collecting and organizing data, identifying relationships, and interpreting data were grouped together to form the cluster - or *evidence family* – of data and information.

The evidence families and the evidence types within them are shown in Table 3.

Table 3. MISA Evidence Family Categories

Evidence Family	Evidence Types
Data and information	Collecting and organizing data; identifying relationships; interpreting data
Claims and evidence	Identifying, evaluating, and critiquing evidence; supporting claims
Reasoning	Reasoning and synthesis
Phenomena	Addressing phenomena of the natural world; identifying the phenomenon under investigation; articulating the explanation of a phenomenon
Design solutions and constraints	Using scientific knowledge to generate design solutions; describing criteria and constraints; evaluating potential solutions; modifying the design solution;
Model components, relationships, and connections	Components of the model and their connections and relationships
Representations and analysis	Representations; mathematical modeling and computational analysis
Investigations	Identifying the scientific nature the question; identifying the evidence to address the purpose of the investigation; planning the investigation

MISA Test Design

The SAFT was designed from the onset to mirror as closely as possible the design of the operational tests that are planned for the 2018 MISA administration.

The MISA tests consist of *item sets,* where each item set is based on a *stimulus* (i.e., a scientific phenomenon) with six selected response (SR), technology enhanced (TE), and constructed response (CR) items. Students are administered 11 item sets which are presented to them in four testing sessions call *units*.

For the 2017 MISA *standalone field test*, Units 1, 2, and 3 each contained three item sets for a total of nine item sets (54 items). Unit 4 consisted of two item sets (12 items), with one of them being a simulation. The entire test thus consisted of 66 items.

For the 2018 MISA *operational test*s, the item sets in Units 1, 2, and 3 part of the *core forms* (or *cores*), and will be used to produce individual student scores. Each core form will consist of six item sets that are *unique* to that form, and three item sets that are *common* across two forms that will be used as equating links between the core forms.

Unit 4 in the operational test will contain a combination of two item sets. For some students, this will be one of three different *matrixed item sets* and one *field test item set*, while other students will take two field test sets.

The matrixed item sets will be used to provide additional content coverage for the reporting of school-level and above scores. The field test item sets will be used to pilot new core or matrixed item sets for inclusion on future MISA forms.

The following notes provide additional details regarding the composition of the Units on the MISA test:

Design of Units 1, 2, and 3

- Units 1, 2, and 3 are the core forms that are used to produce individual student scores
- Each Unit will contain three item sets – one from each Domain (Life Science, Earth Space Science, Physical Science)
- Each item set will contain six items and each Unit will thus have 18 items
- Each item set will contain one CR item
- Two of the item sets will contain a 3-point CR item
- The third item set will contain a 2-point CR item
- The remaining five items within an item set will consist of 1-point SR or TE items

Design of Unit 4

- Unit 4 is employed in two ways, either for adding a matrixed item set for producing school level scores, or for field-testing new core and matrixed item sets
- Some versions of Unit 4 will contain one of three different operational matrixed item sets – one for each Domain – and a field test item set
- The matrixed item set will contain a simulation and one 4-point CR item and five 1-point SR items
- The field test item set will consist of either a 2- or 3-point CR item and five 1-point SR or TE items
- Other versions of Unit 4 will consist of two field test item sets, each with either a 2- or 3-point CR item and five 1-point SR or TE items

Item and Stimulus Development

Items and stimuli for the 2017 standalone field test were developed through externally hired professional item writers. These item writers were recruited and trained in late 2016 and early 2017. Training was facilitated by Pearson assessment specialists and included instruction on the MISA test design, NGSS standards, selection of technical passages, creation of effective and authentic stimuli, and characteristics of the MISA item formats (selected response, multiple response, technology enhanced, and constructed response). Additionally, item writers are given style information, item delivery schedules, and content resource suggestions.

Once the items and stimuli were created and submitted, they were reviewed by Pearson assessment specialists. Items were reviewed according to well-defined criteria that will be approved by MSDE staff. Item writers were provided feedback on items that were rejected due to not meeting the criteria for quality or required major revision, and allowed to resubmit. Once accepted, items and stimuli were vetted through the internal Pearson item development process. The following diagram depicts the overall item and stimulus development workflow.

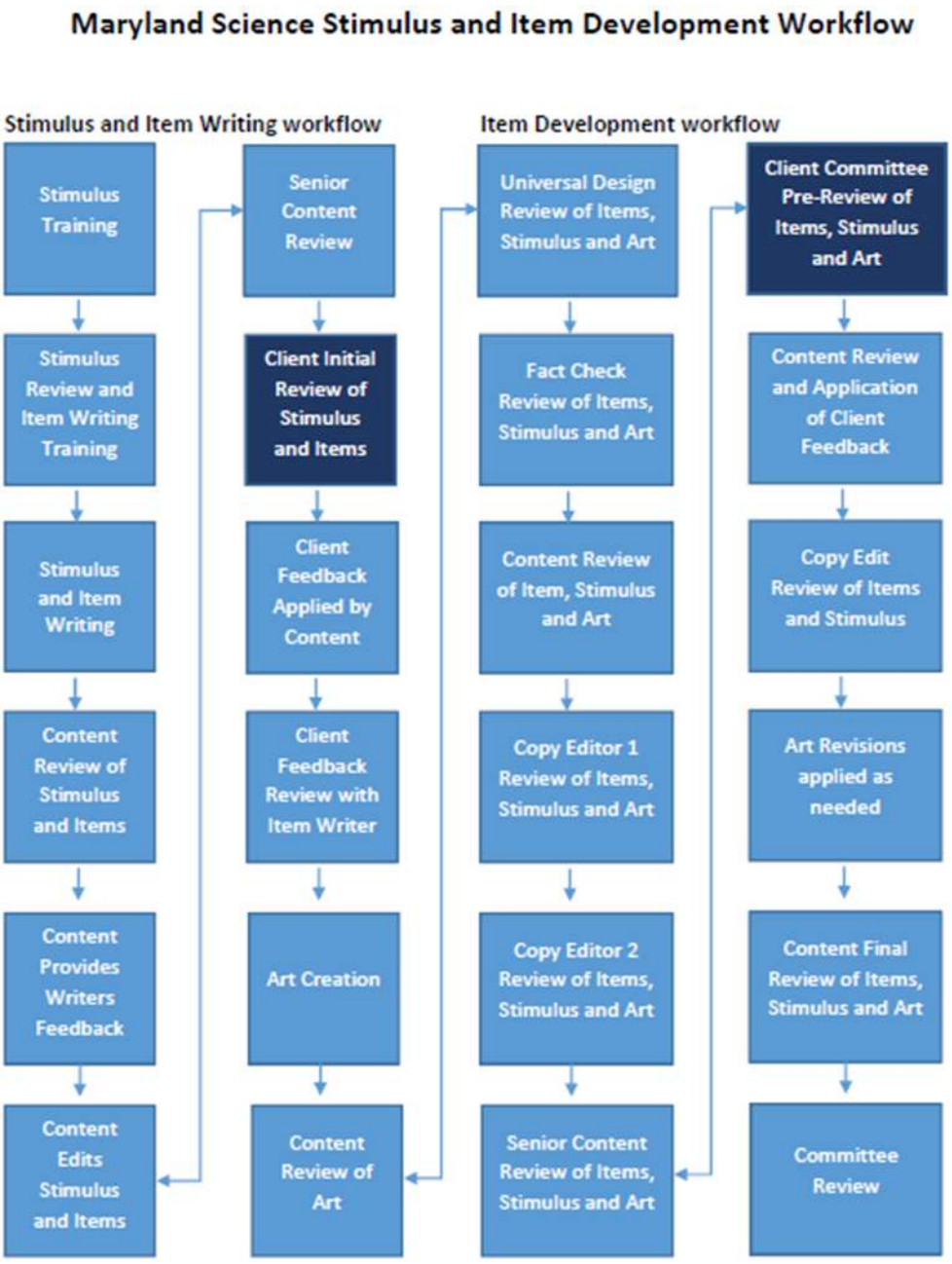

Figure 1. Maryland Science Stimulus and Item Development Workflow

Field Test Form Construction

Construction of field test forms focused on creation of six field test forms per grade which aligned to the test design (described earlier) and were created to be comparable to one another from an overall content standpoint. In order to ensure the survival of each item set, each were administered across multiple field test forms with different sets of items. This was done to ensure the survival of all stimulus based item sets.

Pearson Content Specialists and psychometricians worked jointly on the test builds. The content specialists selected the "best" item sets from a content perspective in order to meet the test design. Psychometrics reviewed and provided feedback until best final field test forms were resolved.

Several factors were considered when assigning item sets to forms:

- Cueing/Clueing – make sure field-test items do not clue the answer to other field test items on the form OR any of the operational items
- The numbers of 2-point and 3-point items
- The distribution of keys and the number of SRs having the same key placed adjacent to one another.
- Passage difficulty/Reading Load
- Desire a mix of passage difficulties and lengths on a given form.
- Desire a range of difficulty overall and by domain
- The type of items represented on each form
- Try to include a mix of item types on each form (in particular SR/TEIs).

Field Test Administration

The overall test window for MISA field test was established by MSDE. Each Local Education Agency (LEA) set a specific schedule for administration of MISA within the testing window for its district. Each LEA submitted a schedule of their paper testing dates to MSDE in advance for approval by the state. For each given grade level (grade 5 or 8), all testing took place according to the state approved schedule established by each LEA.

The testing schedule allowed for approximately 60 minutes for each testing Unit (excluding preparation time). Testing was scheduled to allow for the completion of applicable Units each day. Extra consideration was given to scheduling test administrations for students who receive the extended time accommodation to ensure enough time is available to complete the started Unit tested that day. The MISA field test consists of four Units. Units could be tested over the course of four days, or multiple Units could be tested in a day; however, it was recommended that no more than two Units be tested on the same day.

For the MISA field test, the testing schedule was as follows:

- Test Materials arrive in Schools February 23–27, 2017
- Paper Test Window March 13–24, 2017
- Online Test Window March 13–31, 2017

Test Formats

Each set of items, within a Unit, consists of Selected Response (SR), Constructed Response (CR) items, and Technology Enhanced (TE) items (online only), based on shared stimuli. The online version of the test also includes interactive stimuli and may also contain videos.

For the paper version of MISA, each student used a Test Book containing all test items and response areas. Since the Test Books will be scanned for scoring, students could not use a highlighter or make stray marks in any part of the Book or tamper with the barcode on the label. In addition, for CR items, students could write their responses within the boxed area only. Responses written outside the boxed area were not scored.

Preprinted student ID labels were used for most students participating in the paper test administration. Students and staff could not write on or tamper in any way with the student barcode label. The barcode on the labels contained encoding which links the Test Book to a specific student.

Testing Accommodations

Testing accommodations for students with disabilities (i.e., students having an Individualized Education Program [IEP] or a 504 Plan) or students who are English Learners (EL) (i.e., students who have an EL Plan) had to be approved and documented according to the procedures and requirements outlined in the document entitled Maryland Accommodations Manual: Selecting, Administering, and Evaluating the Use of Accommodations for Instruction and Assessment (MAM). No accommodations could be made for students merely because they are members of an instructional group. Any accommodation had to be based on individual need documented in the student's IEP—not on a category of disability area, level of instruction, environment, or other group characteristics. Responsibility for confirming the need and appropriateness of an accommodation rested with the LAC and school-based staff involved with each student's instructional program. A master list of all students and their accommodations had to be maintained by the Principal and submitted to the LAC, who will provide a copy to MSDE upon request.

Large Print and Braille Test Books, and Transcription

MISA was administered to students requiring Large Print and Braille Test Books. For Large Print Test Books and Braille Test Books, student responses had to be transcribed into the standard-size Test Book or TestNav after testing. The student's name, date of birth, LEA number, and school number were to be written on the Large Print or Braille Test Book for proper transcribing into the standard-size Test Book. An eligible TA transcribed the student's responses into a standard-size Test Book or into TestNav exactly as given by the student.

Verbatim Reading Accommodation, Read Aloud

Read aloud sessions and Text-to-Speech Tests on PearsonAccessNext Students who have a verbatim reading accommodation documented in their IEP, 504 Plan, or EL Plan and who receive that accommodation in regular instruction must receive the same accommodation on the MISA. The accommodation may be provided either by a human reader or through a Text-to-Speech test in TestNav. Note: Students with verbatim reading of selected sections are not eligible for the Text-to-Speech (TTS) testing format.

Online Verbatim Reading Accommodations

For those students that will take MISA online and receive a verbatim reading accommodation, the accommodation may be provided in one of two ways; either (1) by a human reader, individually or in a group (called a "Read Aloud" Session) or (2) by using TestNav to access a Text-to-Speech form.

For individual students who test online and receive an individual verbatim reading accommodation by a human reader, the individual providing the reading accommodation sits next to the student and reads the text which appears on the computer screen. Students who test online and receive their verbatim reading accommodation in a group need to be placed into a Read Aloud session in PearsonAccessNext. Placing students in the Read Aloud session allows all students in that session to be assigned the same test form and also allows the Test Administrator to receive a "Proctor Testing Ticket" Testing PearsonAccessNext. The Proctor Testing Ticket allows the TA to log in to TestNav and view the same test as the students in the Read Aloud session. The TA then reads the test aloud to the students.

Administrative Procedures for Students with IEP, 504 Plan, or EL Plan Permitting a Dictated Response or Use of a Word Processor

A student whose IEP, 504 Plan, or EL Plan permits a dictated response must have his/her responses transcribed at the school level by an eligible TA into the student's Test Book or into TestNav. A student whose IEP, 504 Plan, or EL Plan permits the use of a word processor must either take the test online via TestNav or have his or her responses transcribed by hand exactly as the student entered the responses on the word processor. After the student's responses have been transcribed, the memory of the word processor must be cleared. The original word processed printout must be returned to Pearson with the nonscorable materials.

Test Security

The following code of ethics conforms to the Standards for Educational and Psychological Testing developed by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education.

IT IS A BREACH OF PROFESSIONAL ETHICS FOR SCHOOL PERSONNEL TO PROVIDE VERBAL OR NONVERBAL CLUES OR ANSWERS, TEACH ITEMS ON THE TEST, SHARE WRITING PROMPTS, COACH, HINT, OR IN ANY WAY INFLUENCE A STUDENT'S PERFORMANCE DURING THE TESTING SITUATION. A BREACH OF ETHICS MAY RESULT IN INVALIDATION OF TEST RESULTS AND LOCAL EDUCATION AGENCY (LEA) OR MSDE DISCIPLINARY ACTION.

The student Test Books for MISA and online test versions are confidential and must be kept secure at all times. Unauthorized use, duplication, or reproduction of any or all portions of the assessment is prohibited.

VIOLATION OF SECURITY CAN RESULT IN PROSECUTION AND/OR PENALTIES AS IMPOSED BY THE MARYLAND STATE BOARD OF EDUCATION AND/OR THE STATE SUPERINTENDENT OF SCHOOLS IN ACCORDANCE WITH COMAR 13A.03.04 AND 13A.12.05.

TAs and anyone else with access to test materials must be aware of the consequences of test security violations and must sign a Test Administration and Certification of Training Form and Non-Disclosure Agreement, which is kept on file. Anyone handling test materials solely for clerical purposes must sign a Non-Disclosure Agreement, which is kept on file. These documents can be found in Appendix A, and on Avocet.

Administration Monitoring by MSDE

MSDE sent representatives to schools throughout the state to monitor and observe testing to ensure that standardized testing procedures are being followed. Schools were not be notified in advance of a monitor's visit. All monitors followed local procedures for reporting to the school's main office and signing the school's visitor log. Monitors also signed Non-Disclosure forms as requested by the school and provide a copy of a memorandum from the Assistant Superintendent for Accountability and Assessment giving authorization to monitor testing. LEAs who permitted central office personnel to make observations during Maryland State testing trained personnel on proper test security procedures and have all personnel sign a Non-Disclosure Agreement.

Scoring Procedures for the 2017 MISA Field Test

Rangefinding

Rangefinding is the activity of identifying student responses to define the range of performance levels within each score point on the rubric. Ultimately, the purpose is to arrive at consensus scores according to the standards established by the rubric so that training sets can be built that accurately reflect those standards

Pearson's scoring staff conducted rangefinding in Maryland, in the greater Baltimore metropolitan area. To help ensure that decisions remained consistent, there were four rangefinding committees, two for each grade. Each grade-level committee was comprised of one MSDE scoring or content facilitator, four to five Maryland educators, and two Pearson scoring directors. MSDE and Pearson began each week with a one hour Monday meeting with a brief review of the purpose of rangefinding and the rubric, as well as other documentation of standard evaluation criteria that would facilitate a common understanding of the standards and intentions of MSDE.

Overview of Rangefinding Process

Each rangefinding committee systematically reviewed the copies of student responses for the first item, determining and recording consensus scores. The goal was to reach consensus scores on a sufficient number of student responses to construct effective training materials for each item. These responses should accurately represent the range of student performance levels described in the rubrics, as interpreted by the committee members and MSDE.

The general process for review of rangefinding materials was as follows:

1. The item is introduced and the committee members may be encouraged to create a short response. A brief discussion may then be held to gain further insight into the prompt and possible student responses.
2. The committee then reviews the Set A responses that were selected by Pearson and MSDE as "grounding papers." These responses should reflect the entire range of scores and be

representative so that they may help the committee define the lines between score points. The first "grounding paper" reviewed with the committee should be a highest score point response.

3. The first set of responses is then assigned to all the attendees to read individually. The committee members read each response and assign scores on their copies of the matrix. The scoring directors will collect and record all committee members' scores on the consensus sheet/matrix before any discussion begins.
4. The committee will discuss each response so that scoring directors can take adequate notes for training purposes, but discussion will be more extensive on responses that do not have immediate consensus. The discussion should always refer to the rubric and all scores should be justified with the rubric in mind. A consensus score is reached by the teacher committee members. The scoring directors should note any discussion points during the review of each response.
5. Upon the completion of the first item, the process is repeated for subsequent items.

MSDE and Scoring Services staff will meet at the end of each day to:

1. Review and compare the scoring of items that measure the same objectives within and across grade levels to confirm the consistency of scoring.
2. Finalize consensus scores.
3. Discuss the committee work and any scoring issues from the day.
4. Sign and date the matrix (consensus sheet) to certify the scores are recorded accurately.

Scoring Training

Students' responses to *MC and TE* items were machine-scored, and their responses to *CR* items were individually read and scored by Pearson.

Using MSDE-approved training materials, Pearson scoring directors and supervisors trained readers to score the MISA. Scorers had to attend all training and prove they have internalized the project standards by qualifying on item-specific content. Only qualified readers were allowed to score the MISA.

Overview

All scorers completed training and qualifying in order to score the MISA. To maintain security of test items, student responses, data, and employees, the following safeguards were employed:

Supervisors and scorers for the MISA test were selected based on their ability to commit to the duration of the project and to the professional standards of scoring, including their willingness to complete the entire training program. Pearson strives to hire only scorers that have experience in elementary and/or middle school science. Regardless of previous experience or education, however, scorers are required to demonstrate an understanding of the scoring criteria and to meet the project's qualification standards (acceptable scores on qualifying sets).

1. The training includes the following information:
2. Overview of Pearson
3. Overview of Next Gen Science Standards
4. Overview of MISA

5. Reader Bias Training
6. Training goals and objectives
7. Item Training
8. Overview of how to use the ePEN2 scoring system

Supervisor Training

Prior to scorer training, scoring directors trained supervisors on the items their teams will score. Content training for supervisors followed the same steps as scorer training. Pearson gave all qualifying statistics for supervisors to MSDE. Scoring supervisors may not have completed training for all items in the upfront supervisor training window; however, supervisors were trained on each item prior to scorer training on the item.

Supervisors received training on backreading, providing feedback to scorers, scoring issue documentation, condition codes, resolution scoring, and scorer documentation. Supervisors also received training on the supervisor tools in the image-based scoring system.

Scorer Training

Twelve scoring directors trained one item per scoring group beginning. When scoring on an item was complete, scoring directors trained scorers on a new item. Scorers were required to qualify on each new item. Each scoring group scored 8 - 9 items.

The training process for each item consisted of the following materials:

1. Scoring Guide (which includes the MISA rubric, the item, item stimulus and/or technical passage [if applicable] for the constructed response items, the anchor set)
2. 2 practice sets
3. 3 qualifying sets

For both supervisor and scorer training, scorers began by reviewing the item training with the scoring director which included the anchors. Scorers then took the first practice set on paper assigning scores to these sample responses. Once all scorers completed the set, the scoring director reviewed the true scores for this practice set. The same process occurred for the second practice set. If scorer performance or discussion of practice sets indicated any need for more review or retraining with the Scoring Director, it occurred at that time. When scorers completed these practice sets, they moved on to qualification sets.

Finally, scorers completed the three qualification sets, each consisting of 10 student responses. Scoring directors and scoring supervisors monitored scorers' progress on each qualification set. If scorer performance on qualification set 1 indicated any need for review and discussion with the Scoring Director, it occurred at that time. The scores achieved on these qualification sets determined if a trainee has understood and can apply the scoring criteria. The chart below shows the qualification, provisional qualification, IRR, and Validity standards.

Item Type	Qualification (Ave. on 2 of 3 sets)	Provisional Qualification (Ave. on	IRR	Validity

		2 of 3 sets)		
SP 0-4	70%	65%	65%	65%
SP 0-3	80%	75%	70%	70%
SP 0-2	80%	75%	80%	80%

Table 4. Qualification, Provisional Qualification, IRR, and Validity standards

Scorers who qualified outright but had 60% or lower on any one set of the three were considered low qualifiers. Low qualifiers were coached by the supervisory staff and heavily backread. Provisional scorers could be allowed if the scorer meets the criteria above. MSDE had to approve all provisional scorers.

Qualified scorers received training on how to identify responses (alerts and condition codes) that need to be sent to scoring directors or scoring supervisors, as well as how to navigate and use the image-based scoring system. Training on the types of responses that may receive condition codes occurred after scorer qualification. Scorers were trained to recognize these types of responses and to forward them to supervisory staff. Scorers did not assign condition codes, except blanks.

Scoring directors are responsible for assigning condition codes. If necessary, scoring directors could assign selected scoring supervisors to assist in reviewing responses and assigning some condition codes. During scoring, scoring directors escalated any new issues about condition codes as quickly as possible to MSDE.

Scoring directors and project managers closely monitored the frequency distribution for condition codes and notified MSDE if the percentage of responses receiving condition codes was greater than anticipated.

Scorers who do not qualify outright or were not allowed to continue on a provisional basis will not be allowed to score on that MISA item. Scorers who did not qualify on two items were released from the project and reassigned to other projects when possible.

Quality management

The following section highlights the quality measures that scoring services staff took to ensure accurate scoring of the MISA field test items. The quality management processes detailed below was employed on the field test administration.

Backreading:

Backreading is one of the primary responsibilities of scoring directors and scoring supervisors and starts at the beginning of scoring. It is an immediate source of information on scoring accuracy. It alerts scoring directors and scoring supervisors to misconceptions at the team level, allowing them to quickly calibrate or retrain scorers. Backreading continues throughout the scoring of the project. Approximately five percent of the scored responses are reviewed through backreading. To help ensure that students receive accurate scores, scores assigned in the backreading queue override scores assigned in the first or second scoring queue.

Findings from backreading may result in any or all of the following:

- The supervisor clarifies the issue(s).
- Scorers review training materials.
- Supervisor backreads the scorers' work more extensively.
- Supervisory staff gives scorers further training.
- Supervisor monitors reports for improvement.

If a scorer's inter-rater reliability and/or validity statistics fall below the expected rate (see previous table), scoring supervisors increased backreading on the scorer. If a scorer was low backreading agreement, an intervention log was opened for that scorer. This log provided documentation of the steps taken to retrain the scorer and was signed by the scorer.

The scoring director determined whether the same issue or trend was being experienced by several scorers and determined the need for a calibration set.

General Calibration:

Calibration sets were administered as project leadership deemed necessary. Scorers who miss two consecutive days had to be retrained before they could return to scoring. Scorers who fell below acceptable standards were retrained a maximum of two times before being dismissed from the project. General calibration sets consisted of 2-3 papers, addressed a single issue, and were administered online. General calibration responses were approved by MSDE.

Scorers who do not qualify outright or are not allowed to continue on a provisional basis will not be allowed to score on that MISA item. Scorers who do not qualify on two items will be released from the project and reassigned to other projects when possible.

Analysis of the Results

This section contains an overview of the statistical summaries for the 2017 MISA Stand Alone Field Test. The number of students administered each test form, including form breakdowns and accommodations for grade 5 and grade 8 appear in Tables 5 and 6. Table 6 presents the breakdowns of the sample sizes per form used to derive the summary statistics in this report.

Table 5. Population N-counts by Grade and Form

		Grade 5		Grade 8	
Form ID	**Form Name**	**Frequency**	**Percent**	**Frequency**	**Percent**
ASO101	Amer. Sign Lang.	23	0.03%	23	0.04%
ATO101	Assist. Tech. with Tools	3	0.00%	1	0.00%
AWO101	Assist. Tech. w/o Tools	59	0.09%	76	0.12%
CCO101	Closed Caption	28	0.04%	18	0.03%
NAO101	Regular 1	9,832	14.69%	10,094	15.81%
NAO102	Regular 2	9,604	14.35%	9,920	15.54%
NAO103	Regular 3	9,949	14.86%	9,889	15.49%
NAO104	Regular 4	9,908	14.80%	10,094	15.81%
NAO105	Regular 5	9,810	14.65%	9,659	15.13%
NAO106	Regular 6	9,771	14.60%	9,932	15.56%
NAP101	Paper	96	0.14%	804	1.26%
PTO101	Read Aloud	801	1.20%	253	0.40%
TSO101	Text-to-Speech	7,056	10.54%	3,063	4.80%
Totals	**All Forms**	**66,940**	**100.00%**	**63,826**	**100.00%**

Table 6. Sample N-counts by Grade and Form

		Grade 5		Grade 8	
Form ID	**Form Name**	**Frequency**	**Percent**	**Frequency**	**Percent**
ASO101	Amer. Sign Lang.	23	0.14%	23	0.14%
ATO101	Assist. Tech. with Tools	3	0.02%	1	0.01%
AWO101	Assist. Tech. w/o Tools	59	0.37%	76	0.47%
CCO101	Closed Caption	28	0.18%	18	0.11%
NAO101	Regular 1	2,125	13.38%	2,125	13.24%
NAO102	Regular 2	2,125	13.38%	2,125	13.24%
NAO103	Regular 3	2,125	13.38%	2,125	13.24%
NAO104	Regular 4	2,125	13.38%	2,125	13.24%
NAO105	Regular 5	2,125	13.38%	2,125	13.24%
NAO106	Regular 6	2,125	13.38%	2,125	13.24%
NAP101	Paper	96	0.60%	804	5.01%
PTO101	Read Aloud	801	5.04%	253	1.58%
TSO101	Text-to-Speech	2,125	13.38%	2,125	13.24%
Totals	**All Forms**	**15,885**	**100.00%**	**16,050**	**100.00%**

Tables 7 through 9 provide a descriptive statistics summary of student performance for the MISA Field Test assessment, respectively. The tables include the number of students tested by form plus the means, standard deviations, minimums, maximums of the raw score totals, with selected percentiles across different forms for grade 5 and 8.

Table 7. Descriptive Statistics by Form Grade 5

Grade	Form ID	N	Mean	SD	Min	Max
05	ASO101	23	21.7	9.9	10	42
05	ATO101	3	16.7	12.9	6	31
05	AWO101	59	34.2	15.0	1	62
05	CCO101	28	30.1	12.1	11	55
05	NAO101	2,125	34.7	13.8	0	75
05	NAO102	2,125	35.0	14.0	0	74
05	NAO103	2,125	35.8	14.0	1	78
05	NAO104	2,125	34.8	14.0	0	73
05	NAO105	2,125	37.1	14.0	0	75
05	NAO106	2,125	36.0	13.8	0	78
05	NAP101	96	22.8	14.5	0	60
05	PTO101	801	20.7	8.5	0	62
05	TSO101	2,125	20.4	9.4	0	64

Table 8. Selected Percentiles by Form Grade 5

		Percentiles				
Form ID	**N**	**5th**	**25th**	**50th**	**75th**	**95th**
ASO101	23	10.0	14.0	19.0	27.0	39.0
ATO101	3	6.0	6.0	13.0	31.0	31.0
AWO101	59	12.0	21.0	34.0	45.0	61.0
CCO101	28	12.0	21.5	29.5	37.0	55.0
NAO101	2,125	13.0	24.0	34.0	45.0	57.0
NAO102	2,125	13.0	24.0	34.0	45.0	59.0
NAO103	2,125	13.0	25.0	36.0	46.0	59.0
NAO104	2,125	12.0	24.0	36.0	46.0	56.0
NAO105	2,125	15.0	26.0	37.0	48.0	60.0
NAO106	2,125	13.0	25.0	36.0	46.0	58.0
NAP101	96	3.0	13.5	18.5	32.5	53.0
PTO101	801	9.0	15.0	19.0	25.0	37.0
TSO101	2,125	9.0	14.0	19.0	25.0	38.0

Table 9. Descriptive Statistics by Form Grade 8

Grade	Form ID	N	Mean	SD	Min	Max
08	ASO101	23	30.1	11.5	14	52
08	ATO101	1	15.0		15	15
08	AWO101	76	34.5	15.4	0	70
08	CCO101	18	32.0	13.4	9	58
08	NAO101	2,125	36.1	15.1	0	78
08	NAO102	2,125	34.0	15.1	0	75
08	NAO103	2,125	36.3	15.7	0	80
08	NAO104	2,125	35.3	14.8	0	73
08	NAO105	2,125	34.4	14.3	0	73
08	NAO106	2,125	34.4	14.8	3	75
08	NAP101	803	36.3	16.5	0	79
08	PTO101	252	19.3	8.7	4	68
08	TSO101	2,125	17.5	9.2	0	66

Table 10. Selected Percentiles by Form Grade 8

		Percentiles				
Form ID	**N**	**5th**	**25th**	**50th**	**75th**	**95th**
ASO101	23	15.0	20.0	29.0	41.0	51.0
ATO101	1	15.0	15.0	15.0	15.0	15.0
AWO101	76	12.0	23.0	33.0	47.0	64.0
CCO101	18	9.0	21.0	27.0	40.0	58.0
NAO101	2,125	13.0	24.0	36.0	47.0	61.0
NAO102	2,125	11.0	22.0	33.0	45.0	60.0
NAO103	2,125	11.0	24.0	36.0	48.0	62.0
NAO104	2,125	12.0	23.0	35.0	46.0	60.0
NAO105	2,125	11.0	23.0	34.0	45.0	58.0
NAO106	2,125	11.0	23.0	34.0	46.0	59.0
NAP101	803	11.0	23.0	37.0	49.0	62.0
PTO101	252	8.0	13.5	18.0	23.0	35.0
TSO101	2,125	7.0	11.0	15.0	22.0	35.0

Classical Item Analysis

This section describes the results of the classical item analysis conducted for data obtained from the MISA Field test. A set of classical item statistics were computed for each item by form and by administration mode. The following statistics and associated flagging rules were used to identify items that were not performing as expected

Classical item difficulty indices (*p-value* and average item score)

Item difficulty offers an index of how easy or hard a given test question is to answer correctly or to earn a given score point for items scored according to a rubric. Item difficulty statistics are used by test developers to help construct test forms that contain a range of items from easy to hard. For items that appear to be unexpectedly difficult, this may indicate students' lack of familiarity with the item type or students' limited opportunity to learn the content represented in the item and are worth further review.

For dichotomously scored items (items scored correct or incorrect), item difficulty is indicated by its *p* value, which is the proportion of test takers who answered that item correctly. The range for *p* values is from .00 to 1.00. Items with high *p* values are easy items and those with low *p* values are difficult items. Dichotomously scored items were flagged for further review if the *p* value was above .90 (i.e., too easy) or below .20 (i.e., too difficult).

For polytomously scored items (items scored according to a rubric with multiple points awarded), difficulty is indicated by the average item score (AIS). The AIS can range from .00 to the maximum total possible points for an item. To facilitate interpretation, the AIS values for polytomously scored items are often expressed as percentages of the maximum possible score, which are equivalent to the *p* values of dichotomously scored items. The desired *p* value range for polytomously scored items is also .20 to .90; items with values outside this range were flagged for review.

The percentage of students choosing each response option

Selected response items refer primarily to single-select multiple-choice items. These items require that the test taker select a single response from a number of answer options (four in the case of MISA). These statistics for single-select multiple-choice items indicate the percentage of students who select each of the answer option. Also included are the percentage of students that omit the item. These statistics give an indication of whether the items are functioning well as a whole. Anomalies can indicate problems with item functioning, such as multiple correct answers or non-functioning distractors.

Item-total score correlation

This statistic describes the relationship between test takers' performance on a specific item and their performance on the total test. The item-total correlation is usually referred to as the item discrimination index. For MISA SAFT item analysis, the total score on the assessment was used as the total test score. The point-biserial correlation was calculated for both selected response items and constructed response items as an estimate of the correlation between an observed continuous variable and an unobserved continuous variable hypothesized to underlie the variable with ordered categories (Olsson, Drasgow, and Dorans, 1982). Item-total correlations can range from -1.00 to 1.00. Desired values are positive and larger than .10. Negative item-total correlations indicate that low ability test takers perform better on an item than high ability test takers, an indication that the item may be potentially flawed.

Distractor-total score correlation

For selected response Items, this estimate describes the relationship between selecting an incorrect response (i.e., a distractor) for a specific item and performance on the total test. The point-biserial correlation is calculated for the distractors. Items with greater distractor-total correlations compared with the point-biserial of the correct option may indicate items have multiple correct answers, be miskeyed, or have other content issues that need further evaluation.

Percentage of students omitting or not reaching each item

For both selected response and constructed response items, this statistic is useful for identifying problems with test features such as testing time and item/test layout. Typically, if students have an adequate amount of testing time, approximately 95 percent of students should attempt to answer each question on the test. A distinction is made between "omit" and "not reached" for items without responses: An item is considered "omit" if the student responded to subsequent items. An item is considered "not reached" if the student did not respond to any subsequent items. Patterns of high omit or not reached rates for items located near the end of a test section may indicate that test takers did not have adequate time.

Appendices A and B present classical item analysis summaries by form for the MISA 2017 field test.

Differential Item Functioning

Differential item functioning (DIF) analyses were conducted using the data obtained from the MISA Field Test. If an item performs differentially across identifiable subgroups (e.g., gender or ethnicity) when students are matched on ability, this may indicate an issue with fairness or that the item may be measuring something other than the intended construct (i.e., possible evidence of DIF). It is important, however, to recognize that item performance differences flagged for DIF might be related to actual differences in relevant knowledge or skills (item impact) or statistical Type I error. As a result, DIF statistics are used to identify *potential* biases. Subsequent reviews by content experts and bias/sensitivity committees are required to determine the source and meaning of performance differences.

The Mantel-Haenszel (MH) DIF statistic was calculated for selected-response items and for dichotomously-scored constructed-response items. For polytomously scored constructed-response items, the standardization DIF (Dorans & Schmitt, 1991; Zwick, Thayer & Mazzeo,

1997; Dorans, 2013), in conjunction with the Mantel chi-square statistic (Mantel, 1963; Mantel & Haenszel, 1959), is used to identify items with DIF.

Classification of DIF statistics

Based on the DIF statistics and significance tests, items are classified into three categories and assigned values of A, B, or C (Zieky, 1993). Category A items contain negligible DIF, Category B items exhibit slight to moderate DIF, and Category C items possess moderate to large DIF values. Positive values indicate that, conditional on the total score, the focal group has a higher mean item score than the reference group. In contrast, negative DIF values indicate that, conditional on the total test score, the focal group has a lower mean item score than the reference group. The flagging criteria for dichotomously scored items are presented in Table 11; the flagging criteria for polytomously scored constructed response items are provided in Table 12.

Table 11. DIF Categories for Dichotomous Selected Response and Constructed Response Items

DIF Category	Criteria
A (negligible)	Absolute value of the MH D-DIF is not significantly different from zero, or is less than one.
B (slight to moderate)	1. Absolute value of the MH D-DIF is significantly different from zero but not from one, and is at least one; OR 2. Absolute value of the MH D-DIF is significantly different from one, but is less than 1.5. Positive values are classified as "B+" and negative values as "B-".
C (moderate to large)	Absolute value of the MH D-DIF is significantly different from one, and is at least 1.5. Positive values are classified as "C+" and negative values as "C-".

Table 12. DIF Categories for Polytomous Constructed Response Item

DIF Category	Criteria
A (negligible)	Mantel Chi-square *p value* > 0.05 or |*STD-EISDIF/SD*| ≤ 0.17
B (slight to moderate)	Mantel Chi-square *p value* < 0.05 and |*STD-EISDIF/SD* | > 0.17
C (moderate to large)	Mantel Chi-square *p value* < 0.05 and |*STD-EISDIF/SD*| > 0.25

Note: *STD-EISDIF* = standardized DIF; SD – total group standard deviation of item score.

Flagging Items for DIF

Items are flagged into one of three categories based on the magnitude of their DIF statistics:

- Category A: no or negligible DIF
- Category B: slight or moderate DIF, and
- Category C: moderate to large values of DIF. These items which exhibit significant DIF, are of primary concern.

This section provides information about differential item functioning (DIF) analyses used for the 2017 MISA SAFT. The *reference* group was either male or Caucasian students, and the *focal* group was either female or African-American students or Hispanic students. Appendix C presents summary DIF results for the MISA 2017 field test.

Test Score Reliability

Reliability coefficients are usually forms of correlation coefficients and must be interpreted within the context and design of the assessment and of the reliability study. The estimates of reliability reported in this report are internal consistency measures, which are derived from analysis of the consistency of the performance of individuals on items within a test (internal consistency reliability). Therefore, they apply only to the test form being analyzed.

The equation displayed below is the formula for the most common index of reliability, namely, Cronbach's coefficient *alpha* (α ; Cronbach, 1951). In this formula, the s_i^2's denote the variances for the k individual items; s_{sum}^2 denotes the variance for the sum of all items.

$$s_{sum}^2 = \frac{k}{k-1} \times \left(1 - \frac{\sum_{i=1}^{k} S_i^2}{S_{sum}^2} \right)$$

Standard Error of Measurement (Based on Classical Test Theory)

The standard error of measurement (SEM) is commonly used in interpreting and reporting individual test scores and score differences on tests (Harvill, 1991). Classical test theory is based on the following assumptions (Andrich & Luo, 2004):

- Each person *v* has a true score on the construct, usually denoted by the variable T_v
- The best overall indicator of the person's true score is the sum of the scores on the items and is usually denoted by the variable X_v
- This observed score will have an error for each person which is usually denoted by E_v
- These errors are not correlated with the true score
- Across a population of people, the errors sum to 0 and they are normally distributed.

The *SEM* is calculated by the following formula:

$$\sigma_e = \sigma_x \sqrt{1-\rho_x} .$$

Coefficient alpha and SEM were calculated per form, including different form breakdown and accommodations for grade 5 and grade 8 as shown in Tables 13 and 14, respectively. Across all forms, the reliabilities ranged between .78 and .93. For the main test forms, all reliabilities were .90 or higher.

Table 13. Coefficient Alpha Reliability and Standard Error of Measurement (SEM) by Form Grade 5

Grade	Form ID	N	Alpha	SEM
5	ASO101	23	0.83	4.0
5	ATO101	3	0.92	3.7
5	AWO101	59	0.92	4.3
5	CCO101	28	0.87	4.4
5	NAO101	2,125	0.90	4.3
5	NAO102	2,125	0.91	4.2
5	NAO103	2,125	0.91	4.2
5	NAO104	2,125	0.92	3.9
5	NAO105	2,125	0.90	4.3
5	NAO106	2,125	0.92	4.0
5	NAP101	96	0.92	4.0
5	PTO101	801	0.78	4.0
5	TSO101	2,125	0.82	4.0

Table 14. Coefficient **Alpha** Reliability and Standard Error of Measurement (SEM) by Form Grade **8**

Grade	Form ID	N	Alpha	SEM
8	ASO101	23	0.88	4.0
8	ATO101	1		0.0
8	AWO101	76	0.92	4.3
8	CCO101	18	0.89	4.5
8	NAO101	2,125	0.92	4.2
8	NAO102	2,125	0.92	4.3
8	NAO103	2,125	0.92	4.3
8	NAO104	2,125	0.91	4.4
8	NAO105	2,125	0.92	4.1
8	NAO106	2,125	0.92	4.1
8	NAP101	803	0.93	4.2
8	PTO101	252	0.80	3.9
8	TSO101	2,125	0.84	3.7

Unidimensionality

One important question to evaluate with respect to the MISA tests has to do with dimensionality. As these tests are reflective of the NGSS, which are multi-faceted by design, it is important to gauge the extent to which this may reflect a dominant single factor underlies performance on the overall test versus a structure that suggests several substantive factors. Answers to this question play an important role in determining what statistical models may be best suited to derive and maintain reporting scales moving forward. As such, a Principal Component Analysis (PCA) was used conducted to examine the 2017 MISA Science Field Tests.

The goal was to derive the principal components and to investigate the pattern from the values of the first three components (Divgi, 1980) to decide on the number of principal components that form each test. The value of the first principal component is expected to be relatively larger than the value of the second principal component, and the value of the second principal component is expected to be relatively closer to the value of the third principal component. This can be checked by the Divgi Index, computed by taking the difference of the first and second components over the difference of the second and third components. The principle behind the difference ratio method is that if the bulk of the variance is accounted for by the measures and the remaining variance is fairly uniformly distributed among the remaining components, then the measures exhibit strong evidence of unidimensionality. A large value of the Divgi index is an indication of unidimensionality. Although the divgi indices for certain forms displayed small values. it must be noted, though, that insufficient sample size could result in a small Divgi index value and therefore result in an erroneous dimension classification. Thus, by observing the Divgi index values from common sample size forms (e.g., N > 500), the Divgi index values for MISA assessment range between 18.14 and 225.24 indicating essential unidimensionality (Table 12) and suggesting a unidimensional item response theory model may be well suited for scaling the MISA assessments.

Table 15. Eigenvalues for First Three Factors by Grade

Grade	FORM ID	N	Eigenvalues 1	2	3	Divgi Index
05	ASO101	23	10.26	6.30	5.65	6.18
05	ATO101	3	26.85	9.15	0.00	1.93
05	AWO101	59	14.17	3.14	3.10	317.81
05	CCO101	28	12.15	5.60	5.04	11.63
05	NAO101	2125	11.69	1.59	1.35	41.80
05	NAO102	2125	12.60	1.71	1.37	31.79
05	NAO103	2125	12.80	1.68	1.26	26.73
05	NAO104	2125	13.41	1.53	1.39	84.13
05	NAO105	2125	12.75	1.63	1.41	48.70
05	NAO106	2125	13.02	1.82	1.45	30.13
05	NAP101	96	14.60	2.78	2.72	225.24
05	PTO101	801	6.40	1.87	1.62	18.14
05	TSO101	2125	7.71	1.49	1.46	217.69
08	ASO101	23	11.55	6.50	5.04	3.48
08	ATO101	1	11.55	6.50	5.04	3.48
08	AWO101	76	15.00	2.91	2.80	117.98
08	CCO101	18	13.28	5.96	5.48	15.07
08	NAO101	2125	13.72	1.68	1.40	43.02
08	NAO102	2125	13.60	1.81	1.39	28.46
08	NAO103	2125	14.03	1.66	1.29	33.16
08	NAO104	2125	13.78	1.59	1.51	151.88
08	NAO105	2125	12.61	1.60	1.47	86.28
08	NAO106	2125	13.17	1.64	1.32	36.34
08	NAP101	803	15.88	1.79	1.42	38.23
08	PTO101	252	7.34	2.20	2.13	74.71
08	TSO101	2125	8.71	1.59	1.48	65.91

Rasch Model Analyses

The *Rasch model* (Rasch, 1980) and its polytomous extension, the *Partial Credit model* (PCM) (Masters, 1982) is the item response theory model used to develop and calibrate the MISA assessments. These measurement models are regularly used to construct test forms, for scaling and equating, and to develop and maintain large item banks in large scale K-12 testing programs. The PCM reduces to the Rasch model for items with only two response categories, such as multiple-choice items. For an item involving m_i score categories, the general expression for the probability of scoring x on item i is given by

$$P_{xi} = \exp \sum_{j=0}^{x} (\theta - D_{ij}) / \sum_{k=0}^{m_i} \left[\exp \sum_{j=0}^{k} (\theta - D_{ij}) \right]$$

where $x = 0, 1, ..., m_i$, and by definition, $\sum_{j=0}^{0} (\theta - D_{ij}) = 0$.

The above equation gives the probability of scoring x on the i-th test item as a function of ability (θ) and the difficulty (Dij) of the m_i steps of the task. According to this model, the probability of an examinee scoring in a particular category (step) is the sum of the logit (log-odds) differences between θ and D_{ij} of all the completed steps, divided by the sum of the differences of all the steps of a task.

MISA items for each respective grade were calibrated according to the Rasch and PCM concurrently and can be found in Appendix D. The following information is provided:

- Item type
- Rasch item difficulty estimate (D_i)
- Conditional standard error of Rasch item difficulty estimate
- Mean-square infit
- Mean-square outfit
- Rasch step difficulty estimate (or structure calibration estimate, F_{ij})

The following formula shows how structure measure estimate (D_{ij}) is calculated from both D_i and F_{ij} directly obtained from a run of Winsteps:

$$D_{ij} = D_i + F_{ij},$$

where D_{ij} = structure measure estimate

D_i = item difficulty estimate,

F_{ij} = structure calibration estimate (i.e., step difficulty estimate).

Finally, the following formulas show how conditional standard error (SE) of item difficulty estimate (D_i) and structure measure estimate (F_{ij}) were driven (Wright & Masters, 1982):

$$SE(D_i) = 1/\sqrt{\sum_{n=1}^{N}[\sum_{k}^{m_i} k^2 p_{nik} - (\sum_{k}^{m_i} k p_{nik})^2]}$$

$$SE(F_{ij}) = 1/\sqrt{\sum_{n=1}^{N}(\sum_{k=0}^{j} p_{nik} - (\sum_{k=j+1}^{m_i} p_{nik})^2)}$$

where $P_{nix} = \exp\sum_{j=0}^{x}(\theta_n - D_{ij}) / \sum_{k=0}^{m_i}\left[\exp\sum_{j=0}^{k}(\theta_n - D_{ij})\right]$

$x = 0, 1, ..., m_i$, and

$k = 1, 2, \ldots, m_i$.

Fit Statistics for the Rasch Model

Fit statistics are used for evaluating the goodness-of-fit of a model to the data. Fit statistics are calculated by comparing the observed and expected trace lines obtained for an item after parameter estimates are obtained using a particular model. *WINSTEPS* provides two kinds of fit statistics called mean-squares that show the size of the randomness or amount of distortion of the measurement system.

Outfit mean-squares are influenced by outliers and are usually easy to diagnose and remedy. Infit mean-squares, on the other hand, are influenced by response patterns and are harder to diagnose and remedy. Table provides a guideline for evaluating mean-square fit statistics (Linacre & Wright, 2000).

In general, mean-squares near 1.0 indicate little distortion of the measurement system, while values less than 1.0 indicate observations are too predictable (redundancy, model overfit). Values greater than 1.0 indicate unpredictability (unmodeled noise, model underfit).

Table 16. Criteria to Evaluate Mean-Square Fit Statistics

Mean-Square	Interpretation
> 2.0	Distorts or degrades the measurement system
1.5 – 2.0	Unproductive for construction of measurement, but not degraded
0.5 – 1.5	Productive for measurement
< 0.5	Unproductive for measurement, but not degrading. May produce misleadingly good reliabilities and separations

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Appendix A: MISA Classical Item Analysis by Form

Table A.1. Classical Item Analysis by Form for Grade 5

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO101	51600_04	2,125	0.30%	1	0.15	0.09
05	NAO101	51600_05	2,125	0.40%	1	0.10	0.41
05	NAO101	51600_07	2,125	0.30%	1	0.59	0.33
05	NAO101	51600_09	2,125	3.40%	2	1.09	0.58
05	NAO101	51600_10	2,125	0.40%	1	0.61	0.39
05	NAO101	51600_12	2,125	0.00%	2	0.89	0.53
05	NAO101	51601_01	2,125	0.50%	1	0.39	0.35
05	NAO101	51601_05	2,125	0.40%	2	0.97	0.35
05	NAO101	51601_07	2,125	0.40%	1	0.64	0.46
05	NAO101	51601_08	2,125	0.60%	1	0.14	0.18
05	NAO101	51601_10	2,125	0.50%	1	0.54	0.38
05	NAO101	51601_12	2,125	0.00%	2	0.56	0.60
05	NAO101	51614_02	2,125	0.30%	1	0.59	0.43
05	NAO101	51614_03	2,125	0.50%	1	0.08	0.13
05	NAO101	51614_09	2,125	0.20%	1	0.58	0.25
05	NAO101	51614_10	2,125	0.20%	1	0.29	0.26
05	NAO101	51614_11	2,125	0.60%	1	0.26	0.12
05	NAO101	51614_12	2,125	0.00%	3	0.86	0.55
05	NAO101	51617_01	2,125	1.50%	1	0.27	0.40
05	NAO101	51617_02	2,125	1.70%	1	0.51	0.43
05	NAO101	51617_03	2,125	2.20%	1	0.48	0.43
05	NAO101	51617_04	2,125	2.40%	1	0.61	0.47
05	NAO101	51617_11	2,125	2.50%	1	0.54	0.51
05	NAO101	51617_12	2,125	0.00%	3	0.24	0.47
05	NAO101	51620_02	2,125	5.50%	1	0.11	0.33
05	NAO101	51620_05	2,125	3.30%	1	0.65	0.46
05	NAO101	51620_06	2,125	4.50%	1	0.49	0.34
05	NAO101	51620_09	2,125	6.30%	1	0.22	0.02
05	NAO101	51620_10	2,125	7.30%	2	0.95	0.48
05	NAO101	51620_12	2,125	0.00%	2	0.53	0.56
05	NAO101	51632_01	2,125	0.50%	1	0.58	0.41
05	NAO101	51632_02	2,125	0.40%	1	0.47	0.30
05	NAO101	51632_05	2,125	0.60%	2	0.93	0.59
05	NAO101	51632_06	2,125	0.60%	1	0.47	0.63
05	NAO101	51632_07	2,125	0.70%	1	0.30	0.41
05	NAO101	51632_11	2,125	0.00%	2	1.18	0.69
05	NAO101	51636_01	2,125	1.90%	1	0.70	0.48
05	NAO101	51636_05	2,125	1.50%	1	0.28	-0.06
05	NAO101	51636_06	2,125	1.20%	1	0.40	0.47

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO101	51636_09	2,125	1.60%	1	0.32	0.55
05	NAO101	51636_10	2,125	1.00%	1	0.72	0.44
05	NAO101	51636_12	2,125	0.00%	3	0.78	0.65
05	NAO101	51638_01	2,125	0.30%	1	0.35	0.26
05	NAO101	51638_02	2,125	0.40%	1	0.81	0.42
05	NAO101	51638_05	2,125	0.30%	1	0.10	0.25
05	NAO101	51638_08	2,125	0.40%	1	0.47	0.28
05	NAO101	51638_10	2,125	0.40%	1	0.37	0.20
05	NAO101	51638_11	2,125	0.00%	3	0.92	0.61
05	NAO101	51648_01	2,125	0.50%	1	0.62	0.49
05	NAO101	51648_03	2,125	0.40%	1	0.13	0.20
05	NAO101	51648_06	2,125	0.00%	3	0.92	0.57
05	NAO101	51648_07	2,125	0.50%	1	0.10	0.24
05	NAO101	51648_08	2,125	0.50%	1	0.72	0.40
05	NAO101	51648_10	2,125	0.60%	1	0.33	0.25
05	NAO101	51649_03	2,125	0.50%	1	0.57	0.42
05	NAO101	51649_05	2,125	0.70%	1	0.48	0.29
05	NAO101	51649_06	2,125	0.00%	3	0.83	0.56
05	NAO101	51649_07	2,125	0.90%	1	0.37	0.12
05	NAO101	51649_08	2,125	0.90%	1	0.37	0.42
05	NAO101	51649_09	2,125	0.50%	1	0.14	0.17
05	NAO101	51697_03	2,125	0.50%	1	0.70	0.51
05	NAO101	51697_04	2,125	0.50%	1	0.60	0.34
05	NAO101	51697_07	2,125	0.60%	1	0.51	0.21
05	NAO101	51697_08	2,125	0.50%	1	0.44	0.40
05	NAO101	51697_11	2,125	0.60%	1	0.74	0.50
05	NAO101	51697_12	2,125	0.00%	4	1.10	0.61

Table A.2. Classical Item Analysis by Form for Grade 5

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO102	51600_01	2,125	0.30%	1	0.29	0.25
05	NAO102	51600_02	2,125	2.10%	1	0.08	0.33
05	NAO102	51600_03	2,125	0.50%	2	0.58	0.41
05	NAO102	51600_06	2,125	0.00%	2	0.60	0.49
05	NAO102	51600_08	2,125	0.40%	1	0.38	0.46
05	NAO102	51600_11	2,125	0.30%	1	0.42	0.45
05	NAO102	51601_02	2,125	0.40%	1	0.54	0.48
05	NAO102	51601_03	2,125	0.20%	1	0.53	0.33
05	NAO102	51601_04	2,125	0.30%	2	0.86	0.50
05	NAO102	51601_06	2,125	0.00%	2	0.79	0.57
05	NAO102	51601_09	2,125	0.20%	1	0.49	0.41
05	NAO102	51601_11	2,125	0.20%	1	0.47	0.43
05	NAO102	51614_01	2,125	0.20%	1	0.77	0.42
05	NAO102	51614_04	2,125	0.70%	1	0.59	0.48
05	NAO102	51614_05	2,125	0.40%	1	0.27	0.23
05	NAO102	51614_06	2,125	0.00%	3	0.92	0.54
05	NAO102	51614_07	2,125	0.30%	1	0.79	0.28
05	NAO102	51614_08	2,125	0.50%	1	0.32	0.20
05	NAO102	51617_05	2,125	1.70%	1	0.64	0.51
05	NAO102	51617_06	2,125	0.00%	3	0.41	0.61
05	NAO102	51617_08	2,125	2.40%	1	0.37	0.56
05	NAO102	51617_09	2,125	2.80%	1	0.55	0.51
05	NAO102	51617_10	2,125	2.90%	1	0.66	0.50
05	NAO102	51617_11	2,125	2.20%	1	0.47	0.47
05	NAO102	51620_01	2,125	4.90%	1	0.44	0.47
05	NAO102	51620_03	2,125	3.70%	1	0.49	0.43
05	NAO102	51620_04	2,125	5.90%	1	0.18	0.33
05	NAO102	51620_07	2,125	6.20%	2	1.23	0.39
05	NAO102	51620_08	2,125	3.50%	1	0.07	0.21
05	NAO102	51620_11	2,125	0.00%	2	0.58	0.56
05	NAO102	51632_03	2,125	0.30%	1	0.09	0.13
05	NAO102	51632_04	2,125	0.30%	1	0.44	0.48
05	NAO102	51632_08	2,125	0.30%	1	0.26	0.52
05	NAO102	51632_09	2,125	0.30%	1	0.27	0.50
05	NAO102	51632_10	2,125	0.60%	2	0.78	0.61
05	NAO102	51632_12	2,125	0.00%	2	0.86	0.60
05	NAO102	51636_02	2,125	1.10%	1	0.51	0.39
05	NAO102	51636_03	2,125	1.20%	1	0.79	0.40
05	NAO102	51636_04	2,125	1.30%	1	0.71	0.46

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO102	51636_07	2,125	1.50%	1	0.34	0.26
05	NAO102	51636_08	2,125	1.60%	1	0.44	0.48
05	NAO102	51636_11	2,125	0.00%	3	0.93	0.50
05	NAO102	51638_03	2,125	0.20%	1	0.35	0.18
05	NAO102	51638_04	2,125	0.40%	1	0.30	0.12
05	NAO102	51638_06	2,125	0.30%	1	0.52	0.40
05	NAO102	51638_07	2,125	0.20%	1	0.69	0.56
05	NAO102	51638_09	2,125	0.20%	1	0.25	0.16
05	NAO102	51638_12	2,125	0.00%	3	0.76	0.54
05	NAO102	51648_02	2,125	0.40%	1	0.11	0.16
05	NAO102	51648_04	2,125	0.70%	1	0.74	0.36
05	NAO102	51648_05	2,125	0.40%	1	0.77	0.42
05	NAO102	51648_09	2,125	1.10%	1	0.32	0.29
05	NAO102	51648_11	2,125	0.80%	1	0.10	0.39
05	NAO102	51648_12	2,125	0.00%	3	0.89	0.61
05	NAO102	51649_01	2,125	0.80%	1	0.53	0.20
05	NAO102	51649_02	2,125	0.70%	1	0.72	0.41
05	NAO102	51649_04	2,125	0.80%	1	0.52	0.39
05	NAO102	51649_10	2,125	0.80%	1	0.32	0.36
05	NAO102	51649_11	2,125	1.40%	1	0.04	0.07
05	NAO102	51649_12	2,125	0.00%	3	0.91	0.62
05	NAO102	51697_01	2,125	0.20%	1	0.69	0.39
05	NAO102	51697_02	2,125	0.20%	1	0.28	0.35
05	NAO102	51697_05	2,125	0.30%	1	0.76	0.55
05	NAO102	51697_06	2,125	0.00%	4	1.15	0.65
05	NAO102	51697_09	2,125	0.20%	1	0.38	0.38
05	NAO102	51697_10	2,125	0.20%	1	0.74	0.54

Table A.3. Classical Item Analysis by Form for Grade 5

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO103	51604_01	2,125	0.20%	1	0.51	0.33
05	NAO103	51604_04	2,125	0.10%	1	0.80	0.42
05	NAO103	51604_05	2,125	0.20%	1	0.34	0.25
05	NAO103	51604_08	2,125	0.30%	1	0.32	0.41
05	NAO103	51604_09	2,125	0.20%	1	0.14	0.30
05	NAO103	51604_11	2,125	0.00%	3	0.77	0.60
05	NAO103	51605_01	2,125	0.20%	1	0.75	0.27
05	NAO103	51605_02	2,125	0.20%	1	0.93	0.33
05	NAO103	51605_04	2,125	0.30%	1	0.81	0.40
05	NAO103	51605_07	2,125	0.20%	1	0.78	0.52
05	NAO103	51605_09	2,125	0.40%	1	0.69	0.55
05	NAO103	51605_11	2,125	0.00%	3	1.10	0.49
05	NAO103	51607_01	2,125	0.30%	1	0.60	0.50
05	NAO103	51607_02	2,125	0.20%	1	0.67	0.51
05	NAO103	51607_03	2,125	0.20%	1	0.78	0.46
05	NAO103	51607_07	2,125	0.20%	1	0.66	0.43
05	NAO103	51607_08	2,125	0.20%	1	0.81	0.50
05	NAO103	51607_12	2,125	0.00%	3	0.98	0.66
05	NAO103	51609_01	2,125	0.20%	1	0.77	0.16
05	NAO103	51609_02	2,125	0.30%	1	0.39	0.03
05	NAO103	51609_03	2,125	0.20%	1	0.55	0.48
05	NAO103	51609_06	2,125	0.00%	2	0.38	0.56
05	NAO103	51609_07	2,125	0.30%	2	1.08	0.61
05	NAO103	51609_11	2,125	0.30%	1	0.14	0.33
05	NAO103	51613_01	2,125	0.50%	1	0.15	0.32
05	NAO103	51613_02	2,125	0.60%	2	0.60	0.32
05	NAO103	51613_03	2,125	0.60%	1	0.54	0.54
05	NAO103	51613_04	2,125	0.70%	1	0.46	0.44
05	NAO103	51613_05	2,125	0.60%	1	0.04	0.17
05	NAO103	51613_06	2,125	0.00%	2	0.59	0.52
05	NAO103	51615_01	2,125	1.40%	1	0.27	0.51
05	NAO103	51615_03	2,125	1.80%	1	0.52	0.46
05	NAO103	51615_09	2,125	2.30%	1	0.50	0.26
05	NAO103	51615_10	2,125	1.10%	1	0.42	0.14
05	NAO103	51615_11	2,125	2.10%	1	0.68	0.47
05	NAO103	51615_12	2,125	0.00%	3	0.64	0.65
05	NAO103	51616_01	2,125	0.30%	1	0.70	0.50
05	NAO103	51616_02	2,125	0.30%	1	0.63	0.43
05	NAO103	51616_05	2,125	0.40%	1	0.66	0.14
05	NAO103	51616_09	2,125	0.30%	1	0.21	0.45

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO103	51616_10	2,125	0.40%	1	0.65	0.51
05	NAO103	51616_12	2,125	0.00%	3	0.85	0.65
05	NAO103	51619_01	2,125	2.30%	1	0.43	0.43
05	NAO103	51619_02	2,125	2.40%	1	0.73	0.48
05	NAO103	51619_05	2,125	3.60%	1	0.28	0.34
05	NAO103	51619_06	2,125	0.00%	3	0.52	0.53
05	NAO103	51619_09	2,125	2.60%	1	0.33	0.44
05	NAO103	51619_10	2,125	3.20%	1	0.55	0.51
05	NAO103	51633_01	2,125	1.60%	2	0.82	0.44
05	NAO103	51633_02	2,125	0.80%	1	0.39	0.13
05	NAO103	51633_03	2,125	0.90%	1	0.47	0.27
05	NAO103	51633_04	2,125	1.00%	1	0.43	0.41
05	NAO103	51633_05	2,125	1.00%	1	0.23	0.44
05	NAO103	51633_06	2,125	0.00%	2	0.33	0.41
05	NAO103	51650_02	2,125	0.90%	1	0.40	0.43
05	NAO103	51650_03	2,125	0.90%	1	0.58	0.17
05	NAO103	51650_05	2,125	1.30%	1	0.51	0.44
05	NAO103	51650_07	2,125	1.50%	1	0.26	0.30
05	NAO103	51650_09	2,125	1.60%	1	0.49	0.63
05	NAO103	51650_12	2,125	0.00%	3	0.74	0.63
05	NAO103	51698_01	2,125	0.60%	1	0.50	0.38
05	NAO103	51698_02	2,125	2.60%	1	0.23	0.40
05	NAO103	51698_03	2,125	0.80%	1	0.20	0.28
05	NAO103	51698_04	2,125	0.70%	1	0.37	0.46
05	NAO103	51698_06	2,125	0.00%	4	0.65	0.58
05	NAO103	51698_10	2,125	0.70%	1	0.51	0.35

Table A.4. Classical Item Analysis by Form for Grade 5

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO104	51604_02	2,125	0.40%	1	0.33	0.49
05	NAO104	51604_03	2,125	0.50%	1	0.24	0.32
05	NAO104	51604_06	2,125	0.60%	1	0.52	0.35
05	NAO104	51604_07	2,125	0.50%	1	0.63	0.35
05	NAO104	51604_10	2,125	0.70%	1	0.23	0.35
05	NAO104	51604_12	2,125	0.00%	3	1.00	0.58
05	NAO104	51605_03	2,125	0.30%	1	0.76	0.46
05	NAO104	51605_05	2,125	0.20%	1	0.29	0.45
05	NAO104	51605_06	2,125	0.30%	1	0.76	0.35
05	NAO104	51605_08	2,125	0.50%	1	0.45	0.62
05	NAO104	51605_10	2,125	0.70%	1	0.55	0.51
05	NAO104	51605_12	2,125	0.00%	3	0.90	0.65
05	NAO104	51607_04	2,125	0.70%	1	0.84	0.44
05	NAO104	51607_05	2,125	0.60%	1	0.79	0.50
05	NAO104	51607_06	2,125	0.70%	1	0.72	0.54
05	NAO104	51607_09	2,125	0.60%	1	0.77	0.46
05	NAO104	51607_10	2,125	0.60%	1	0.77	0.46
05	NAO104	51607_11	2,125	0.00%	3	0.69	0.57
05	NAO104	51609_04	2,125	0.30%	2	1.28	0.43
05	NAO104	51609_05	2,125	0.60%	1	0.25	0.45
05	NAO104	51609_08	2,125	0.60%	1	0.10	0.18
05	NAO104	51609_09	2,125	0.50%	1	0.61	0.59
05	NAO104	51609_10	2,125	0.60%	1	0.77	0.42
05	NAO104	51609_12	2,125	0.00%	2	0.63	0.48
05	NAO104	51613_07	2,125	1.40%	1	0.09	0.19
05	NAO104	51613_08	2,125	1.00%	2	1.33	0.52
05	NAO104	51613_09	2,125	1.20%	1	0.04	0.16
05	NAO104	51613_10	2,125	1.20%	1	0.08	0.16
05	NAO104	51613_11	2,125	0.80%	1	0.23	0.32
05	NAO104	51613_12	2,125	0.00%	2	0.19	0.45
05	NAO104	51615_02	2,125	1.80%	1	0.67	0.38
05	NAO104	51615_04	2,125	2.10%	1	0.71	0.56
05	NAO104	51615_05	2,125	2.50%	1	0.66	0.64
05	NAO104	51615_06	2,125	0.00%	3	0.94	0.66
05	NAO104	51615_07	2,125	2.30%	1	0.66	0.49
05	NAO104	51615_08	2,125	2.20%	1	0.51	0.49
05	NAO104	51616_03	2,125	0.70%	1	0.02	0.09
05	NAO104	51616_04	2,125	0.40%	1	0.53	0.59
05	NAO104	51616_06	2,125	0.00%	3	0.28	0.48
05	NAO104	51616_07	2,125	0.80%	1	0.70	0.43

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO104	51616_08	2,125	0.60%	1	0.46	0.63
05	NAO104	51616_11	2,125	0.70%	1	0.60	0.59
05	NAO104	51619_03	2,125	3.50%	1	0.24	0.32
05	NAO104	51619_04	2,125	2.90%	1	0.56	0.53
05	NAO104	51619_07	2,125	2.60%	1	0.57	0.49
05	NAO104	51619_08	2,125	1.90%	1	0.49	0.55
05	NAO104	51619_11	2,125	3.40%	1	0.20	0.01
05	NAO104	51619_12	2,125	0.00%	3	0.73	0.52
05	NAO104	51633_07	2,125	1.20%	2	0.97	0.39
05	NAO104	51633_08	2,125	0.50%	1	0.40	0.16
05	NAO104	51633_09	2,125	0.60%	1	0.71	0.44
05	NAO104	51633_10	2,125	0.50%	1	0.62	0.43
05	NAO104	51633_11	2,125	0.70%	1	0.50	0.33
05	NAO104	51633_12	2,125	0.00%	2	0.79	0.54
05	NAO104	51650_01	2,125	1.10%	1	0.42	0.37
05	NAO104	51650_04	2,125	1.20%	1	0.39	0.47
05	NAO104	51650_06	2,125	1.40%	1	0.48	0.43
05	NAO104	51650_08	2,125	1.50%	1	0.20	0.27
05	NAO104	51650_10	2,125	1.60%	1	0.35	0.38
05	NAO104	51650_11	2,125	0.00%	3	0.82	0.59
05	NAO104	51698_05	2,125	0.80%	1	0.46	0.21
05	NAO104	51698_07	2,125	2.60%	1	0.12	0.27
05	NAO104	51698_08	2,125	0.80%	1	0.28	0.17
05	NAO104	51698_09	2,125	1.00%	1	0.07	0.19
05	NAO104	51698_11	2,125	0.80%	1	0.34	0.54
05	NAO104	51698_12	2,125	0.00%	4	0.50	0.58

Table A.5. Classical Item Analysis by Form for Grade 5

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO105	51602_02	2,125	0.40%	1	0.33	0.47
05	NAO105	51602_03	2,125	1.10%	1	0.06	0.15
05	NAO105	51602_04	2,125	0.60%	2	1.19	0.59
05	NAO105	51602_06	2,125	0.00%	2	0.57	0.48
05	NAO105	51602_07	2,125	0.60%	1	0.51	0.46
05	NAO105	51602_10	2,125	0.40%	1	0.45	0.45
05	NAO105	51603_01	2,125	1.80%	2	0.75	0.33
05	NAO105	51603_02	2,125	2.20%	1	0.30	0.33
05	NAO105	51603_05	2,125	0.80%	1	0.79	0.18
05	NAO105	51603_06	2,125	1.30%	1	0.43	0.23
05	NAO105	51603_10	2,125	2.10%	1	0.50	0.37
05	NAO105	51603_12	2,125	0.00%	2	0.95	0.56
05	NAO105	51605_01	2,125	0.40%	1	0.73	0.27
05	NAO105	51605_02	2,125	0.30%	1	0.92	0.39
05	NAO105	51605_04	2,125	0.60%	1	0.79	0.41
05	NAO105	51605_07	2,125	0.50%	1	0.75	0.54
05	NAO105	51605_09	2,125	0.50%	1	0.68	0.55
05	NAO105	51605_11	2,125	0.00%	3	1.07	0.50
05	NAO105	51607_01	2,125	0.40%	1	0.57	0.47
05	NAO105	51607_02	2,125	0.40%	1	0.63	0.54
05	NAO105	51607_03	2,125	0.40%	1	0.74	0.48
05	NAO105	51607_07	2,125	0.40%	1	0.67	0.42
05	NAO105	51607_08	2,125	0.40%	1	0.82	0.54
05	NAO105	51607_12	2,125	0.00%	3	1.00	0.68
05	NAO105	51609_01	2,125	0.50%	1	0.71	0.16
05	NAO105	51609_02	2,125	0.80%	1	0.35	0.10
05	NAO105	51609_03	2,125	0.60%	1	0.51	0.49
05	NAO105	51609_06	2,125	0.00%	2	0.38	0.59
05	NAO105	51609_07	2,125	1.10%	2	1.05	0.64
05	NAO105	51609_11	2,125	0.50%	1	0.13	0.27
05	NAO105	51616_01	2,125	0.80%	1	0.63	0.47
05	NAO105	51616_02	2,125	0.90%	1	0.59	0.43
05	NAO105	51616_05	2,125	0.90%	1	0.66	0.21
05	NAO105	51616_09	2,125	1.20%	1	0.22	0.44
05	NAO105	51616_10	2,125	1.30%	1	0.63	0.53
05	NAO105	51616_12	2,125	0.00%	3	0.82	0.67
05	NAO105	51619_03	2,125	2.20%	1	0.22	0.33
05	NAO105	51619_04	2,125	1.90%	1	0.54	0.54
05	NAO105	51619_07	2,125	1.80%	1	0.54	0.48
05	NAO105	51619_08	2,125	1.70%	1	0.49	0.61

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO105	51619_11	2,125	2.00%	1	0.21	-0.04
05	NAO105	51619_12	2,125	0.00%	3	0.72	0.59
05	NAO105	51636_01	2,125	0.30%	1	0.79	0.45
05	NAO105	51636_05	2,125	0.50%	1	0.31	-0.08
05	NAO105	51636_06	2,125	0.50%	1	0.42	0.46
05	NAO105	51636_09	2,125	0.30%	1	0.39	0.52
05	NAO105	51636_10	2,125	0.40%	1	0.79	0.31
05	NAO105	51636_12	2,125	0.00%	3	0.82	0.58
05	NAO105	51638_01	2,125	4.50%	1	0.33	0.26
05	NAO105	51638_02	2,125	5.20%	1	0.76	0.41
05	NAO105	51638_05	2,125	5.60%	1	0.09	0.22
05	NAO105	51638_08	2,125	6.10%	1	0.41	0.31
05	NAO105	51638_10	2,125	6.40%	1	0.35	0.23
05	NAO105	51638_11	2,125	0.00%	3	0.78	0.59
05	NAO105	51648_01	2,125	1.90%	1	0.61	0.52
05	NAO105	51648_03	2,125	2.10%	1	0.12	0.20
05	NAO105	51648_06	2,125	0.00%	3	0.91	0.58
05	NAO105	51648_07	2,125	2.40%	1	0.13	0.27
05	NAO105	51648_08	2,125	2.70%	1	0.70	0.38
05	NAO105	51648_10	2,125	3.00%	1	0.32	0.27
05	NAO105	51699_01	2,125	0.60%	1	0.52	0.43
05	NAO105	51699_03	2,125	0.70%	1	0.29	0.47
05	NAO105	51699_04	2,125	0.60%	1	0.18	0.28
05	NAO105	51699_06	2,125	0.00%	4	0.92	0.68
05	NAO105	51699_07	2,125	0.60%	1	0.38	0.29
05	NAO105	51699_09	2,125	0.60%	1	0.22	0.16

Table A.6. Classical Item Analysis by Form for Grade 5

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO106	51602_01	2,125	0.30%	1	0.55	0.49
05	NAO106	51602_05	2,125	0.30%	1	0.57	0.40
05	NAO106	51602_08	2,125	0.60%	2	1.48	0.58
05	NAO106	51602_09	2,125	0.50%	1	0.56	0.43
05	NAO106	51602_11	2,125	0.40%	1	0.08	0.21
05	NAO106	51602_12	2,125	0.00%	2	0.58	0.46
05	NAO106	51603_03	2,125	1.00%	1	0.48	0.26
05	NAO106	51603_04	2,125	11.70%	2	0.35	0.35
05	NAO106	51603_07	2,125	1.20%	1	0.25	0.16
05	NAO106	51603_08	2,125	1.70%	1	0.01	0.12
05	NAO106	51603_09	2,125	1.10%	1	0.76	0.47
05	NAO106	51603_11	2,125	0.00%	2	0.29	0.52
05	NAO106	51605_03	2,125	0.30%	1	0.75	0.45
05	NAO106	51605_05	2,125	0.40%	1	0.27	0.46
05	NAO106	51605_06	2,125	0.60%	1	0.75	0.33
05	NAO106	51605_08	2,125	0.20%	1	0.47	0.58
05	NAO106	51605_10	2,125	0.70%	1	0.55	0.53
05	NAO106	51605_12	2,125	0.00%	3	0.90	0.65
05	NAO106	51607_04	2,125	0.40%	1	0.84	0.44
05	NAO106	51607_05	2,125	0.40%	1	0.79	0.48
05	NAO106	51607_06	2,125	0.40%	1	0.71	0.52
05	NAO106	51607_09	2,125	0.40%	1	0.77	0.45
05	NAO106	51607_10	2,125	0.40%	1	0.76	0.46
05	NAO106	51607_11	2,125	0.00%	3	0.73	0.56
05	NAO106	51609_04	2,125	0.40%	2	1.23	0.50
05	NAO106	51609_05	2,125	0.50%	1	0.25	0.50
05	NAO106	51609_08	2,125	0.50%	1	0.10	0.23
05	NAO106	51609_09	2,125	0.50%	1	0.61	0.60
05	NAO106	51609_10	2,125	0.70%	1	0.77	0.44
05	NAO106	51609_12	2,125	0.00%	2	0.58	0.50
05	NAO106	51616_03	2,125	0.70%	1	0.03	0.16
05	NAO106	51616_04	2,125	0.60%	1	0.51	0.57
05	NAO106	51616_06	2,125	0.00%	3	0.29	0.52
05	NAO106	51616_07	2,125	0.60%	1	0.67	0.42
05	NAO106	51616_08	2,125	0.60%	1	0.45	0.62
05	NAO106	51616_11	2,125	0.80%	1	0.62	0.58
05	NAO106	51619_01	2,125	0.90%	1	0.41	0.39
05	NAO106	51619_02	2,125	0.90%	1	0.74	0.51
05	NAO106	51619_05	2,125	1.10%	1	0.29	0.40
05	NAO106	51619_06	2,125	0.00%	3	0.54	0.55

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
05	NAO106	51619_09	2,125	1.10%	1	0.33	0.44
05	NAO106	51619_10	2,125	1.20%	1	0.56	0.52
05	NAO106	51636_02	2,125	0.30%	1	0.58	0.39
05	NAO106	51636_03	2,125	0.40%	1	0.82	0.37
05	NAO106	51636_04	2,125	0.30%	1	0.74	0.41
05	NAO106	51636_07	2,125	0.50%	1	0.38	0.24
05	NAO106	51636_08	2,125	0.50%	1	0.46	0.46
05	NAO106	51636_11	2,125	0.00%	3	1.00	0.44
05	NAO106	51638_03	2,125	7.80%	1	0.30	0.19
05	NAO106	51638_04	2,125	6.40%	1	0.28	0.11
05	NAO106	51638_06	2,125	7.00%	1	0.48	0.39
05	NAO106	51638_07	2,125	5.10%	1	0.58	0.60
05	NAO106	51638_09	2,125	8.50%	1	0.23	0.15
05	NAO106	51638_12	2,125	0.00%	3	0.62	0.53
05	NAO106	51648_02	2,125	1.60%	1	0.10	0.12
05	NAO106	51648_04	2,125	1.70%	1	0.70	0.41
05	NAO106	51648_05	2,125	1.60%	1	0.76	0.44
05	NAO106	51648_09	2,125	2.00%	1	0.30	0.32
05	NAO106	51648_11	2,125	2.30%	1	0.10	0.38
05	NAO106	51648_12	2,125	0.00%	3	0.91	0.62
05	NAO106	51699_02	2,125	0.70%	1	0.58	0.45
05	NAO106	51699_05	2,125	0.60%	1	0.58	0.43
05	NAO106	51699_08	2,125	0.70%	1	0.31	0.14
05	NAO106	51699_10	2,125	0.60%	1	0.77	0.38
05	NAO106	51699_11	2,125	0.60%	1	0.31	0.23
05	NAO106	51699_12	2,125	0.00%	4	0.87	0.67

Table A.7. Classical Item Analysis by Form for Grade 5

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO101	81619_02	2,125	0.80%	2	0.52	0.49
08	NAO101	81619_03	2,125	0.70%	1	0.64	0.33
08	NAO101	81619_05	2,125	0.70%	1	0.45	0.55
08	NAO101	81619_06	2,125	0.00%	2	0.85	0.69
08	NAO101	81619_09	2,125	0.70%	1	0.37	0.46
08	NAO101	81619_10	2,125	0.90%	1	0.61	0.52
08	NAO101	81622_01	2,125	0.80%	1	0.44	0.16
08	NAO101	81622_02	2,125	1.00%	1	0.63	0.62
08	NAO101	81622_07	2,125	1.00%	1	0.36	0.39
08	NAO101	81622_08	2,125	1.10%	1	0.75	0.33
08	NAO101	81622_10	2,125	1.40%	1	0.67	0.62
08	NAO101	81622_11	2,125	0.00%	3	0.81	0.67
08	NAO101	81623_01	2,125	0.90%	1	0.11	0.13
08	NAO101	81623_03	2,125	0.80%	1	0.53	0.26
08	NAO101	81623_07	2,125	0.90%	1	0.33	0.26
08	NAO101	81623_09	2,125	1.00%	1	0.23	0.41
08	NAO101	81623_11	2,125	2.30%	1	0.19	0.54
08	NAO101	81623_12	2,125	0.00%	3	0.63	0.66
08	NAO101	81625_01	2,125	1.00%	1	0.45	0.32
08	NAO101	81625_02	2,125	1.00%	1	0.28	0.28
08	NAO101	81625_03	2,125	0.90%	1	0.58	0.45
08	NAO101	81625_06	2,125	1.00%	1	0.31	0.08
08	NAO101	81625_08	2,125	1.10%	1	0.33	0.25
08	NAO101	81625_11	2,125	0.00%	3	1.12	0.66
08	NAO101	81626_01	2,125	0.70%	1	0.45	0.43
08	NAO101	81626_04	2,125	0.80%	1	0.11	0.27
08	NAO101	81626_05	2,125	0.60%	1	0.91	0.44
08	NAO101	81626_07	2,125	0.60%	1	0.85	0.27
08	NAO101	81626_10	2,125	0.70%	1	0.42	0.25
08	NAO101	81626_12	2,125	0.00%	3	0.80	0.61
08	NAO101	81630_01	2,125	1.40%	1	0.50	0.39
08	NAO101	81630_03	2,125	1.50%	2	0.92	0.48
08	NAO101	81630_04	2,125	1.40%	1	0.61	0.47
08	NAO101	81630_05	2,125	1.40%	1	0.30	0.50
08	NAO101	81630_08	2,125	1.40%	1	0.56	0.34
08	NAO101	81630_12	2,125	0.00%	2	0.84	0.54
08	NAO101	81633_02	2,125	1.20%	1	0.40	0.48
08	NAO101	81633_03	2,125	0.80%	1	0.55	0.53
08	NAO101	81633_05	2,125	0.80%	1	0.63	0.39
08	NAO101	81633_06	2,125	0.00%	3	1.03	0.59

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO101	81633_09	2,125	0.90%	1	0.25	0.04
08	NAO101	81633_10	2,125	1.00%	1	0.74	0.47
08	NAO101	81636_01	2,125	1.80%	1	0.41	0.33
08	NAO101	81636_03	2,125	1.60%	1	0.36	0.24
08	NAO101	81636_05	2,125	1.70%	1	0.22	0.30
08	NAO101	81636_06	2,125	0.00%	3	0.88	0.68
08	NAO101	81636_09	2,125	1.80%	1	0.71	0.44
08	NAO101	81636_10	2,125	1.90%	1	0.43	0.33
08	NAO101	81639_01	2,125	0.80%	1	0.14	0.13
08	NAO101	81639_04	2,125	0.80%	1	0.53	0.41
08	NAO101	81639_05	2,125	0.80%	1	0.67	0.47
08	NAO101	81639_06	2,125	0.00%	3	0.90	0.57
08	NAO101	81639_08	2,125	0.80%	1	0.07	0.19
08	NAO101	81639_11	2,125	0.90%	1	0.24	0.41
08	NAO101	81643_01	2,125	1.00%	2	0.62	0.46
08	NAO101	81643_02	2,125	0.60%	1	0.55	0.40
08	NAO101	81643_04	2,125	0.90%	1	0.31	0.56
08	NAO101	81643_06	2,125	0.60%	1	0.49	0.31
08	NAO101	81643_07	2,125	0.60%	1	0.71	0.51
08	NAO101	81643_12	2,125	0.00%	2	0.96	0.65
08	NAO101	81698_01	2,125	1.10%	1	0.48	0.50
08	NAO101	81698_02	2,125	1.10%	1	0.58	0.38
08	NAO101	81698_04	2,125	1.10%	1	0.37	0.39
08	NAO101	81698_05	2,125	1.30%	1	0.41	0.53
08	NAO101	81698_06	2,125	0.00%	4	1.38	0.75
08	NAO101	81698_07	2,125	1.10%	1	0.63	0.56

Table A.8. Classical Item Analysis by Form for Grade 8

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO101	81619_02	2,125	0.80%	2	0.52	0.49
08	NAO101	81619_03	2,125	0.70%	1	0.64	0.33
08	NAO101	81619_05	2,125	0.70%	1	0.45	0.55
08	NAO101	81619_06	2,125	0.00%	2	0.85	0.69
08	NAO101	81619_09	2,125	0.70%	1	0.37	0.46
08	NAO101	81619_10	2,125	0.90%	1	0.61	0.52
08	NAO101	81622_01	2,125	0.80%	1	0.44	0.16
08	NAO101	81622_02	2,125	1.00%	1	0.63	0.62
08	NAO101	81622_07	2,125	1.00%	1	0.36	0.39
08	NAO101	81622_08	2,125	1.10%	1	0.75	0.33
08	NAO101	81622_10	2,125	1.40%	1	0.67	0.62
08	NAO101	81622_11	2,125	0.00%	3	0.81	0.67
08	NAO101	81623_01	2,125	0.90%	1	0.11	0.13
08	NAO101	81623_03	2,125	0.80%	1	0.53	0.26
08	NAO101	81623_07	2,125	0.90%	1	0.33	0.26
08	NAO101	81623_09	2,125	1.00%	1	0.23	0.41
08	NAO101	81623_11	2,125	2.30%	1	0.19	0.54
08	NAO101	81623_12	2,125	0.00%	3	0.63	0.66
08	NAO101	81625_01	2,125	1.00%	1	0.45	0.32
08	NAO101	81625_02	2,125	1.00%	1	0.28	0.28
08	NAO101	81625_03	2,125	0.90%	1	0.58	0.45
08	NAO101	81625_06	2,125	1.00%	1	0.31	0.08
08	NAO101	81625_08	2,125	1.10%	1	0.33	0.25
08	NAO101	81625_11	2,125	0.00%	3	1.12	0.66
08	NAO101	81626_01	2,125	0.70%	1	0.45	0.43
08	NAO101	81626_04	2,125	0.80%	1	0.11	0.27
08	NAO101	81626_05	2,125	0.60%	1	0.91	0.44
08	NAO101	81626_07	2,125	0.60%	1	0.85	0.27
08	NAO101	81626_10	2,125	0.70%	1	0.42	0.25
08	NAO101	81626_12	2,125	0.00%	3	0.80	0.61
08	NAO101	81630_01	2,125	1.40%	1	0.50	0.39
08	NAO101	81630_03	2,125	1.50%	2	0.92	0.48
08	NAO101	81630_04	2,125	1.40%	1	0.61	0.47
08	NAO101	81630_05	2,125	1.40%	1	0.30	0.50
08	NAO101	81630_08	2,125	1.40%	1	0.56	0.34
08	NAO101	81630_12	2,125	0.00%	2	0.84	0.54
08	NAO101	81633_02	2,125	1.20%	1	0.40	0.48
08	NAO101	81633_03	2,125	0.80%	1	0.55	0.53
08	NAO101	81633_05	2,125	0.80%	1	0.63	0.39
08	NAO101	81633_06	2,125	0.00%	3	1.03	0.59

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO101	81633_09	2,125	0.90%	1	0.25	0.04
08	NAO101	81633_10	2,125	1.00%	1	0.74	0.47
08	NAO101	81636_01	2,125	1.80%	1	0.41	0.33
08	NAO101	81636_03	2,125	1.60%	1	0.36	0.24
08	NAO101	81636_05	2,125	1.70%	1	0.22	0.30
08	NAO101	81636_06	2,125	0.00%	3	0.88	0.68
08	NAO101	81636_09	2,125	1.80%	1	0.71	0.44
08	NAO101	81636_10	2,125	1.90%	1	0.43	0.33
08	NAO101	81639_01	2,125	0.80%	1	0.14	0.13
08	NAO101	81639_04	2,125	0.80%	1	0.53	0.41
08	NAO101	81639_05	2,125	0.80%	1	0.67	0.47
08	NAO101	81639_06	2,125	0.00%	3	0.90	0.57
08	NAO101	81639_08	2,125	0.80%	1	0.07	0.19
08	NAO101	81639_11	2,125	0.90%	1	0.24	0.41
08	NAO101	81643_01	2,125	1.00%	2	0.62	0.46
08	NAO101	81643_02	2,125	0.60%	1	0.55	0.40
08	NAO101	81643_04	2,125	0.90%	1	0.31	0.56
08	NAO101	81643_06	2,125	0.60%	1	0.49	0.31
08	NAO101	81643_07	2,125	0.60%	1	0.71	0.51
08	NAO101	81643_12	2,125	0.00%	2	0.96	0.65
08	NAO101	81698_01	2,125	1.10%	1	0.48	0.50
08	NAO101	81698_02	2,125	1.10%	1	0.58	0.38
08	NAO101	81698_04	2,125	1.10%	1	0.37	0.39
08	NAO101	81698_05	2,125	1.30%	1	0.41	0.53
08	NAO101	81698_06	2,125	0.00%	4	1.38	0.75
08	NAO101	81698_07	2,125	1.10%	1	0.63	0.56

Table A.9. Classical Item Analysis by Form for Grade 8

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO102	81619_01	2,125	0.60%	1	0.42	0.16
08	NAO102	81619_04	2,125	0.70%	1	0.03	0.13
08	NAO102	81619_07	2,125	1.30%	1	0.63	0.45
08	NAO102	81619_08	2,125	2.60%	2	1.13	0.57
08	NAO102	81619_11	2,125	0.70%	1	0.45	0.44
08	NAO102	81619_12	2,125	0.00%	2	0.44	0.58
08	NAO102	81622_03	2,125	0.70%	1	0.52	0.29
08	NAO102	81622_04	2,125	0.70%	1	0.89	0.44
08	NAO102	81622_05	2,125	0.80%	1	0.54	0.49
08	NAO102	81622_06	2,125	0.80%	1	0.32	0.58
08	NAO102	81622_09	2,125	0.80%	1	0.52	0.48
08	NAO102	81622_12	2,125	0.00%	3	0.73	0.70
08	NAO102	81623_02	2,125	0.60%	1	0.13	0.35
08	NAO102	81623_04	2,125	0.50%	1	0.41	0.18
08	NAO102	81623_05	2,125	0.50%	1	0.23	0.45
08	NAO102	81623_06	2,125	0.00%	3	0.85	0.63
08	NAO102	81623_08	2,125	0.70%	1	0.09	0.19
08	NAO102	81623_10	2,125	0.60%	1	0.12	0.43
08	NAO102	81625_04	2,125	0.50%	1	0.53	0.53
08	NAO102	81625_05	2,125	0.50%	1	0.25	0.29
08	NAO102	81625_07	2,125	1.00%	1	0.51	0.39
08	NAO102	81625_09	2,125	0.60%	1	0.47	0.45
08	NAO102	81625_10	2,125	0.50%	1	0.30	0.37
08	NAO102	81625_12	2,125	0.00%	3	1.32	0.63
08	NAO102	81626_02	2,125	0.50%	1	0.60	0.32
08	NAO102	81626_03	2,125	0.70%	1	0.73	0.50
08	NAO102	81626_06	2,125	0.00%	3	0.84	0.64
08	NAO102	81626_08	2,125	0.50%	1	0.65	0.45
08	NAO102	81626_09	2,125	0.50%	1	0.41	0.35
08	NAO102	81626_11	2,125	0.60%	1	0.34	0.54
08	NAO102	81630_02	2,125	0.90%	1	0.56	0.42
08	NAO102	81630_06	2,125	0.00%	2	0.89	0.65
08	NAO102	81630_07	2,125	1.00%	2	0.98	0.55
08	NAO102	81630_09	2,125	1.10%	1	0.55	0.41
08	NAO102	81630_10	2,125	1.10%	1	0.31	0.27
08	NAO102	81630_11	2,125	1.20%	1	0.56	0.58
08	NAO102	81633_01	2,125	0.60%	1	0.61	0.39
08	NAO102	81633_04	2,125	0.80%	1	0.59	0.52
08	NAO102	81633_07	2,125	0.80%	1	0.37	0.41
08	NAO102	81633_08	2,125	0.80%	1	0.48	0.30

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO102	81633_11	2,125	0.80%	1	0.64	0.52
08	NAO102	81633_12	2,125	0.00%	3	1.02	0.63
08	NAO102	81636_02	2,125	1.30%	1	0.09	0.26
08	NAO102	81636_04	2,125	1.20%	1	0.03	0.14
08	NAO102	81636_07	2,125	1.40%	1	0.33	0.19
08	NAO102	81636_08	2,125	1.80%	1	0.41	-0.02
08	NAO102	81636_11	2,125	2.00%	1	0.12	0.29
08	NAO102	81636_12	2,125	0.00%	3	0.98	0.68
08	NAO102	81639_02	2,125	0.40%	1	0.31	0.40
08	NAO102	81639_03	2,125	0.60%	1	0.45	0.39
08	NAO102	81639_04	2,125	0.50%	1	0.48	0.35
08	NAO102	81639_07	2,125	0.50%	1	0.24	0.24
08	NAO102	81639_10	2,125	0.50%	1	0.13	0.14
08	NAO102	81639_12	2,125	0.00%	3	0.63	0.52
08	NAO102	81643_03	2,125	0.50%	1	0.42	0.48
08	NAO102	81643_05	2,125	0.70%	1	0.22	0.41
08	NAO102	81643_08	2,125	0.60%	1	0.49	0.50
08	NAO102	81643_09	2,125	1.30%	1	0.71	0.35
08	NAO102	81643_10	2,125	0.60%	2	1.17	0.56
08	NAO102	81643_11	2,125	0.00%	2	0.81	0.66
08	NAO102	81698_03	2,125	0.70%	1	0.35	0.35
08	NAO102	81698_08	2,125	0.60%	1	0.42	0.44
08	NAO102	81698_09	2,125	0.60%	1	0.26	0.32
08	NAO102	81698_10	2,125	0.60%	1	0.27	0.50
08	NAO102	81698_11	2,125	0.70%	1	0.30	0.48
08	NAO102	81698_12	2,125	0.00%	4	1.46	0.75

Table A.10. Classical Item Analysis by Form for Grade 8

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO103	81601_01	2,125	0.50%	1	0.28	0.32
08	NAO103	81601_04	2,125	0.50%	1	0.31	0.35
08	NAO103	81601_06	2,125	0.00%	2	1.04	0.65
08	NAO103	81601_07	2,125	0.50%	2	1.51	0.61
08	NAO103	81601_09	2,125	0.50%	1	0.05	0.16
08	NAO103	81601_11	2,125	0.50%	1	0.60	0.60
08	NAO103	81602_01	2,125	0.60%	1	0.31	0.45
08	NAO103	81602_02	2,125	0.90%	1	0.33	0.57
08	NAO103	81602_03	2,125	0.90%	1	0.30	0.35
08	NAO103	81602_05	2,125	0.80%	1	0.29	0.38
08	NAO103	81602_08	2,125	0.80%	1	0.56	0.33
08	NAO103	81602_11	2,125	0.00%	3	0.52	0.62
08	NAO103	81617_01	2,125	1.30%	1	0.31	0.17
08	NAO103	81617_03	2,125	1.50%	1	0.18	0.15
08	NAO103	81617_08	2,125	1.50%	1	0.53	0.48
08	NAO103	81617_10	2,125	1.70%	1	0.37	0.60
08	NAO103	81617_11	2,125	1.40%	1	0.53	0.43
08	NAO103	81617_12	2,125	0.00%	3	1.23	0.73
08	NAO103	81618_01	2,125	0.40%	1	0.29	0.29
08	NAO103	81618_03	2,125	0.40%	1	0.29	0.35
08	NAO103	81618_05	2,125	0.40%	1	0.56	0.47
08	NAO103	81618_06	2,125	0.00%	3	1.38	0.64
08	NAO103	81618_07	2,125	0.40%	1	0.53	0.52
08	NAO103	81618_09	2,125	0.40%	1	0.44	0.38
08	NAO103	81619_02	2,125	1.80%	2	0.47	0.46
08	NAO103	81619_03	2,125	1.20%	1	0.61	0.32
08	NAO103	81619_05	2,125	1.40%	1	0.40	0.52
08	NAO103	81619_06	2,125	0.00%	2	0.79	0.67
08	NAO103	81619_09	2,125	1.00%	1	0.34	0.51
08	NAO103	81619_10	2,125	1.60%	1	0.53	0.56
08	NAO103	81620_01	2,125	0.50%	1	0.62	0.38
08	NAO103	81620_02	2,125	0.50%	1	0.43	0.45
08	NAO103	81620_04	2,125	0.60%	1	0.43	0.44
08	NAO103	81620_06	2,125	0.00%	3	0.96	0.68
08	NAO103	81620_08	2,125	0.60%	1	0.42	0.61
08	NAO103	81620_11	2,125	0.80%	1	0.38	0.41
08	NAO103	81626_01	2,125	0.70%	1	0.46	0.44
08	NAO103	81626_04	2,125	0.80%	1	0.12	0.26
08	NAO103	81626_05	2,125	0.80%	1	0.90	0.43
08	NAO103	81626_07	2,125	0.80%	1	0.84	0.36

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO103	81626_10	2,125	0.80%	1	0.42	0.31
08	NAO103	81626_12	2,125	0.00%	3	0.79	0.60
08	NAO103	81630_01	2,125	0.50%	1	0.53	0.40
08	NAO103	81630_03	2,125	0.50%	2	0.95	0.42
08	NAO103	81630_04	2,125	0.70%	1	0.66	0.45
08	NAO103	81630_05	2,125	0.60%	1	0.30	0.46
08	NAO103	81630_08	2,125	0.70%	1	0.62	0.34
08	NAO103	81630_12	2,125	0.00%	2	0.88	0.53
08	NAO103	81637_02	2,125	0.80%	1	0.05	0.13
08	NAO103	81637_03	2,125	0.50%	1	0.34	0.33
08	NAO103	81637_04	2,125	0.70%	1	0.30	0.27
08	NAO103	81637_05	2,125	0.70%	1	0.47	0.14
08	NAO103	81637_07	2,125	0.70%	1	0.66	0.25
08	NAO103	81637_11	2,125	0.00%	3	0.70	0.62
08	NAO103	81641_01	2,125	0.50%	1	0.36	0.23
08	NAO103	81641_02	2,125	0.50%	1	0.50	0.35
08	NAO103	81641_03	2,125	0.60%	1	0.36	0.23
08	NAO103	81641_07	2,125	0.60%	1	0.47	0.31
08	NAO103	81641_10	2,125	0.60%	1	0.62	0.44
08	NAO103	81641_12	2,125	0.00%	3	1.10	0.70
08	NAO103	81697_01	2,125	0.90%	1	0.56	0.46
08	NAO103	81697_02	2,125	0.90%	1	0.66	0.49
08	NAO103	81697_03	2,125	0.90%	1	0.11	0.36
08	NAO103	81697_05	2,125	0.90%	1	0.81	0.46
08	NAO103	81697_10	2,125	0.90%	1	0.52	0.60
08	NAO103	81697_12	2,125	0.00%	4	1.14	0.73

Table A.11. Classical Item Analysis by Form for Grade 8

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO104	81601_02	2,125	0.70%	2	0.99	0.47
08	NAO104	81601_03	2,125	0.50%	1	0.48	0.61
08	NAO104	81601_05	2,125	1.90%	1	0.13	0.06
08	NAO104	81601_08	2,125	0.60%	1	0.45	0.46
08	NAO104	81601_10	2,125	0.50%	1	0.50	0.32
08	NAO104	81601_12	2,125	0.00%	2	0.97	0.68
08	NAO104	81602_04	2,125	0.90%	1	0.28	0.38
08	NAO104	81602_06	2,125	1.00%	1	0.44	0.50
08	NAO104	81602_07	2,125	0.90%	1	0.17	0.22
08	NAO104	81602_09	2,125	0.90%	1	0.03	0.10
08	NAO104	81602_10	2,125	1.00%	1	0.56	0.56
08	NAO104	81602_12	2,125	0.00%	3	0.67	0.60
08	NAO104	81617_02	2,125	1.00%	1	0.92	0.29
08	NAO104	81617_04	2,125	1.40%	1	0.08	0.28
08	NAO104	81617_05	2,125	1.20%	1	0.16	0.13
08	NAO104	81617_06	2,125	0.00%	3	1.20	0.70
08	NAO104	81617_07	2,125	1.50%	1	0.49	0.37
08	NAO104	81617_09	2,125	1.60%	1	0.43	0.33
08	NAO104	81618_02	2,125	0.30%	1	0.11	0.13
08	NAO104	81618_04	2,125	0.20%	1	0.19	0.17
08	NAO104	81618_08	2,125	0.30%	1	0.16	-0.03
08	NAO104	81618_10	2,125	0.40%	1	0.59	0.54
08	NAO104	81618_11	2,125	0.40%	1	0.91	0.38
08	NAO104	81618_12	2,125	0.00%	3	1.43	0.60
08	NAO104	81619_01	2,125	1.30%	1	0.42	0.16
08	NAO104	81619_04	2,125	1.50%	1	0.02	0.10
08	NAO104	81619_07	2,125	1.80%	1	0.64	0.49
08	NAO104	81619_08	2,125	3.10%	2	1.11	0.61
08	NAO104	81619_11	2,125	1.30%	1	0.44	0.45
08	NAO104	81619_12	2,125	0.00%	2	0.46	0.60
08	NAO104	81620_03	2,125	0.60%	1	0.25	0.17
08	NAO104	81620_04	2,125	0.70%	1	0.45	0.36
08	NAO104	81620_07	2,125	0.90%	1	0.78	0.50
08	NAO104	81620_09	2,125	0.80%	1	0.26	0.34
08	NAO104	81620_10	2,125	0.90%	1	0.26	0.48
08	NAO104	81620_12	2,125	0.00%	3	0.63	0.58
08	NAO104	81626_02	2,125	0.80%	1	0.60	0.32
08	NAO104	81626_03	2,125	0.80%	1	0.72	0.51
08	NAO104	81626_06	2,125	0.00%	3	0.84	0.63
08	NAO104	81626_08	2,125	0.80%	1	0.66	0.47

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO104	81626_09	2,125	0.80%	1	0.40	0.39
08	NAO104	81626_11	2,125	0.90%	1	0.36	0.57
08	NAO104	81630_03	2,125	0.50%	2	0.95	0.44
08	NAO104	81630_04	2,125	1.00%	1	0.65	0.48
08	NAO104	81630_06	2,125	0.00%	2	1.04	0.65
08	NAO104	81630_08	2,125	0.60%	1	0.63	0.30
08	NAO104	81630_10	2,125	0.70%	1	0.39	0.32
08	NAO104	81630_11	2,125	0.60%	1	0.64	0.56
08	NAO104	81637_01	2,125	0.80%	1	0.62	0.54
08	NAO104	81637_06	2,125	1.00%	1	0.36	0.29
08	NAO104	81637_08	2,125	0.80%	1	0.33	0.15
08	NAO104	81637_09	2,125	0.80%	1	0.20	0.28
08	NAO104	81637_10	2,125	0.80%	1	0.15	0.30
08	NAO104	81637_12	2,125	0.00%	3	0.47	0.63
08	NAO104	81641_04	2,125	0.50%	1	0.31	0.40
08	NAO104	81641_05	2,125	0.50%	1	0.24	0.14
08	NAO104	81641_06	2,125	0.70%	1	0.18	0.36
08	NAO104	81641_08	2,125	0.50%	1	0.65	0.50
08	NAO104	81641_09	2,125	0.50%	1	0.62	0.52
08	NAO104	81641_11	2,125	0.00%	3	0.84	0.67
08	NAO104	81697_04	2,125	0.80%	1	0.58	0.50
08	NAO104	81697_06	2,125	0.00%	4	1.48	0.76
08	NAO104	81697_07	2,125	0.90%	1	0.66	0.57
08	NAO104	81697_08	2,125	1.00%	1	0.27	0.47
08	NAO104	81697_09	2,125	0.80%	1	0.69	0.55
08	NAO104	81697_11	2,125	0.80%	1	0.74	0.57

Table A.12. Classical Item Analysis by Form for Grade 8

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO105	81601_01	2,125	0.80%	1	0.22	0.28
08	NAO105	81601_04	2,125	0.80%	1	0.28	0.23
08	NAO105	81601_06	2,125	0.00%	2	1.00	0.64
08	NAO105	81601_07	2,125	0.90%	2	1.48	0.62
08	NAO105	81601_09	2,125	0.80%	1	0.04	0.14
08	NAO105	81601_11	2,125	0.90%	1	0.62	0.60
08	NAO105	81605_02	2,125	1.10%	1	0.28	0.41
08	NAO105	81605_04	2,125	0.80%	1	0.63	0.44
08	NAO105	81605_05	2,125	0.60%	1	0.63	0.37
08	NAO105	81605_08	2,125	0.80%	1	0.77	0.42
08	NAO105	81605_09	2,125	1.20%	2	0.82	0.61
08	NAO105	81605_12	2,125	0.00%	2	1.57	0.54
08	NAO105	81616_02	2,125	0.90%	1	0.06	0.07
08	NAO105	81616_03	2,125	1.00%	1	0.49	0.41
08	NAO105	81616_05	2,125	1.00%	1	0.11	0.20
08	NAO105	81616_08	2,125	1.30%	1	0.28	0.27
08	NAO105	81616_10	2,125	1.30%	1	0.18	0.39
08	NAO105	81616_12	2,125	0.00%	3	0.75	0.66
08	NAO105	81620_01	2,125	0.90%	1	0.60	0.39
08	NAO105	81620_02	2,125	1.00%	1	0.41	0.42
08	NAO105	81620_04	2,125	1.00%	1	0.39	0.40
08	NAO105	81620_06	2,125	0.00%	3	0.89	0.66
08	NAO105	81620_08	2,125	1.00%	1	0.39	0.61
08	NAO105	81620_11	2,125	1.00%	1	0.37	0.42
08	NAO105	81621_01	2,125	0.60%	1	0.84	0.30
08	NAO105	81621_03	2,125	0.60%	1	0.45	0.34
08	NAO105	81621_06	2,125	0.00%	3	1.30	0.63
08	NAO105	81621_07	2,125	0.60%	1	0.27	0.40
08	NAO105	81621_10	2,125	0.90%	1	0.40	0.42
08	NAO105	81621_11	2,125	0.60%	1	0.13	0.22
08	NAO105	81625_01	2,125	1.30%	1	0.47	0.31
08	NAO105	81625_02	2,125	1.40%	1	0.28	0.24
08	NAO105	81625_03	2,125	1.30%	1	0.56	0.46
08	NAO105	81625_06	2,125	1.30%	1	0.32	0.14
08	NAO105	81625_08	2,125	1.30%	1	0.29	0.26
08	NAO105	81625_11	2,125	0.00%	3	1.07	0.66
08	NAO105	81627_01	2,125	1.60%	1	0.60	0.34
08	NAO105	81627_02	2,125	2.70%	1	0.66	0.46
08	NAO105	81627_03	2,125	1.80%	1	0.14	0.27
08	NAO105	81627_07	2,125	3.00%	1	0.23	-0.10

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO105	81627_08	2,125	2.40%	1	0.34	0.34
08	NAO105	81627_12	2,125	0.00%	3	0.53	0.56
08	NAO105	81633_02	2,125	1.50%	1	0.35	0.47
08	NAO105	81633_03	2,125	1.00%	1	0.51	0.54
08	NAO105	81633_05	2,125	1.10%	1	0.62	0.35
08	NAO105	81633_06	2,125	0.00%	3	1.01	0.59
08	NAO105	81633_09	2,125	1.10%	1	0.24	0.01
08	NAO105	81633_10	2,125	1.10%	1	0.72	0.50
08	NAO105	81640_01	2,125	2.30%	1	0.56	0.51
08	NAO105	81640_02	2,125	1.30%	1	0.26	0.40
08	NAO105	81640_06	2,125	0.00%	3	1.04	0.63
08	NAO105	81640_08	2,125	1.40%	1	0.67	0.45
08	NAO105	81640_09	2,125	1.40%	1	0.12	0.37
08	NAO105	81640_11	2,125	1.60%	1	0.51	0.42
08	NAO105	81643_01	2,125	1.30%	2	0.59	0.45
08	NAO105	81643_02	2,125	0.80%	1	0.56	0.41
08	NAO105	81643_04	2,125	0.90%	1	0.30	0.56
08	NAO105	81643_06	2,125	1.10%	1	0.51	0.32
08	NAO105	81643_07	2,125	0.90%	1	0.69	0.53
08	NAO105	81643_12	2,125	0.00%	2	0.91	0.66
08	NAO105	81699_01	2,125	1.20%	1	0.35	0.46
08	NAO105	81699_04	2,125	1.30%	1	0.35	0.15
08	NAO105	81699_07	2,125	1.20%	1	0.51	0.41
08	NAO105	81699_10	2,125	1.10%	1	0.35	0.07
08	NAO105	81699_11	2,125	1.10%	1	0.05	0.09
08	NAO105	81699_12	2,125	0.00%	4	0.52	0.59

Table A.13. Classical Item Analysis by Form for Grade 8

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO106	81601_02	2,125	0.60%	2	0.93	0.51
08	NAO106	81601_03	2,125	0.40%	1	0.44	0.59
08	NAO106	81601_05	2,125	0.90%	1	0.13	0.05
08	NAO106	81601_08	2,125	0.40%	1	0.40	0.44
08	NAO106	81601_10	2,125	0.40%	1	0.49	0.30
08	NAO106	81601_12	2,125	0.00%	2	0.88	0.64
08	NAO106	81605_01	2,125	6.50%	2	1.48	0.61
08	NAO106	81605_03	2,125	0.80%	1	0.54	0.34
08	NAO106	81605_06	2,125	0.00%	2	0.91	0.62
08	NAO106	81605_07	2,125	0.70%	1	0.18	0.30
08	NAO106	81605_10	2,125	0.80%	1	0.58	0.47
08	NAO106	81605_11	2,125	0.60%	1	0.78	0.40
08	NAO106	81616_01	2,125	0.50%	1	0.26	0.28
08	NAO106	81616_04	2,125	0.40%	1	0.04	0.09
08	NAO106	81616_06	2,125	0.00%	3	0.48	0.46
08	NAO106	81616_07	2,125	0.40%	1	0.12	0.33
08	NAO106	81616_09	2,125	0.50%	1	0.69	0.53
08	NAO106	81616_11	2,125	0.50%	1	0.11	0.27
08	NAO106	81620_03	2,125	0.70%	1	0.24	0.08
08	NAO106	81620_04	2,125	0.80%	1	0.40	0.44
08	NAO106	81620_07	2,125	1.00%	1	0.77	0.52
08	NAO106	81620_09	2,125	0.70%	1	0.25	0.32
08	NAO106	81620_10	2,125	0.90%	1	0.24	0.45
08	NAO106	81620_12	2,125	0.00%	3	0.56	0.59
08	NAO106	81621_02	2,125	0.30%	1	0.50	0.37
08	NAO106	81621_04	2,125	0.30%	1	0.25	0.44
08	NAO106	81621_05	2,125	0.20%	1	0.72	0.34
08	NAO106	81621_08	2,125	0.60%	1	0.43	0.40
08	NAO106	81621_09	2,125	0.50%	1	0.23	0.14
08	NAO106	81621_12	2,125	0.00%	3	0.64	0.63
08	NAO106	81625_04	2,125	0.80%	1	0.52	0.51
08	NAO106	81625_05	2,125	0.60%	1	0.27	0.28
08	NAO106	81625_07	2,125	1.30%	1	0.50	0.37
08	NAO106	81625_09	2,125	0.60%	1	0.49	0.46
08	NAO106	81625_10	2,125	0.90%	1	0.30	0.38
08	NAO106	81625_12	2,125	0.00%	3	1.24	0.66
08	NAO106	81627_04	2,125	1.30%	1	0.26	0.23
08	NAO106	81627_05	2,125	1.30%	1	0.68	0.50
08	NAO106	81627_06	2,125	0.00%	3	1.26	0.69
08	NAO106	81627_09	2,125	1.50%	1	0.27	0.41

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAO106	81627_10	2,125	1.60%	1	0.22	0.37
08	NAO106	81627_11	2,125	1.00%	1	0.73	0.43
08	NAO106	81633_01	2,125	0.80%	1	0.60	0.40
08	NAO106	81633_04	2,125	0.90%	1	0.57	0.53
08	NAO106	81633_07	2,125	0.90%	1	0.39	0.40
08	NAO106	81633_08	2,125	1.00%	1	0.48	0.26
08	NAO106	81633_11	2,125	0.90%	1	0.60	0.53
08	NAO106	81633_12	2,125	0.00%	3	0.96	0.62
08	NAO106	81640_03	2,125	1.20%	1	0.52	0.37
08	NAO106	81640_04	2,125	1.30%	1	0.54	0.45
08	NAO106	81640_07	2,125	1.10%	1	0.72	0.46
08	NAO106	81640_10	2,125	1.00%	1	0.44	0.37
08	NAO106	81640_11	2,125	1.10%	1	0.53	0.41
08	NAO106	81640_12	2,125	0.00%	3	0.70	0.60
08	NAO106	81643_03	2,125	0.70%	1	0.42	0.48
08	NAO106	81643_05	2,125	0.80%	1	0.24	0.44
08	NAO106	81643_08	2,125	0.80%	1	0.47	0.45
08	NAO106	81643_09	2,125	0.80%	1	0.65	0.33
08	NAO106	81643_10	2,125	0.80%	2	1.04	0.57
08	NAO106	81643_11	2,125	0.00%	2	0.78	0.66
08	NAO106	81699_02	2,125	1.00%	1	0.48	0.47
08	NAO106	81699_03	2,125	1.00%	1	0.52	0.21
08	NAO106	81699_05	2,125	1.00%	1	0.11	0.30
08	NAO106	81699_06	2,125	0.00%	4	0.61	0.57
08	NAO106	81699_08	2,125	0.90%	1	0.26	0.10
08	NAO106	81699_09	2,125	1.00%	1	0.36	0.51

Table A.14. Classical Item Analysis by Form for Grade 8

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAP101	81619_02P	803	4.50%	2	0.51	0.39
08	NAP101	81619_03P	803	3.40%	1	0.62	0.46
08	NAP101	81619_05P	803	2.70%	1	0.59	0.50
08	NAP101	81619_06P	803	0.00%	2	0.80	0.71
08	NAP101	81619_09P	803	3.60%	1	0.12	0.30
08	NAP101	81619_10P	803	3.20%	1	0.54	0.59
08	NAP101	81622_01P	803	3.00%	1	0.44	0.34
08	NAP101	81622_02P	803	3.90%	1	0.58	0.69
08	NAP101	81622_07P	803	3.80%	1	0.38	0.43
08	NAP101	81622_08P	803	4.10%	1	0.53	0.44
08	NAP101	81622_10P	803	3.10%	1	0.68	0.62
08	NAP101	81622_11P	803	0.00%	3	0.76	0.74
08	NAP101	81623_01P	803	3.00%	1	0.33	0.20
08	NAP101	81623_03P	803	3.00%	1	0.47	0.36
08	NAP101	81623_07P	803	2.80%	1	0.43	0.24
08	NAP101	81623_09P	803	3.50%	1	0.22	0.42
08	NAP101	81623_11P	803	2.60%	1	0.37	0.40
08	NAP101	81623_12P	803	0.00%	3	0.60	0.70
08	NAP101	81625_01P	803	2.60%	1	0.42	0.37
08	NAP101	81625_02P	803	2.90%	1	0.25	0.23
08	NAP101	81625_03P	803	3.60%	1	0.52	0.43
08	NAP101	81625_06P	803	2.90%	1	0.31	0.12
08	NAP101	81625_08P	803	3.30%	1	0.26	0.25
08	NAP101	81625_11P	803	0.00%	3	1.11	0.72
08	NAP101	81626_01P	803	2.00%	1	0.45	0.47
08	NAP101	81626_04P	803	2.90%	1	0.12	0.36
08	NAP101	81626_05P	803	2.00%	1	0.80	0.56
08	NAP101	81626_07P	803	2.50%	1	0.82	0.35
08	NAP101	81626_10P	803	1.90%	1	0.41	0.19
08	NAP101	81626_12P	803	0.00%	3	0.72	0.64
08	NAP101	81630_01P	803	3.40%	1	0.57	0.49
08	NAP101	81630_03P	803	4.40%	2	0.85	0.51
08	NAP101	81630_04P	803	3.20%	1	0.58	0.52
08	NAP101	81630_05P	803	3.70%	1	0.29	0.55
08	NAP101	81630_08P	803	3.30%	1	0.58	0.48
08	NAP101	81630_12P	803	0.00%	2	0.78	0.60
08	NAP101	81633_02P	803	2.40%	1	0.21	0.44
08	NAP101	81633_03P	803	1.40%	1	0.55	0.53
08	NAP101	81633_05P	803	2.10%	1	0.58	0.49
08	NAP101	81633_06P	803	0.00%	3	0.92	0.63

Grade	Form ID	UIN	N	% Omit	Max Score	P-val/Item Mean	Point Biserial
08	NAP101	81633_09P	803	2.10%	1	0.38	0.06
08	NAP101	81633_10P	803	3.50%	1	0.70	0.56
08	NAP101	81636_01P	803	3.00%	1	0.57	0.45
08	NAP101	81636_03P	803	2.50%	1	0.41	0.36
08	NAP101	81636_05P	803	2.70%	1	0.32	0.34
08	NAP101	81636_06P	803	0.00%	3	0.91	0.75
08	NAP101	81636_09P	803	3.90%	1	0.69	0.45
08	NAP101	81636_10P	803	3.30%	1	0.45	0.32
08	NAP101	81639_01P	803	2.90%	1	0.16	0.31
08	NAP101	81639_04P	803	2.90%	1	0.53	0.51
08	NAP101	81639_05P	803	2.30%	1	0.69	0.53
08	NAP101	81639_06P	803	0.00%	3	0.84	0.69
08	NAP101	81639_08P	803	3.00%	1	0.07	0.13
08	NAP101	81639_11P	803	2.70%	1	0.34	0.38
08	NAP101	81643_01P	803	2.00%	2	0.63	0.34
08	NAP101	81643_02P	803	2.10%	1	0.54	0.43
08	NAP101	81643_04P	803	3.00%	1	0.48	0.36
08	NAP101	81643_06P	803	2.00%	1	0.56	0.36
08	NAP101	81643_07P	803	2.20%	1	0.66	0.54
08	NAP101	81643_12P	803	0.00%	2	0.97	0.66
08	NAP101	81698_01P	803	3.40%	1	0.56	0.50
08	NAP101	81698_02P	803	2.90%	1	0.64	0.56
08	NAP101	81698_04P	803	3.10%	1	0.49	0.44
08	NAP101	81698_05P	803	3.00%	1	0.60	0.57
08	NAP101	81698_06P	803	0.00%	4	1.45	0.78
08	NAP101	81698_07P	803	3.00%	1	0.65	0.62

Appendix B: MISA Distractor Analysis by Form

Table B.1. Distractor Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
05	NAO101	51600_04	2,125	1	15.20%	47.60%	16.00%	20.90%	0.09	-0.03	-0.15	0.11
05	NAO101	51600_07	2,125	1	20.30%	59.20%	15.70%	4.50%	-0.19	0.33	-0.15	-0.15
05	NAO101	51600_10	2,125	1	9.70%	61.20%	16.60%	12.10%	-0.21	0.39	-0.21	-0.13
05	NAO101	51601_01	2,125	1	20.40%	22.70%	39.30%	17.10%	-0.20	-0.15	0.35	-0.06
05	NAO101	51601_07	2,125	1	10.20%	18.40%	64.30%	6.80%	-0.16	-0.30	0.46	-0.20
05	NAO101	51614_02	2,125	1	23.70%	10.10%	58.60%	7.30%	-0.22	-0.27	0.43	-0.12
05	NAO101	51614_09	2,125	1	4.00%	57.60%	30.90%	7.30%	-0.20	0.25	-0.08	-0.16
05	NAO101	51614_10	2,125	1	11.60%	4.80%	54.20%	29.20%	-0.32	-0.25	0.09	0.26
05	NAO101	51617_02	2,125	1	22.40%	14.50%	50.50%	10.90%	-0.20	-0.24	0.44	-0.12
05	NAO101	51617_03	2,125	1	26.10%	16.90%	7.10%	47.70%	-0.15	-0.23	-0.21	0.43
05	NAO101	51617_11	2,125	1	18.60%	16.40%	8.80%	53.60%	-0.23	-0.21	-0.25	0.51
05	NAO101	51620_05	2,125	1	65.40%	12.40%	9.70%	9.20%	0.46	-0.28	-0.18	-0.19
05	NAO101	51620_06	2,125	1	18.10%	21.30%	49.00%	7.20%	-0.09	-0.19	0.34	-0.16
05	NAO101	51620_09	2,125	1	21.50%	24.40%	20.60%	27.20%	0.02	0.03	0.01	-0.02
05	NAO101	51632_01	2,125	1	25.20%	58.40%	9.20%	6.80%	-0.24	0.41	-0.22	-0.10
05	NAO101	51632_02	2,125	1	27.90%	10.80%	47.30%	13.60%	-0.03	-0.17	0.30	-0.21
05	NAO101	51632_07	2,125	1	15.30%	17.70%	36.00%	30.40%	-0.28	0.00	-0.16	0.41
05	NAO101	51636_01	2,125	1	5.90%	14.50%	8.00%	69.60%	-0.22	-0.22	-0.29	0.48
05	NAO101	51636_05	2,125	1	8.80%	28.10%	7.00%	54.60%	-0.23	-0.06	-0.21	0.33
05	NAO101	51636_06	2,125	1	23.40%	16.70%	18.40%	40.30%	-0.26	-0.10	-0.18	0.47
05	NAO101	51636_10	2,125	1	11.90%	6.80%	8.70%	71.60%	-0.12	-0.27	-0.29	0.44
05	NAO101	51638_01	2,125	1	14.30%	15.70%	34.60%	35.10%	-0.18	-0.05	0.26	-0.08
05	NAO101	51638_08	2,125	1	8.90%	30.20%	13.90%	46.60%	-0.20	-0.09	-0.10	0.28
05	NAO101	51638_10	2,125	1	14.90%	23.00%	24.60%	37.10%	-0.10	-0.15	0.01	0.20
05	NAO101	51648_01	2,125	1	4.90%	15.60%	16.60%	62.40%	-0.22	-0.35	-0.15	0.49
05	NAO101	51648_08	2,125	1	8.30%	71.90%	12.50%	6.80%	-0.30	0.40	-0.13	-0.18
05	NAO101	51648_10	2,125	1	33.00%	44.50%	11.90%	9.90%	0.25	0.06	-0.22	-0.22

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
05	NAO101	51649_03	2,125	1	56.50%	13.80%	23.10%	6.10%	0.42	-0.20	-0.26	-0.11
05	NAO101	51649_05	2,125	1	28.80%	48.00%	13.60%	8.80%	-0.08	0.29	-0.18	-0.15
05	NAO101	51649_07	2,125	1	36.80%	19.20%	20.00%	23.10%	0.13	-0.14	-0.12	0.12
05	NAO101	51697_03	2,125	1	11.40%	8.80%	69.80%	9.40%	-0.30	-0.25	0.51	-0.20
05	NAO101	51697_07	2,125	1	29.70%	8.80%	10.20%	50.70%	0.11	-0.26	-0.23	0.21
05	NAO101	51697_11	2,125	1	11.70%	8.10%	6.10%	73.60%	-0.25	-0.27	-0.25	0.50

Table B.2. Distractor Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
05	NAO102	51614_08	2,125	1	32.10%	16.70%	12.70%	38.00%	0.20	-0.25	-0.19	0.14
05	NAO102	51617_10	2,125	1	10.80%	65.50%	10.30%	10.60%	-0.23	0.50	-0.23	-0.26
05	NAO102	51617_11	2,125	1	24.20%	19.50%	6.60%	47.40%	-0.23	-0.19	-0.19	0.47
05	NAO102	51636_02	2,125	1	15.40%	51.40%	24.00%	8.00%	-0.27	0.39	-0.11	-0.14
05	NAO102	51636_03	2,125	1	4.60%	4.30%	78.60%	11.20%	-0.17	-0.17	0.40	-0.26
05	NAO102	51636_04	2,125	1	21.90%	70.90%	3.80%	2.10%	-0.33	0.46	-0.21	-0.16
05	NAO102	51636_07	2,125	1	22.30%	19.90%	34.20%	22.10%	-0.11	-0.21	0.26	0.05
05	NAO102	51638_03	2,125	1	10.50%	25.20%	29.10%	34.90%	-0.17	-0.04	-0.04	0.18
05	NAO102	51638_04	2,125	1	33.20%	29.90%	10.10%	26.30%	0.14	0.12	-0.14	-0.18
05	NAO102	51638_06	2,125	1	18.10%	14.40%	51.70%	15.50%	-0.10	-0.27	0.40	-0.18
05	NAO102	51638_09	2,125	1	19.70%	37.40%	18.10%	24.60%	-0.09	0.07	-0.16	0.16
05	NAO102	51649_01	2,125	1	52.60%	22.60%	18.60%	5.30%	0.20	-0.05	-0.11	-0.13
05	NAO102	51649_02	2,125	1	72.10%	9.00%	11.50%	6.70%	0.41	-0.22	-0.23	-0.17
05	NAO102	51649_04	2,125	1	14.70%	52.30%	21.30%	10.90%	-0.22	0.39	-0.17	-0.13

Table B.3. Distractor Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
05	NAO103	51604_04	2,125	1	79.90%	9.80%	4.40%	5.80%	0.42	-0.24	-0.24	-0.20
05	NAO103	51607_03	2,125	1	5.90%	8.80%	77.60%	7.40%	-0.23	-0.28	0.47	-0.22
05	NAO103	51609_02	2,125	1	39.10%	11.20%	30.20%	19.20%	0.03	-0.02	0.03	-0.06
05	NAO103	51615_09	2,125	1	10.90%	49.60%	17.10%	20.10%	-0.25	0.26	-0.17	0.06
05	NAO103	51615_11	2,125	1	12.90%	68.20%	12.50%	4.30%	-0.24	0.47	-0.29	-0.16
05	NAO103	51616_01	2,125	1	4.40%	8.60%	69.50%	17.20%	-0.19	-0.27	0.50	-0.28
05	NAO103	51616_10	2,125	1	12.10%	4.40%	64.80%	18.20%	-0.26	-0.23	0.51	-0.27
05	NAO103	51619_02	2,125	1	14.90%	72.60%	4.80%	5.30%	-0.24	0.48	-0.27	-0.23
05	NAO103	51698_01	2,125	1	17.60%	24.30%	49.60%	7.90%	-0.12	-0.23	0.38	-0.14
05	NAO103	51698_10	2,125	1	17.00%	51.30%	17.70%	13.30%	-0.20	0.35	-0.21	-0.03

Table B.4. Distractor Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
05	NAO104	51607_04	2,125	1	84.10%	6.20%	5.20%	3.90%	0.45	-0.19	-0.29	-0.21
05	NAO104	51607_05	2,125	1	7.30%	7.60%	5.20%	79.30%	-0.24	-0.34	-0.17	0.50
05	NAO104	51607_09	2,125	1	7.30%	77.00%	8.50%	6.60%	-0.24	0.46	-0.26	-0.19
05	NAO104	51607_10	2,125	1	8.60%	76.50%	5.90%	8.50%	-0.25	0.46	-0.24	-0.21
05	NAO104	51615_04	2,125	1	71.30%	11.00%	6.20%	9.40%	0.56	-0.33	-0.23	-0.25
05	NAO104	51633_11	2,125	1	50.20%	20.00%	21.30%	7.80%	0.33	-0.25	-0.09	-0.08
05	NAO104	51698_05	2,125	1	45.90%	15.70%	15.50%	22.00%	0.21	-0.18	-0.19	0.10
05	NAO104	51698_08	2,125	1	31.60%	28.90%	28.10%	10.50%	0.01	-0.12	0.17	-0.05

Table B.5. Distractor Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
05	NAO105	51603_06	2,125	1	22.20%	22.10%	42.50%	11.90%	-0.05	-0.18	0.23	-0.02
05	NAO105	51603_10	2,125	1	23.90%	50.30%	11.50%	12.30%	-0.19	0.37	-0.18	-0.08
05	NAO105	51607_03	2,125	1	6.40%	10.80%	73.80%	8.60%	-0.22	-0.33	0.48	-0.17
05	NAO105	51609_02	2,125	1	35.00%	12.30%	29.90%	22.10%	0.10	-0.10	0.00	-0.02
05	NAO105	51616_01	2,125	1	5.40%	10.10%	62.90%	20.90%	-0.18	-0.27	0.47	-0.23
05	NAO105	51616_10	2,125	1	14.40%	4.40%	63.30%	16.60%	-0.28	-0.24	0.53	-0.24
05	NAO105	51636_01	2,125	1	4.10%	10.50%	6.20%	78.80%	-0.21	-0.20	-0.30	0.45
05	NAO105	51636_05	2,125	1	8.10%	30.50%	4.00%	56.90%	-0.26	-0.08	-0.16	0.30
05	NAO105	51636_06	2,125	1	20.90%	16.00%	20.50%	42.10%	-0.27	-0.10	-0.19	0.46
05	NAO105	51636_10	2,125	1	11.60%	3.50%	6.00%	78.50%	-0.12	-0.19	-0.21	0.31
05	NAO105	51638_01	2,125	1	14.50%	13.40%	33.30%	34.20%	-0.13	-0.10	0.26	-0.03
05	NAO105	51638_08	2,125	1	9.30%	27.50%	16.40%	40.70%	-0.22	-0.03	-0.11	0.31
05	NAO105	51638_10	2,125	1	16.90%	20.50%	20.80%	35.30%	-0.02	-0.16	-0.01	0.23
05	NAO105	51648_01	2,125	1	5.60%	15.30%	15.80%	61.40%	-0.25	-0.31	-0.17	0.52
05	NAO105	51648_08	2,125	1	8.80%	70.30%	11.50%	6.60%	-0.27	0.38	-0.11	-0.16
05	NAO105	51648_10	2,125	1	31.60%	43.00%	12.20%	10.20%	0.27	0.09	-0.24	-0.21
05	NAO105	51699_09	2,125	1	21.50%	23.60%	32.70%	21.60%	-0.01	-0.07	-0.05	0.16

Table B.6. Distractor Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
05	NAO106	51602_05	2,125	1	56.90%	10.80%	18.10%	13.90%	0.40	-0.27	-0.13	-0.18
05	NAO106	51603_07	2,125	1	11.10%	44.10%	25.00%	18.50%	-0.24	0.09	0.16	-0.06
05	NAO106	51607_04	2,125	1	83.70%	6.40%	5.60%	3.90%	0.44	-0.20	-0.30	-0.19
05	NAO106	51607_05	2,125	1	7.90%	7.20%	5.40%	79.20%	-0.22	-0.33	-0.18	0.48
05	NAO106	51607_09	2,125	1	5.60%	77.30%	9.00%	7.70%	-0.24	0.45	-0.26	-0.19
05	NAO106	51607_10	2,125	1	9.60%	75.50%	6.00%	8.50%	-0.27	0.46	-0.23	-0.19
05	NAO106	51619_02	2,125	1	14.60%	73.50%	5.80%	5.20%	-0.28	0.51	-0.27	-0.22
05	NAO106	51636_02	2,125	1	13.00%	58.20%	22.90%	5.60%	-0.33	0.39	-0.09	-0.17
05	NAO106	51636_03	2,125	1	4.80%	2.60%	82.00%	10.20%	-0.19	-0.17	0.37	-0.23
05	NAO106	51636_04	2,125	1	21.20%	74.20%	2.40%	1.90%	-0.29	0.41	-0.19	-0.19
05	NAO106	51636_07	2,125	1	16.30%	19.50%	37.60%	26.00%	-0.11	-0.16	0.24	-0.01
05	NAO106	51638_03	2,125	1	10.40%	22.80%	28.60%	30.40%	-0.16	-0.01	0.00	0.19
05	NAO106	51638_04	2,125	1	28.80%	27.90%	11.50%	25.50%	0.15	0.11	-0.15	-0.10
05	NAO106	51638_06	2,125	1	17.30%	13.40%	47.70%	14.60%	-0.08	-0.24	0.39	-0.15
05	NAO106	51638_09	2,125	1	19.90%	31.10%	17.60%	23.00%	-0.07	0.09	-0.14	0.15

Table B.7. Distractor Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
08	NAO101	81619_03	2,125	1	16.00%	63.90%	9.70%	9.70%	-0.14	0.33	-0.27	-0.05
08	NAO101	81622_01	2,125	1	11.50%	19.10%	44.00%	24.60%	-0.04	-0.21	0.16	0.08
08	NAO101	81622_07	2,125	1	36.20%	13.60%	42.70%	6.50%	0.39	-0.28	-0.04	-0.23
08	NAO101	81623_03	2,125	1	3.70%	53.30%	38.20%	4.00%	-0.15	0.26	-0.16	-0.07
08	NAO101	81625_01	2,125	1	7.80%	44.60%	12.40%	34.20%	-0.22	0.32	-0.24	-0.01
08	NAO101	81625_03	2,125	1	58.40%	18.30%	8.20%	14.10%	0.45	-0.30	-0.21	-0.10
08	NAO101	81625_06	2,125	1	31.20%	44.30%	14.60%	8.80%	0.08	0.03	-0.07	-0.05
08	NAO101	81625_08	2,125	1	24.70%	22.20%	19.00%	33.00%	-0.05	-0.14	-0.06	0.25
08	NAO101	81626_01	2,125	1	16.20%	23.60%	45.10%	14.40%	-0.17	-0.25	0.43	-0.10
08	NAO101	81626_07	2,125	1	85.20%	2.50%	3.40%	8.30%	0.27	-0.19	-0.18	-0.08
08	NAO101	81626_10	2,125	1	14.00%	6.90%	36.80%	41.70%	-0.12	-0.18	-0.05	0.26
08	NAO101	81630_01	2,125	1	28.50%	6.20%	14.40%	49.60%	-0.12	-0.22	-0.20	0.39
08	NAO101	81630_08	2,125	1	7.50%	56.00%	17.70%	17.50%	-0.23	0.34	-0.16	-0.09
08	NAO101	81633_03	2,125	1	55.30%	12.70%	21.30%	9.90%	0.53	-0.21	-0.32	-0.15
08	NAO101	81633_05	2,125	1	7.70%	62.80%	7.30%	21.40%	-0.22	0.39	-0.23	-0.13
08	NAO101	81633_10	2,125	1	11.90%	9.50%	74.10%	3.40%	-0.25	-0.27	0.47	-0.17
08	NAO101	81636_03	2,125	1	21.40%	35.70%	15.30%	26.00%	-0.10	0.24	-0.19	0.04
08	NAO101	81636_05	2,125	1	26.30%	32.00%	17.70%	22.40%	0.05	-0.10	-0.20	0.30
08	NAO101	81636_09	2,125	1	70.70%	11.70%	8.00%	7.90%	0.44	-0.17	-0.25	-0.21
08	NAO101	81636_10	2,125	1	17.90%	21.70%	15.40%	43.10%	-0.17	-0.15	-0.03	0.33
08	NAO101	81639_04	2,125	1	27.00%	11.80%	52.90%	7.40%	-0.13	-0.26	0.41	-0.19
08	NAO101	81639_05	2,125	1	10.20%	9.70%	12.60%	66.80%	-0.17	-0.27	-0.25	0.48
08	NAO101	81643_02	2,125	1	18.50%	55.10%	14.30%	11.60%	-0.18	0.40	-0.25	-0.09
08	NAO101	81643_07	2,125	1	70.90%	8.90%	8.80%	10.90%	0.51	-0.30	-0.29	-0.18
08	NAO101	81698_02	2,125	1	16.20%	57.90%	20.80%	4.00%	-0.29	0.38	-0.09	-0.17
08	NAO101	81698_04	2,125	1	13.80%	19.80%	28.90%	36.50%	-0.21	-0.21	-0.03	0.39
08	NAO101	81698_07	2,125	1	6.60%	16.00%	12.90%	63.40%	-0.17	-0.27	-0.33	0.56

Table.B.8. Distractor Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
08	NAO102	81619_01	2,125	1	42.00%	8.30%	31.40%	17.70%	0.16	-0.27	0.09	-0.09
08	NAO102	81622_03	2,125	1	12.20%	52.00%	20.70%	14.40%	-0.05	0.29	-0.17	-0.14
08	NAO102	81622_09	2,125	1	52.40%	24.90%	14.20%	7.80%	0.48	-0.23	-0.28	-0.11
08	NAO102	81625_09	2,125	1	16.30%	29.50%	47.00%	6.60%	-0.21	-0.21	0.45	-0.17
08	NAO102	81626_02	2,125	1	10.50%	10.40%	60.10%	18.40%	-0.21	-0.29	0.32	0.02
08	NAO102	81630_09	2,125	1	8.50%	11.90%	55.40%	23.10%	-0.10	-0.32	0.41	-0.14
08	NAO102	81630_10	2,125	1	30.50%	15.80%	24.20%	28.40%	0.27	-0.21	-0.06	-0.03
08	NAO102	81633_01	2,125	1	16.90%	60.50%	19.00%	3.00%	-0.24	0.39	-0.19	-0.10
08	NAO102	81633_07	2,125	1	36.70%	42.10%	8.80%	11.70%	0.41	-0.09	-0.29	-0.18
08	NAO102	81633_11	2,125	1	8.60%	63.50%	16.60%	10.50%	-0.12	0.52	-0.34	-0.26
08	NAO102	81636_07	2,125	1	32.50%	30.30%	13.70%	22.10%	0.19	-0.11	-0.22	0.13
08	NAO102	81639_04	2,125	1	29.60%	13.20%	48.40%	8.30%	-0.08	-0.27	0.35	-0.14
08	NAO102	81639_10	2,125	1	30.20%	10.90%	45.20%	13.20%	0.01	-0.16	0.02	0.14
08	NAO102	81643_03	2,125	1	13.50%	28.80%	15.80%	41.50%	-0.26	-0.17	-0.17	0.48

Table.B.9. Distractor Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
08	NAO103	81602_08	2,125	1	17.70%	55.90%	13.50%	12.10%	-0.23	0.33	-0.16	-0.02
08	NAO103	81617_01	2,125	1	34.90%	30.80%	24.20%	8.80%	-0.02	0.17	-0.08	-0.08
08	NAO103	81619_03	2,125	1	15.10%	60.90%	12.80%	10.10%	-0.12	0.32	-0.28	-0.03
08	NAO103	81620_01	2,125	1	17.20%	13.90%	61.80%	6.70%	-0.26	-0.15	0.38	-0.11
08	NAO103	81626_01	2,125	1	17.60%	23.10%	46.30%	12.30%	-0.17	-0.28	0.44	-0.08
08	NAO103	81626_07	2,125	1	84.00%	3.60%	4.60%	7.00%	0.36	-0.27	-0.21	-0.11
08	NAO103	81626_10	2,125	1	16.80%	7.50%	33.40%	41.50%	-0.14	-0.20	-0.07	0.31
08	NAO103	81630_01	2,125	1	28.60%	4.00%	13.60%	53.30%	-0.16	-0.19	-0.25	0.40
08	NAO103	81630_08	2,125	1	5.30%	62.00%	16.30%	15.80%	-0.22	0.34	-0.14	-0.14
08	NAO103	81637_03	2,125	1	37.60%	13.90%	14.20%	33.70%	-0.15	-0.23	0.02	0.33
08	NAO103	81641_01	2,125	1	36.00%	28.60%	17.80%	17.10%	0.23	-0.08	-0.13	-0.04
08	NAO103	81641_02	2,125	1	12.80%	20.60%	49.70%	16.40%	-0.26	-0.17	0.35	-0.03
08	NAO103	81641_03	2,125	1	36.20%	34.50%	16.50%	12.20%	0.23	0.00	-0.19	-0.09
08	NAO103	81641_10	2,125	1	12.80%	61.60%	18.50%	6.40%	-0.18	0.44	-0.27	-0.17
08	NAO103	81697_01	2,125	1	13.20%	19.20%	56.40%	10.30%	-0.21	-0.26	0.46	-0.14
08	NAO103	81697_05	2,125	1	8.20%	80.90%	3.80%	6.10%	-0.24	0.46	-0.27	-0.21

Table.B.10. Distractor Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
08	NAO104	81602_06	2,125	1	20.00%	21.60%	14.00%	43.50%	-0.09	-0.26	-0.28	0.50
08	NAO104	81602_10	2,125	1	56.30%	18.70%	19.20%	4.80%	0.57	-0.29	-0.29	-0.18
08	NAO104	81618_08	2,125	1	16.40%	28.50%	48.90%	5.90%	-0.03	-0.08	0.09	0.03
08	NAO104	81619_01	2,125	1	42.20%	9.70%	31.10%	15.80%	0.16	-0.33	0.09	-0.02
08	NAO104	81620_03	2,125	1	20.30%	24.50%	41.50%	13.10%	0.12	0.17	-0.19	-0.04
08	NAO104	81620_09	2,125	1	24.80%	30.30%	18.40%	25.70%	0.03	-0.23	-0.11	0.34
08	NAO104	81626_02	2,125	1	9.20%	10.90%	59.80%	19.30%	-0.19	-0.31	0.32	0.02
08	NAO104	81630_08	2,125	1	4.40%	63.00%	16.80%	15.30%	-0.22	0.30	-0.12	-0.13
08	NAO104	81630_10	2,125	1	38.60%	13.00%	20.90%	26.80%	0.32	-0.25	-0.07	-0.07
08	NAO104	81637_01	2,125	1	62.40%	23.20%	7.60%	5.90%	0.54	-0.34	-0.27	-0.15
08	NAO104	81637_06	2,125	1	12.40%	19.10%	31.90%	35.60%	-0.16	-0.15	-0.03	0.29
08	NAO104	81637_08	2,125	1	15.20%	33.20%	31.30%	19.50%	-0.14	0.15	-0.01	-0.01
08	NAO104	81637_09	2,125	1	11.90%	31.70%	35.50%	20.10%	-0.10	0.03	-0.17	0.28
08	NAO104	81641_05	2,125	1	16.00%	19.30%	24.00%	40.10%	-0.23	-0.23	0.14	0.25
08	NAO104	81641_08	2,125	1	5.60%	16.60%	11.90%	65.40%	-0.23	-0.23	-0.28	0.50
08	NAO104	81641_09	2,125	1	16.40%	11.30%	62.30%	9.60%	-0.21	-0.33	0.52	-0.22
08	NAO104	81697_09	2,125	1	15.20%	11.60%	69.10%	3.30%	-0.29	-0.32	0.55	-0.19
08	NAO104	81697_11	2,125	1	6.80%	5.50%	13.00%	73.90%	-0.23	-0.27	-0.34	0.57

Table.B.11. Distractor Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
08	NAO105	81605_04	2,125	1	63.20%	20.50%	9.10%	6.50%	0.44	-0.20	-0.25	-0.18
08	NAO105	81605_05	2,125	1	62.90%	8.70%	21.10%	6.60%	0.37	-0.23	-0.12	-0.21
08	NAO105	81616_03	2,125	1	49.10%	22.10%	20.20%	7.50%	0.41	-0.27	-0.16	-0.05
08	NAO105	81620_01	2,125	1	17.00%	13.60%	60.20%	8.20%	-0.20	-0.19	0.39	-0.11
08	NAO105	81621_01	2,125	1	8.00%	84.40%	5.40%	1.60%	-0.15	0.30	-0.18	-0.12
08	NAO105	81621_03	2,125	1	21.10%	9.70%	44.70%	23.90%	-0.15	-0.11	0.34	-0.15
08	NAO105	81625_01	2,125	1	8.80%	46.80%	13.40%	29.70%	-0.20	0.31	-0.24	0.02
08	NAO105	81625_03	2,125	1	56.30%	17.70%	11.40%	13.30%	0.46	-0.26	-0.22	-0.11
08	NAO105	81625_06	2,125	1	31.80%	38.70%	17.50%	10.80%	0.14	0.01	-0.06	-0.08
08	NAO105	81625_08	2,125	1	29.90%	22.20%	18.10%	28.60%	-0.09	-0.10	-0.03	0.26
08	NAO105	81627_01	2,125	1	60.30%	15.20%	11.10%	11.90%	0.34	-0.32	-0.06	-0.02
08	NAO105	81627_08	2,125	1	14.20%	30.00%	19.70%	33.70%	-0.12	-0.07	-0.15	0.34
08	NAO105	81633_03	2,125	1	51.00%	15.50%	23.40%	9.10%	0.55	-0.24	-0.30	-0.15
08	NAO105	81633_05	2,125	1	6.60%	61.60%	7.20%	23.40%	-0.17	0.35	-0.23	-0.11
08	NAO105	81633_10	2,125	1	10.70%	11.80%	72.40%	4.00%	-0.23	-0.31	0.50	-0.17
08	NAO105	81640_08	2,125	1	67.20%	13.20%	12.70%	5.50%	0.45	-0.32	-0.17	-0.12
08	NAO105	81643_02	2,125	1	20.60%	56.10%	13.90%	8.60%	-0.22	0.41	-0.22	-0.08
08	NAO105	81643_07	2,125	1	69.10%	10.80%	9.20%	10.10%	0.53	-0.31	-0.28	-0.17
08	NAO105	81699_10	2,125	1	30.90%	35.00%	17.80%	15.20%	0.10	0.07	-0.16	0.00

Table.B.12. Distractor Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
08	NAO106	81605_03	2,125	1	18.00%	14.70%	53.70%	12.80%	-0.20	-0.20	0.34	-0.05
08	NAO106	81605_10	2,125	1	11.30%	57.70%	16.40%	13.90%	-0.22	0.47	-0.24	-0.19
08	NAO106	81605_11	2,125	1	7.70%	77.90%	7.40%	6.50%	-0.21	0.40	-0.26	-0.13
08	NAO106	81620_03	2,125	1	23.00%	23.60%	40.00%	12.70%	0.17	0.09	-0.17	-0.04
08	NAO106	81620_09	2,125	1	22.20%	32.70%	19.40%	25.00%	0.01	-0.18	-0.13	0.32
08	NAO106	81621_02	2,125	1	14.90%	12.40%	22.50%	49.90%	-0.14	-0.24	-0.13	0.37
08	NAO106	81621_05	2,125	1	5.60%	6.80%	15.50%	71.80%	-0.16	-0.18	-0.19	0.34
08	NAO106	81621_09	2,125	1	3.90%	23.10%	44.90%	27.60%	-0.16	0.14	-0.06	0.02
08	NAO106	81625_09	2,125	1	18.20%	26.90%	48.80%	5.50%	-0.20	-0.21	0.46	-0.21
08	NAO106	81627_05	2,125	1	17.10%	11.10%	67.70%	2.80%	-0.28	-0.25	0.51	-0.21
08	NAO106	81627_11	2,125	1	5.40%	12.30%	72.90%	8.40%	-0.09	-0.32	0.43	-0.18
08	NAO106	81633_01	2,125	1	19.90%	59.70%	16.10%	3.40%	-0.25	0.40	-0.16	-0.13
08	NAO106	81633_07	2,125	1	39.20%	43.70%	8.90%	7.20%	0.40	-0.09	-0.31	-0.19
08	NAO106	81633_11	2,125	1	9.30%	59.90%	19.30%	10.70%	-0.15	0.53	-0.33	-0.24
08	NAO106	81640_03	2,125	1	51.80%	19.10%	12.50%	15.40%	0.37	-0.30	-0.27	0.10
08	NAO106	81640_10	2,125	1	28.30%	43.70%	15.40%	11.60%	-0.14	0.37	-0.26	-0.04
08	NAO106	81643_03	2,125	1	11.80%	29.40%	16.20%	41.80%	-0.19	-0.21	-0.19	0.48
08	NAO106	81699_08	2,125	1	25.50%	23.40%	32.80%	17.40%	0.10	-0.14	0.14	-0.09

Table.B.13. Distractor Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
08	NAP101	81619_03P	803	1	11.40%	61.50%	12.10%	11.60%	-0.21	0.46	-0.23	-0.11
08	NAP101	81619_05P	803	1	59.30%	12.60%	8.10%	17.30%	0.50	-0.13	-0.23	-0.24
08	NAP101	81619_10P	803	1	7.80%	15.70%	19.20%	54.00%	-0.19	-0.26	-0.25	0.59
08	NAP101	81622_01P	803	1	11.30%	13.60%	43.90%	28.30%	-0.13	-0.20	0.34	-0.03
08	NAP101	81622_07P	803	1	38.00%	11.40%	38.30%	8.50%	0.43	-0.22	-0.02	-0.28
08	NAP101	81622_08P	803	1	10.40%	7.40%	11.40%	52.70%	-0.13	-0.14	-0.19	0.44
08	NAP101	81622_10P	803	1	9.50%	67.90%	9.80%	9.70%	-0.19	0.62	-0.31	-0.33
08	NAP101	81623_01P	803	1	23.50%	31.50%	32.60%	9.50%	-0.04	0.05	0.20	-0.18
08	NAP101	81623_03P	803	1	6.50%	46.90%	35.60%	8.00%	-0.26	0.36	-0.06	-0.15
08	NAP101	81623_07P	803	1	17.30%	13.60%	23.40%	42.90%	-0.03	-0.11	-0.06	0.24
08	NAP101	81623_11P	803	1	37.20%	27.90%	18.10%	14.20%	0.40	-0.02	-0.17	-0.22
08	NAP101	81625_01P	803	1	8.60%	41.90%	12.30%	34.50%	-0.25	0.37	-0.24	0.01
08	NAP101	81625_02P	803	1	16.10%	15.40%	41.10%	24.60%	-0.01	-0.13	-0.01	0.23
08	NAP101	81625_03P	803	1	51.60%	17.70%	9.40%	17.70%	0.43	-0.17	-0.21	-0.12
08	NAP101	81625_06P	803	1	30.50%	41.80%	16.40%	8.50%	0.12	0.09	-0.07	-0.12
08	NAP101	81625_08P	803	1	28.70%	24.10%	18.40%	25.60%	-0.08	-0.14	0.07	0.25
08	NAP101	81626_01P	803	1	15.00%	24.90%	45.40%	12.70%	-0.11	-0.25	0.47	-0.15
08	NAP101	81626_05P	803	1	11.00%	79.90%	3.50%	3.60%	-0.33	0.56	-0.22	-0.21
08	NAP101	81626_07P	803	1	81.90%	2.60%	3.00%	10.00%	0.35	-0.19	-0.17	-0.13
08	NAP101	81626_10P	803	1	15.60%	7.30%	34.20%	41.10%	-0.18	-0.16	0.11	0.19
08	NAP101	81630_01P	803	1	22.80%	5.10%	11.20%	57.40%	-0.21	-0.27	-0.16	0.49
08	NAP101	81630_04P	803	1	57.50%	7.20%	15.20%	5.00%	0.52	-0.14	-0.18	-0.13
08	NAP101	81630_08P	803	1	8.80%	58.20%	12.50%	17.30%	-0.32	0.48	-0.20	-0.08
08	NAP101	81633_03P	803	1	55.40%	10.80%	19.80%	12.60%	0.53	-0.17	-0.26	-0.24
08	NAP101	81633_05P	803	1	6.90%	57.60%	7.50%	25.90%	-0.21	0.49	-0.25	-0.18
08	NAP101	81633_09P	803	1	9.60%	37.20%	38.10%	13.00%	-0.22	0.15	0.06	-0.01
08	NAP101	81633_10P	803	1	14.40%	7.20%	70.40%	4.50%	-0.32	-0.23	0.56	-0.23
08	NAP101	81636_01P	803	1	10.90%	16.50%	57.40%	12.20%	-0.21	-0.13	0.45	-0.19

Grade	Form ID	UIN	N	Max Score	% A	% B	% C	% D	PB A	PB B	PB C	PB D
08	NAP101	81636_03P	803	1	18.40%	40.60%	14.20%	24.30%	-0.12	0.36	-0.18	-0.06
08	NAP101	81636_05P	803	1	22.30%	27.10%	16.20%	31.60%	-0.03	-0.10	-0.16	0.34
08	NAP101	81636_09P	803	1	68.50%	11.50%	8.40%	7.90%	0.45	-0.20	-0.18	-0.22
08	NAP101	81636_10P	803	1	17.70%	21.20%	13.30%	44.50%	-0.20	-0.06	-0.05	0.32
08	NAP101	81639_04P	803	1	23.10%	10.70%	53.20%	10.10%	-0.07	-0.30	0.51	-0.30
08	NAP101	81639_05P	803	1	9.10%	8.50%	11.00%	69.10%	-0.18	-0.22	-0.30	0.53
08	NAP101	81639_11P	803	1	15.20%	32.50%	15.70%	33.80%	-0.08	-0.10	-0.18	0.38
08	NAP101	81643_02P	803	1	20.20%	53.70%	14.60%	9.40%	-0.17	0.43	-0.23	-0.12
08	NAP101	81643_04P	803	1	24.20%	16.70%	47.80%	8.20%	-0.04	-0.19	0.36	-0.16
08	NAP101	81643_06P	803	1	21.20%	55.80%	9.60%	11.40%	-0.02	0.36	-0.25	-0.19
08	NAP101	81643_07P	803	1	66.20%	7.70%	11.60%	12.20%	0.54	-0.22	-0.30	-0.20
08	NAP101	81698_01P	803	1	56.20%	24.80%	9.50%	6.10%	0.50	-0.14	-0.32	-0.20
08	NAP101	81698_02P	803	1	12.70%	63.60%	14.50%	6.40%	-0.31	0.56	-0.19	-0.23
08	NAP101	81698_04P	803	1	11.40%	15.70%	20.60%	49.20%	-0.20	-0.20	-0.09	0.44
08	NAP101	81698_05P	803	1	59.90%	11.60%	10.90%	14.60%	0.57	-0.28	-0.25	-0.19
08	NAP101	81698_07P	803	1	9.40%	10.40%	11.90%	65.40%	-0.27	-0.21	-0.32	0.62

Appendix C: MISA Differential Item Functioning by Form

Table.C.1. Differential Item Functioning Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
05	NAO101	51600_04	2,125	1	A		A		A	
05	NAO101	51600_05	2,125	1	A		A		A	
05	NAO101	51600_07	2,125	1	A		A		A	
05	NAO101	51600_09	2,125	2	A		A		A	
05	NAO101	51600_10	2,125	1	A		A		A	
05	NAO101	51600_12	2,125	2	B+	Female	A		A	
05	NAO101	51601_01	2,125	1	A		A		A	
05	NAO101	51601_05	2,125	2	A		A		A	
05	NAO101	51601_07	2,125	1	A		A		A	
05	NAO101	51601_08	2,125	1	A		A		A	
05	NAO101	51601_10	2,125	1	B-	Male	A		A	
05	NAO101	51601_12	2,125	2	A		A		A	
05	NAO101	51614_02	2,125	1	A		A		A	
05	NAO101	51614_03	2,125	1	A		A		A	
05	NAO101	51614_09	2,125	1	A		A		A	
05	NAO101	51614_10	2,125	1	A		A		A	
05	NAO101	51614_11	2,125	1	A		A		A	
05	NAO101	51614_12	2,125	3	A		A		A	
05	NAO101	51617_01	2,125	1	A		A		A	
05	NAO101	51617_02	2,125	1	A		A		A	
05	NAO101	51617_03	2,125	1	A		A		A	
05	NAO101	51617_04	2,125	1	A		A		A	
05	NAO101	51617_11	2,125	1	A		A		A	
05	NAO101	51617_12	2,125	3	A		A		A	
05	NAO101	51620_02	2,125	1	A		A		A	
05	NAO101	51620_05	2,125	1	A		A		A	
05	NAO101	51620_06	2,125	1	A		A		A	
05	NAO101	51620_09	2,125	1	A		A		A	
05	NAO101	51620_10	2,125	2	A		A		A	
05	NAO101	51620_12	2,125	2	A		A		A	
05	NAO101	51632_01	2,125	1	A		A		A	
05	NAO101	51632_02	2,125	1	A		A		A	
05	NAO101	51632_05	2,125	2	A		A		A	
05	NAO101	51632_06	2,125	1	B-	Male	A		A	
05	NAO101	51632_07	2,125	1	A		A		A	
05	NAO101	51632_11	2,125	2	A		A		B+	Hispanic
05	NAO101	51636_01	2,125	1	A		A		A	
05	NAO101	51636_05	2,125	1	A		A		B+	Hispanic

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
05	NAO101	51636_06	2,125	1	A		A		A	
05	NAO101	51636_09	2,125	1	A		A		A	
05	NAO101	51636_10	2,125	1	A		A		A	
05	NAO101	51636_12	2,125	3	A		A		A	
05	NAO101	51638_01	2,125	1	A		B+	Black	A	
05	NAO101	51638_02	2,125	1	A		A		A	
05	NAO101	51638_05	2,125	1	A		A		A	
05	NAO101	51638_08	2,125	1	A		A		A	
05	NAO101	51638_10	2,125	1	A		A		A	
05	NAO101	51638_11	2,125	3	C+	Female	A		A	
05	NAO101	51648_01	2,125	1	A		A		A	
05	NAO101	51648_03	2,125	1	B-	Male	A		A	
05	NAO101	51648_06	2,125	3	A		A		A	
05	NAO101	51648_07	2,125	1	A		A		A	
05	NAO101	51648_08	2,125	1	A		A		A	
05	NAO101	51648_10	2,125	1	A		A		A	
05	NAO101	51649_03	2,125	1	A		A		A	
05	NAO101	51649_05	2,125	1	A		A		A	
05	NAO101	51649_06	2,125	3	A		A		A	
05	NAO101	51649_07	2,125	1	A		A		A	
05	NAO101	51649_08	2,125	1	A		A		A	
05	NAO101	51649_09	2,125	1	A		A		A	
05	NAO101	51697_03	2,125	1	A		A		A	
05	NAO101	51697_04	2,125	1	A		A		A	
05	NAO101	51697_07	2,125	1	A		A		A	
05	NAO101	51697_08	2,125	1	A		A		A	
05	NAO101	51697_11	2,125	1	A		A		A	
05	NAO101	51697_12	2,125	4	B+	Female	A		A	

Table.C.2. Differential Item Functioning Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W
05	NAO102	51600_01	2,125	1	A		A		A
05	NAO102	51600_02	2,125	1	B+	Female	A		A
05	NAO102	51600_03	2,125	2	A		A		A
05	NAO102	51600_06	2,125	2	B+	Female	A		A
05	NAO102	51600_08	2,125	1	A		A		A
05	NAO102	51600_11	2,125	1	A		A		A
05	NAO102	51601_02	2,125	1	A		A		A
05	NAO102	51601_03	2,125	1	A		A		A
05	NAO102	51601_04	2,125	2	A		A		A
05	NAO102	51601_06	2,125	2	A		A		A
05	NAO102	51601_09	2,125	1	A		A		A
05	NAO102	51601_11	2,125	1	A		A		A
05	NAO102	51614_01	2,125	1	B-	Male	A		A
05	NAO102	51614_04	2,125	1	A		A		A
05	NAO102	51614_05	2,125	1	A		A		A
05	NAO102	51614_06	2,125	3	A		B-	White	A
05	NAO102	51614_07	2,125	1	A		A		A
05	NAO102	51614_08	2,125	1	A		A		A
05	NAO102	51617_05	2,125	1	A		A		A
05	NAO102	51617_06	2,125	3	A		A		A
05	NAO102	51617_08	2,125	1	A		A		A
05	NAO102	51617_09	2,125	1	A		A		A
05	NAO102	51617_10	2,125	1	A		A		A
05	NAO102	51617_11	2,125	1	A		A		A
05	NAO102	51620_01	2,125	1	A		A		A
05	NAO102	51620_03	2,125	1	A		A		A
05	NAO102	51620_04	2,125	1	A		A		A
05	NAO102	51620_07	2,125	2	A		A		A
05	NAO102	51620_08	2,125	1	A		A		A
05	NAO102	51620_11	2,125	2	A		A		A
05	NAO102	51632_03	2,125	1	A		A		A
05	NAO102	51632_04	2,125	1	A		A		A
05	NAO102	51632_08	2,125	1	B-	Male	A		B-
05	NAO102	51632_09	2,125	1	A		A		A
05	NAO102	51632_10	2,125	2	A		A		A
05	NAO102	51632_12	2,125	2	A		A		A
05	NAO102	51636_02	2,125	1	A		A		A
05	NAO102	51636_03	2,125	1	A		A		A
05	NAO102	51636_04	2,125	1	A		B-	White	B-

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W
05	NAO102	51636_07	2,125	1	A		A		A
05	NAO102	51636_08	2,125	1	A		A		A
05	NAO102	51636_11	2,125	3	B+	Female	A		A
05	NAO102	51638_03	2,125	1	A		A		A
05	NAO102	51638_04	2,125	1	A		A		A
05	NAO102	51638_06	2,125	1	A		A		A
05	NAO102	51638_07	2,125	1	A		A		A
05	NAO102	51638_09	2,125	1	A		A		A
05	NAO102	51638_12	2,125	3	B+	Female	A		A
05	NAO102	51648_02	2,125	1	A		A		A
05	NAO102	51648_04	2,125	1	A		A		A
05	NAO102	51648_05	2,125	1	A		A		A
05	NAO102	51648_09	2,125	1	A		A		A
05	NAO102	51648_11	2,125	1	B-	Male	A		A
05	NAO102	51648_12	2,125	3	A		A		A
05	NAO102	51649_01	2,125	1	A		A		A
05	NAO102	51649_02	2,125	1	A		A		A
05	NAO102	51649_04	2,125	1	A		A		A
05	NAO102	51649_10	2,125	1	A		A		A
05	NAO102	51649_11	2,125	1	A		A		A
05	NAO102	51649_12	2,125	3	A		A		A
05	NAO102	51697_01	2,125	1	A		A		A
05	NAO102	51697_02	2,125	1	A		A		A
05	NAO102	51697_05	2,125	1	A		A		A
05	NAO102	51697_06	2,125	4	B+	Female	B-	White	A
05	NAO102	51697_09	2,125	1	A		A		A
05	NAO102	51697_10	2,125	1	A		A		A

Table.C.3. Differential Item Functioning Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W
05	NAO103	51604_01	2,125	1	A		A		A
05	NAO103	51604_04	2,125	1	A		A		A
05	NAO103	51604_05	2,125	1	A		A		A
05	NAO103	51604_08	2,125	1	A		A		B-
05	NAO103	51604_09	2,125	1	A		A		B-
05	NAO103	51604_11	2,125	3	A		A		A
05	NAO103	51605_01	2,125	1	A		A		A
05	NAO103	51605_02	2,125	1	A		A		A
05	NAO103	51605_04	2,125	1	A		A		A
05	NAO103	51605_07	2,125	1	B+	Female	A		A
05	NAO103	51605_09	2,125	1	A		A		A
05	NAO103	51605_11	2,125	3	C+	Female	A		A
05	NAO103	51607_01	2,125	1	A		A		A
05	NAO103	51607_02	2,125	1	A		A		A
05	NAO103	51607_03	2,125	1	A		A		A
05	NAO103	51607_07	2,125	1	A		A		A
05	NAO103	51607_08	2,125	1	A		A		B-
05	NAO103	51607_12	2,125	3	B+	Female	A		A
05	NAO103	51609_01	2,125	1	A		A		B-
05	NAO103	51609_02	2,125	1	A		A		A
05	NAO103	51609_03	2,125	1	A		A		A
05	NAO103	51609_06	2,125	2	B+	Female	A		A
05	NAO103	51609_07	2,125	2	A		A		A
05	NAO103	51609_11	2,125	1	A		A		A
05	NAO103	51613_01	2,125	1	A		A		B-
05	NAO103	51613_02	2,125	2	A		A		A
05	NAO103	51613_03	2,125	1	A		A		A
05	NAO103	51613_04	2,125	1	A		A		A
05	NAO103	51613_05	2,125	1	A		A		A
05	NAO103	51613_06	2,125	2	A		A		A
05	NAO103	51615_01	2,125	1	A		A		A
05	NAO103	51615_03	2,125	1	A		A		A
05	NAO103	51615_09	2,125	1	A		A		A
05	NAO103	51615_10	2,125	1	A		A		A
05	NAO103	51615_11	2,125	1	A		A		A
05	NAO103	51615_12	2,125	3	A		A		A
05	NAO103	51616_01	2,125	1	A		A		A
05	NAO103	51616_02	2,125	1	A		A		A
05	NAO103	51616_05	2,125	1	A		A		A

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W
05	NAO103	51616_09	2,125	1	B-	Male	A		A
05	NAO103	51616_10	2,125	1	A		A		A
05	NAO103	51616_12	2,125	3	A		A		A
05	NAO103	51619_01	2,125	1	A		A		A
05	NAO103	51619_02	2,125	1	B-	Male	A		A
05	NAO103	51619_05	2,125	1	A		A		A
05	NAO103	51619_06	2,125	3	A		A		A
05	NAO103	51619_09	2,125	1	B-	Male	A		A
05	NAO103	51619_10	2,125	1	A		A		A
05	NAO103	51633_01	2,125	2	A		A		A
05	NAO103	51633_02	2,125	1	A		A		A
05	NAO103	51633_03	2,125	1	A		A		A
05	NAO103	51633_04	2,125	1	A		A		A
05	NAO103	51633_05	2,125	1	A		B-	White	A
05	NAO103	51633_06	2,125	2	A		A		A
05	NAO103	51650_02	2,125	1	A		A		A
05	NAO103	51650_03	2,125	1	A		A		A
05	NAO103	51650_05	2,125	1	A		A		A
05	NAO103	51650_07	2,125	1	A		A		A
05	NAO103	51650_09	2,125	1	A		A		A
05	NAO103	51650_12	2,125	3	A		A		A
05	NAO103	51698_01	2,125	1	A		A		A
05	NAO103	51698_02	2,125	1	A		A		A
05	NAO103	51698_03	2,125	1	A		A		A
05	NAO103	51698_04	2,125	1	A		A		A
05	NAO103	51698_06	2,125	4	A		A		A
05	NAO103	51698_10	2,125	1	A		A		A

Table.C.4. Differential Item Functioning Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
05	NAO104	51604_02	2,125	1	A		A		A	
05	NAO104	51604_03	2,125	1	A		A		A	
05	NAO104	51604_06	2,125	1	A		A		A	
05	NAO104	51604_07	2,125	1	A		A		A	
05	NAO104	51604_10	2,125	1	A		A		A	
05	NAO104	51604_12	2,125	3	B+	Female	A		A	
05	NAO104	51605_03	2,125	1	A		A		A	
05	NAO104	51605_05	2,125	1	A		A		A	
05	NAO104	51605_06	2,125	1	A		B-	White	A	
05	NAO104	51605_08	2,125	1	C+	Female	A		A	
05	NAO104	51605_10	2,125	1	A		A		A	
05	NAO104	51605_12	2,125	3	B+	Female	A		A	
05	NAO104	51607_04	2,125	1	A		A		A	
05	NAO104	51607_05	2,125	1	A		A		A	
05	NAO104	51607_06	2,125	1	A		A		A	
05	NAO104	51607_09	2,125	1	A		A		A	
05	NAO104	51607_10	2,125	1	A		A		A	
05	NAO104	51607_11	2,125	3	C+	Female	A		A	
05	NAO104	51609_04	2,125	2	A		A		A	
05	NAO104	51609_05	2,125	1	A		A		A	
05	NAO104	51609_08	2,125	1	A		A		A	
05	NAO104	51609_09	2,125	1	A		A		A	
05	NAO104	51609_10	2,125	1	A		A		A	
05	NAO104	51609_12	2,125	2	A		A		A	
05	NAO104	51613_07	2,125	1	A		A		A	
05	NAO104	51613_08	2,125	2	A		A		A	
05	NAO104	51613_09	2,125	1	A		A		A	
05	NAO104	51613_10	2,125	1	A		A		A	
05	NAO104	51613_11	2,125	1	A		A		A	
05	NAO104	51613_12	2,125	2	A		A		A	
05	NAO104	51615_02	2,125	1	A		A		A	
05	NAO104	51615_04	2,125	1	A		B-	White	B-	White
05	NAO104	51615_05	2,125	1	A		B-	White	A	
05	NAO104	51615_06	2,125	3	A		A		A	
05	NAO104	51615_07	2,125	1	A		A		A	
05	NAO104	51615_08	2,125	1	A		A		A	
05	NAO104	51616_03	2,125	1	A		A		A	
05	NAO104	51616_04	2,125	1	C-	Male	A		A	
05	NAO104	51616_06	2,125	3	A		A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
05	NAO104	51616_07	2,125	1	A		A		A	
05	NAO104	51616_08	2,125	1	C-	Male	B-	White	A	
05	NAO104	51616_11	2,125	1	A		A		A	
05	NAO104	51619_03	2,125	1	A		A		A	
05	NAO104	51619_04	2,125	1	A		A		A	
05	NAO104	51619_07	2,125	1	A		A		A	
05	NAO104	51619_08	2,125	1	A		A		A	
05	NAO104	51619_11	2,125	1	A		A		A	
05	NAO104	51619_12	2,125	3	A		A		A	
05	NAO104	51633_07	2,125	2	A		A		A	
05	NAO104	51633_08	2,125	1	A		A		A	
05	NAO104	51633_09	2,125	1	A		A		A	
05	NAO104	51633_10	2,125	1	A		A		A	
05	NAO104	51633_11	2,125	1	A		A		A	
05	NAO104	51633_12	2,125	2	A		A		A	
05	NAO104	51650_01	2,125	1	A		A		A	
05	NAO104	51650_04	2,125	1	A		A		A	
05	NAO104	51650_06	2,125	1	A		A		A	
05	NAO104	51650_08	2,125	1	A		A		B-	White
05	NAO104	51650_10	2,125	1	A		A		A	
05	NAO104	51650_11	2,125	3	A		A		A	
05	NAO104	51698_05	2,125	1	A		A		A	
05	NAO104	51698_07	2,125	1	A		A		B+	Hispanic
05	NAO104	51698_08	2,125	1	A		A		A	
05	NAO104	51698_09	2,125	1	A		A		A	
05	NAO104	51698_11	2,125	1	B-	Male	A		B+	Hispanic
05	NAO104	51698_12	2,125	4	A		A		A	

Table.C.5. Differential Item Functioning Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
05	NAO105	51602_02	2,125	1	A		A		A	
05	NAO105	51602_03	2,125	1	A		A		A	
05	NAO105	51602_04	2,125	2	A		A		A	
05	NAO105	51602_06	2,125	2	C+	Female	A		A	
05	NAO105	51602_07	2,125	1	A		A		A	
05	NAO105	51602_10	2,125	1	A		A		A	
05	NAO105	51603_01	2,125	2	A		A		A	
05	NAO105	51603_02	2,125	1	A		A		A	
05	NAO105	51603_05	2,125	1	A		A		A	
05	NAO105	51603_06	2,125	1	A		A		A	
05	NAO105	51603_10	2,125	1	A		A		A	
05	NAO105	51603_12	2,125	2	A		A		A	
05	NAO105	51605_01	2,125	1	A		A		A	
05	NAO105	51605_02	2,125	1	A		B-	White	A	
05	NAO105	51605_04	2,125	1	A		A		A	
05	NAO105	51605_07	2,125	1	A		A		A	
05	NAO105	51605_09	2,125	1	B+	Female	A		A	
05	NAO105	51605_11	2,125	3	C+	Female	B-	White	A	
05	NAO105	51607_01	2,125	1	A		A		A	
05	NAO105	51607_02	2,125	1	A		A		A	
05	NAO105	51607_03	2,125	1	A		A		A	
05	NAO105	51607_07	2,125	1	A		A		A	
05	NAO105	51607_08	2,125	1	A		A		A	
05	NAO105	51607_12	2,125	3	A		A		A	
05	NAO105	51609_01	2,125	1	A		A		B-	White
05	NAO105	51609_02	2,125	1	A		A		A	
05	NAO105	51609_03	2,125	1	A		A		A	
05	NAO105	51609_06	2,125	2	B+	Female	A		A	
05	NAO105	51609_07	2,125	2	A		A		A	
05	NAO105	51609_11	2,125	1	A		A		A	
05	NAO105	51616_01	2,125	1	A		A		A	
05	NAO105	51616_02	2,125	1	A		A		A	
05	NAO105	51616_05	2,125	1	A		A		A	
05	NAO105	51616_09	2,125	1	B-	Male	A		A	
05	NAO105	51616_10	2,125	1	B-	Male	A		A	
05	NAO105	51616_12	2,125	3	A		A		A	
05	NAO105	51619_03	2,125	1	B-	Male	A		A	
05	NAO105	51619_04	2,125	1	A		A		A	
05	NAO105	51619_07	2,125	1	A		A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
05	NAO105	51619_08	2,125	1	B-	Male	A		A	
05	NAO105	51619_11	2,125	1	A		A		A	
05	NAO105	51619_12	2,125	3	A		A		A	
05	NAO105	51636_01	2,125	1	A		A		A	
05	NAO105	51636_05	2,125	1	A		A		A	
05	NAO105	51636_06	2,125	1	A		A		A	
05	NAO105	51636_09	2,125	1	A		A		A	
05	NAO105	51636_10	2,125	1	A		A		A	
05	NAO105	51636_12	2,125	3	A		A		A	
05	NAO105	51638_01	2,125	1	A		A		A	
05	NAO105	51638_02	2,125	1	A		A		A	
05	NAO105	51638_05	2,125	1	A		A		A	
05	NAO105	51638_08	2,125	1	A		A		A	
05	NAO105	51638_10	2,125	1	A		A		A	
05	NAO105	51638_11	2,125	3	A		A		A	
05	NAO105	51648_01	2,125	1	A		A		A	
05	NAO105	51648_03	2,125	1	B-	Male	A		A	
05	NAO105	51648_06	2,125	3	A		A		A	
05	NAO105	51648_07	2,125	1	B-	Male	B-	White	A	
05	NAO105	51648_08	2,125	1	A		A		A	
05	NAO105	51648_10	2,125	1	A		A		A	
05	NAO105	51699_01	2,125	1	A		A		A	
05	NAO105	51699_03	2,125	1	B-	Male	A		A	
05	NAO105	51699_04	2,125	1	A		A		A	
05	NAO105	51699_06	2,125	4	A		A		A	
05	NAO105	51699_07	2,125	1	A		A		A	
05	NAO105	51699_09	2,125	1	A		A		A	

Table.C.6. Differential Item Functioning Analysis Results by Form for Grade 5

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
05	NAO106	51602_01	2,125	1	A		A		A	
05	NAO106	51602_05	2,125	1	A		A		A	
05	NAO106	51602_08	2,125	2	A		A		A	
05	NAO106	51602_09	2,125	1	A		A		A	
05	NAO106	51602_11	2,125	1	A		A		A	
05	NAO106	51602_12	2,125	2	B+	Female	A		A	
05	NAO106	51603_03	2,125	1	A		A		A	
05	NAO106	51603_04	2,125	2	A		A		A	
05	NAO106	51603_07	2,125	1	A		A		A	
05	NAO106	51603_08	2,125	1	A		A		A	
05	NAO106	51603_09	2,125	1	A		A		A	
05	NAO106	51603_11	2,125	2	A		A		A	
05	NAO106	51605_03	2,125	1	A		A		A	
05	NAO106	51605_05	2,125	1	A		A		B-	White
05	NAO106	51605_06	2,125	1	A		A		A	
05	NAO106	51605_08	2,125	1	B+	Female	A		B-	White
05	NAO106	51605_10	2,125	1	A		A		A	
05	NAO106	51605_12	2,125	3	B+	Female	A		A	
05	NAO106	51607_04	2,125	1	A		A		A	
05	NAO106	51607_05	2,125	1	A		A		A	
05	NAO106	51607_06	2,125	1	A		A		A	
05	NAO106	51607_09	2,125	1	A		A		A	
05	NAO106	51607_10	2,125	1	A		A		A	
05	NAO106	51607_11	2,125	3	C+	Female	A		A	
05	NAO106	51609_04	2,125	2	A		A		A	
05	NAO106	51609_05	2,125	1	A		A		A	
05	NAO106	51609_08	2,125	1	A		A		B-	White
05	NAO106	51609_09	2,125	1	A		A		A	
05	NAO106	51609_10	2,125	1	A		A		A	
05	NAO106	51609_12	2,125	2	A		B-	White	A	
05	NAO106	51616_03	2,125	1	B-	Male	B-	White	A	
05	NAO106	51616_04	2,125	1	B-	Male	B-	White	A	
05	NAO106	51616_06	2,125	3	A		A		A	
05	NAO106	51616_07	2,125	1	A		A		A	
05	NAO106	51616_08	2,125	1	B-	Male	A		A	
05	NAO106	51616_11	2,125	1	A		A		A	
05	NAO106	51619_01	2,125	1	A		A		A	
05	NAO106	51619_02	2,125	1	A		A		A	
05	NAO106	51619_05	2,125	1	A		A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
05	NAO106	51619_06	2,125	3	A		A		A	
05	NAO106	51619_09	2,125	1	A		A		A	
05	NAO106	51619_10	2,125	1	A		A		A	
05	NAO106	51636_02	2,125	1	A		A		A	
05	NAO106	51636_03	2,125	1	A		A		B+	Hispanic
05	NAO106	51636_04	2,125	1	A		A		A	
05	NAO106	51636_07	2,125	1	A		A		A	
05	NAO106	51636_08	2,125	1	A		A		A	
05	NAO106	51636_11	2,125	3	C+	Female	A		A	
05	NAO106	51638_03	2,125	1	A		A		A	
05	NAO106	51638_04	2,125	1	A		A		A	
05	NAO106	51638_06	2,125	1	A		A		A	
05	NAO106	51638_07	2,125	1	A		A		A	
05	NAO106	51638_09	2,125	1	A		A		A	
05	NAO106	51638_12	2,125	3	A		A		A	
05	NAO106	51648_02	2,125	1	A		A		A	
05	NAO106	51648_04	2,125	1	A		A		A	
05	NAO106	51648_05	2,125	1	A		A		A	
05	NAO106	51648_09	2,125	1	A		A		A	
05	NAO106	51648_11	2,125	1	A		A		A	
05	NAO106	51648_12	2,125	3	A		B-	White	A	
05	NAO106	51699_02	2,125	1	A		A		A	
05	NAO106	51699_05	2,125	1	A		A		A	
05	NAO106	51699_08	2,125	1	A		A		A	
05	NAO106	51699_10	2,125	1	A		A		A	
05	NAO106	51699_11	2,125	1	A		A		A	
05	NAO106	51699_12	2,125	4	A		A		A	

Table.C.7. Differential Item Functioning Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO101	81619_02	2,125	2	A		A		A	
08	NAO101	81619_03	2,125	1	A		A		A	
08	NAO101	81619_05	2,125	1	A		A		A	
08	NAO101	81619_06	2,125	2	A		A		A	
08	NAO101	81619_09	2,125	1	B-	Male	A		A	
08	NAO101	81619_10	2,125	1	A		A		A	
08	NAO101	81622_01	2,125	1	A		A		A	
08	NAO101	81622_02	2,125	1	A		A		A	
08	NAO101	81622_07	2,125	1	A		A		A	
08	NAO101	81622_08	2,125	1	A		A		A	
08	NAO101	81622_10	2,125	1	A		B-	White	A	
08	NAO101	81622_11	2,125	3	A		A		A	
08	NAO101	81623_01	2,125	1	A		A		A	
08	NAO101	81623_03	2,125	1	A		A		A	
08	NAO101	81623_07	2,125	1	A		A		A	
08	NAO101	81623_09	2,125	1	A		A		A	
08	NAO101	81623_11	2,125	1	A		A		A	
08	NAO101	81623_12	2,125	3	A		A		A	
08	NAO101	81625_01	2,125	1	A		A		A	
08	NAO101	81625_02	2,125	1	A		B+	Black	A	
08	NAO101	81625_03	2,125	1	A		A		A	
08	NAO101	81625_06	2,125	1	A		A		A	
08	NAO101	81625_08	2,125	1	A		A		A	
08	NAO101	81625_11	2,125	3	A		A		A	
08	NAO101	81626_01	2,125	1	A		A		A	
08	NAO101	81626_04	2,125	1	A		A		A	
08	NAO101	81626_05	2,125	1	A		A		A	
08	NAO101	81626_07	2,125	1	A		A		A	
08	NAO101	81626_10	2,125	1	A		A		A	
08	NAO101	81626_12	2,125	3	A		A		A	
08	NAO101	81630_01	2,125	1	A		A		A	
08	NAO101	81630_03	2,125	2	A		B-	White	B-	White
08	NAO101	81630_04	2,125	1	B-	Male	B-	White	A	
08	NAO101	81630_05	2,125	1	A		A		A	
08	NAO101	81630_08	2,125	1	A		A		A	
08	NAO101	81630_12	2,125	2	A		A		A	
08	NAO101	81633_02	2,125	1	A		A		A	
08	NAO101	81633_03	2,125	1	A		A		A	
08	NAO101	81633_05	2,125	1	A		A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO101	81633_06	2,125	3	A		A		A	
08	NAO101	81633_09	2,125	1	A		A		A	
08	NAO101	81633_10	2,125	1	A		A		A	
08	NAO101	81636_01	2,125	1	A		A		A	
08	NAO101	81636_03	2,125	1	A		A		A	
08	NAO101	81636_05	2,125	1	A		A		A	
08	NAO101	81636_06	2,125	3	A		B-	White	A	
08	NAO101	81636_09	2,125	1	A		A		A	
08	NAO101	81636_10	2,125	1	A		A		A	
08	NAO101	81639_01	2,125	1	A		A		A	
08	NAO101	81639_04	2,125	1	A		A		A	
08	NAO101	81639_05	2,125	1	A		A		A	
08	NAO101	81639_06	2,125	3	B+	Female	A		A	
08	NAO101	81639_08	2,125	1	A		A		A	
08	NAO101	81639_11	2,125	1	A		A		A	
08	NAO101	81643_01	2,125	2	B-	Male	A		A	
08	NAO101	81643_02	2,125	1	A		A		A	
08	NAO101	81643_04	2,125	1	A		A		A	
08	NAO101	81643_06	2,125	1	A		A		A	
08	NAO101	81643_07	2,125	1	A		A		A	
08	NAO101	81643_12	2,125	2	A		A		A	
08	NAO101	81698_01	2,125	1	A		A		A	
08	NAO101	81698_02	2,125	1	A		A		A	
08	NAO101	81698_04	2,125	1	A		A		A	
08	NAO101	81698_05	2,125	1	A		A		A	
08	NAO101	81698_06	2,125	4	A		A		A	
08	NAO101	81698_07	2,125	1	A		A		A	

Table.C.8. Differential Item Functioning Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO102	81619_01	2,125	1	A		A		A	
08	NAO102	81619_04	2,125	1	A		A		A	
08	NAO102	81619_07	2,125	1	A		A		A	
08	NAO102	81619_08	2,125	2	A		A		A	
08	NAO102	81619_11	2,125	1	B-	Male	A		A	
08	NAO102	81619_12	2,125	2	A		B-	White	A	
08	NAO102	81622_03	2,125	1	A		A		A	
08	NAO102	81622_04	2,125	1	A		B-	White	A	
08	NAO102	81622_05	2,125	1	A		A		B-	White
08	NAO102	81622_06	2,125	1	A		A		A	
08	NAO102	81622_09	2,125	1	A		A		A	
08	NAO102	81622_12	2,125	3	B+	Female	A		A	
08	NAO102	81623_02	2,125	1	A		A		A	
08	NAO102	81623_04	2,125	1	A		A		B+	Hispanic
08	NAO102	81623_05	2,125	1	A		A		A	
08	NAO102	81623_06	2,125	3	A		A		A	
08	NAO102	81623_08	2,125	1	A		A		A	
08	NAO102	81623_10	2,125	1	A		A		B-	White
08	NAO102	81625_04	2,125	1	A		A		A	
08	NAO102	81625_05	2,125	1	A		A		A	
08	NAO102	81625_07	2,125	1	A		A		A	
08	NAO102	81625_09	2,125	1	A		A		A	
08	NAO102	81625_10	2,125	1	A		A		A	
08	NAO102	81625_12	2,125	3	C+	Female	A		A	
08	NAO102	81626_02	2,125	1	A		A		A	
08	NAO102	81626_03	2,125	1	A		A		B-	White
08	NAO102	81626_06	2,125	3	B+	Female	A		A	
08	NAO102	81626_08	2,125	1	B+	Female	A		A	
08	NAO102	81626_09	2,125	1	A		A		B-	White
08	NAO102	81626_11	2,125	1	A		A		A	
08	NAO102	81630_02	2,125	1	B-	Male	A		A	
08	NAO102	81630_06	2,125	2	A		B-	White	B-	White
08	NAO102	81630_07	2,125	2	A		A		A	
08	NAO102	81630_09	2,125	1	A		A		A	
08	NAO102	81630_10	2,125	1	A		A		A	
08	NAO102	81630_11	2,125	1	A		A		A	
08	NAO102	81633_01	2,125	1	A		A		A	
08	NAO102	81633_04	2,125	1	A		A		A	
08	NAO102	81633_07	2,125	1	A		A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO102	81633_08	2,125	1	A		A		A	
08	NAO102	81633_11	2,125	1	A		A		A	
08	NAO102	81633_12	2,125	3	B+	Female	A		A	
08	NAO102	81636_02	2,125	1	A		A		A	
08	NAO102	81636_04	2,125	1	A		A		A	
08	NAO102	81636_07	2,125	1	A		A		A	
08	NAO102	81636_08	2,125	1	A		A		A	
08	NAO102	81636_11	2,125	1	A		A		B-	White
08	NAO102	81636_12	2,125	3	A		B-	White	B-	White
08	NAO102	81639_02	2,125	1	A		A		A	
08	NAO102	81639_03	2,125	1	A		A		A	
08	NAO102	81639_04	2,125	1	A		A		A	
08	NAO102	81639_07	2,125	1	A		A		A	
08	NAO102	81639_10	2,125	1	A		A		A	
08	NAO102	81639_12	2,125	3	B+	Female	A		A	
08	NAO102	81643_03	2,125	1	A		A		A	
08	NAO102	81643_05	2,125	1	A		B-	White	B-	White
08	NAO102	81643_08	2,125	1	A		A		A	
08	NAO102	81643_09	2,125	1	A		A		A	
08	NAO102	81643_10	2,125	2	A		A		A	
08	NAO102	81643_11	2,125	2	A		A		A	
08	NAO102	81698_03	2,125	1	A		A		A	
08	NAO102	81698_08	2,125	1	A		A		B+	Hispanic
08	NAO102	81698_09	2,125	1	A		A		A	
08	NAO102	81698_10	2,125	1	A		A		A	
08	NAO102	81698_11	2,125	1	A		A		A	
08	NAO102	81698_12	2,125	4	C+	Female	A		A	

Table.C.9. Differential Item Functioning Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO103	81601_01	2,125	1	A		A		A	
08	NAO103	81601_04	2,125	1	A		B-	White	A	
08	NAO103	81601_06	2,125	2	A		A		A	
08	NAO103	81601_07	2,125	2	A		A		A	
08	NAO103	81601_09	2,125	1	A		A		A	
08	NAO103	81601_11	2,125	1	A		A		A	
08	NAO103	81602_01	2,125	1	A		C-	White	B-	White
08	NAO103	81602_02	2,125	1	A		A		A	
08	NAO103	81602_03	2,125	1	A		A		A	
08	NAO103	81602_05	2,125	1	A		A		A	
08	NAO103	81602_08	2,125	1	A		A		A	
08	NAO103	81602_11	2,125	3	B+	Female	A		A	
08	NAO103	81617_01	2,125	1	A		A		A	
08	NAO103	81617_03	2,125	1	A		A		A	
08	NAO103	81617_08	2,125	1	A		A		B-	White
08	NAO103	81617_10	2,125	1	A		A		A	
08	NAO103	81617_11	2,125	1	A		A		A	
08	NAO103	81617_12	2,125	3	A		A		A	
08	NAO103	81618_01	2,125	1	A		A		A	
08	NAO103	81618_03	2,125	1	A		A		A	
08	NAO103	81618_05	2,125	1	A		A		A	
08	NAO103	81618_06	2,125	3	B+	Female	A		A	
08	NAO103	81618_07	2,125	1	A		B-	White	B-	White
08	NAO103	81618_09	2,125	1	A		A		A	
08	NAO103	81619_02	2,125	2	A		A		A	
08	NAO103	81619_03	2,125	1	B-	Male	A		A	
08	NAO103	81619_05	2,125	1	A		A		A	
08	NAO103	81619_06	2,125	2	A		A		A	
08	NAO103	81619_09	2,125	1	C-	Male	B-	White	A	
08	NAO103	81619_10	2,125	1	A		A		A	
08	NAO103	81620_01	2,125	1	A		A		A	
08	NAO103	81620_02	2,125	1	A		A		A	
08	NAO103	81620_04	2,125	1	A		A		A	
08	NAO103	81620_06	2,125	3	B+	Female	A		A	
08	NAO103	81620_08	2,125	1	A		A		A	
08	NAO103	81620_11	2,125	1	A		A		A	
08	NAO103	81626_01	2,125	1	A		A		A	
08	NAO103	81626_04	2,125	1	A		A		A	
08	NAO103	81626_05	2,125	1	A		A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO103	81626_07	2,125	1	A		A		A	
08	NAO103	81626_10	2,125	1	A		A		A	
08	NAO103	81626_12	2,125	3	A		A		A	
08	NAO103	81630_01	2,125	1	A		A		A	
08	NAO103	81630_03	2,125	2	A		A		A	
08	NAO103	81630_04	2,125	1	B-	Male	B-	White	A	
08	NAO103	81630_05	2,125	1	A		A		A	
08	NAO103	81630_08	2,125	1	A		A		B-	White
08	NAO103	81630_12	2,125	2	A		C-	White	B-	White
08	NAO103	81637_02	2,125	1	A		A		A	
08	NAO103	81637_03	2,125	1	A		A		A	
08	NAO103	81637_04	2,125	1	A		A		A	
08	NAO103	81637_05	2,125	1	A		A		A	
08	NAO103	81637_07	2,125	1	A		A		A	
08	NAO103	81637_11	2,125	3	A		A		A	
08	NAO103	81641_01	2,125	1	A		A		A	
08	NAO103	81641_02	2,125	1	A		A		A	
08	NAO103	81641_03	2,125	1	A		A		A	
08	NAO103	81641_07	2,125	1	A		A		A	
08	NAO103	81641_10	2,125	1	B-	Male	A		A	
08	NAO103	81641_12	2,125	3	A		A		A	
08	NAO103	81697_01	2,125	1	A		A		A	
08	NAO103	81697_02	2,125	1	A		A		A	
08	NAO103	81697_03	2,125	1	A		B-	White	A	
08	NAO103	81697_05	2,125	1	A		A		A	
08	NAO103	81697_10	2,125	1	A		A		A	
08	NAO103	81697_12	2,125	4	B+	Female	A		A	

Table.C.10. Differential Item Functioning Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO104	81601_02	2,125	2	A		A		A	
08	NAO104	81601_03	2,125	1	A		A		A	
08	NAO104	81601_05	2,125	1	B-	Male	B-	White	A	
08	NAO104	81601_08	2,125	1	A		A		A	
08	NAO104	81601_10	2,125	1	A		A		A	
08	NAO104	81601_12	2,125	2	A		A		A	
08	NAO104	81602_04	2,125	1	A		A		A	
08	NAO104	81602_06	2,125	1	A		A		A	
08	NAO104	81602_07	2,125	1	A		A		A	
08	NAO104	81602_09	2,125	1	A		A		A	
08	NAO104	81602_10	2,125	1	A		A		A	
08	NAO104	81602_12	2,125	3	A		B-	White	A	
08	NAO104	81617_02	2,125	1	A		A		B-	White
08	NAO104	81617_04	2,125	1	A		A		A	
08	NAO104	81617_05	2,125	1	A		A		A	
08	NAO104	81617_06	2,125	3	A		A		A	
08	NAO104	81617_07	2,125	1	A		A		A	
08	NAO104	81617_09	2,125	1	A		A		A	
08	NAO104	81618_02	2,125	1	A		A		A	
08	NAO104	81618_04	2,125	1	A		A		A	
08	NAO104	81618_08	2,125	1	A		A		A	
08	NAO104	81618_10	2,125	1	A		A		A	
08	NAO104	81618_11	2,125	1	A		A		A	
08	NAO104	81618_12	2,125	3	B+	Female	A		A	
08	NAO104	81619_01	2,125	1	A		A		A	
08	NAO104	81619_04	2,125	1	A		A		A	
08	NAO104	81619_07	2,125	1	A		A		A	
08	NAO104	81619_08	2,125	2	A		A		A	
08	NAO104	81619_11	2,125	1	B-	Male	A		A	
08	NAO104	81619_12	2,125	2	A		A		A	
08	NAO104	81620_03	2,125	1	A		B-	White	A	
08	NAO104	81620_04	2,125	1	A		A		A	
08	NAO104	81620_07	2,125	1	A		A		A	
08	NAO104	81620_09	2,125	1	A		A		A	
08	NAO104	81620_10	2,125	1	A		A		B-	White
08	NAO104	81620_12	2,125	3	B+	Female	A		A	
08	NAO104	81626_02	2,125	1	A		A		A	
08	NAO104	81626_03	2,125	1	A		A		A	
08	NAO104	81626_06	2,125	3	C+	Female	A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO104	81626_08	2,125	1	A		A		A	
08	NAO104	81626_09	2,125	1	A		A		A	
08	NAO104	81626_11	2,125	1	A		A		A	
08	NAO104	81630_03	2,125	2	A		A		B-	White
08	NAO104	81630_04	2,125	1	C-	Male	A		A	
08	NAO104	81630_06	2,125	2	A		B-	White	A	
08	NAO104	81630_08	2,125	1	A		A		B-	White
08	NAO104	81630_10	2,125	1	A		A		A	
08	NAO104	81630_11	2,125	1	A		A		A	
08	NAO104	81637_01	2,125	1	A		A		A	
08	NAO104	81637_06	2,125	1	A		A		A	
08	NAO104	81637_08	2,125	1	A		A		A	
08	NAO104	81637_09	2,125	1	A		A		B+	Hispanic
08	NAO104	81637_10	2,125	1	A		A		A	
08	NAO104	81637_12	2,125	3	A		A		A	
08	NAO104	81641_04	2,125	1	A		A		A	
08	NAO104	81641_05	2,125	1	A		A		A	
08	NAO104	81641_06	2,125	1	B-	Male	A		A	
08	NAO104	81641_08	2,125	1	A		A		A	
08	NAO104	81641_09	2,125	1	B-	Male	A		A	
08	NAO104	81641_11	2,125	3	A		A		A	
08	NAO104	81697_04	2,125	1	A		A		A	
08	NAO104	81697_06	2,125	4	C+	Female	A		A	
08	NAO104	81697_07	2,125	1	A		A		A	
08	NAO104	81697_08	2,125	1	A		A		A	
08	NAO104	81697_09	2,125	1	A		A		A	
08	NAO104	81697_11	2,125	1	B+	Female	A		A	

Table.C.11. Differential Item Functioning Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO105	81601_01	2,125	1	A		B-	White	A	
08	NAO105	81601_04	2,125	1	A		A		A	
08	NAO105	81601_06	2,125	2	A		B-	White	C-	White
08	NAO105	81601_07	2,125	2	A		A		B-	White
08	NAO105	81601_09	2,125	1	A		A		A	
08	NAO105	81601_11	2,125	1	A		A		B-	White
08	NAO105	81605_02	2,125	1	A		A		A	
08	NAO105	81605_04	2,125	1	B-	Male	A		A	
08	NAO105	81605_05	2,125	1	A		A		A	
08	NAO105	81605_08	2,125	1	B-	Male	A		A	
08	NAO105	81605_09	2,125	2	B-	Male	A		A	
08	NAO105	81605_12	2,125	2	B+	Female	A		A	
08	NAO105	81616_02	2,125	1	A		A		A	
08	NAO105	81616_03	2,125	1	A		A		A	
08	NAO105	81616_05	2,125	1	A		A		A	
08	NAO105	81616_08	2,125	1	A		A		A	
08	NAO105	81616_10	2,125	1	A		B-	White	A	
08	NAO105	81616_12	2,125	3	B+	Female	A		A	
08	NAO105	81620_01	2,125	1	A		A		A	
08	NAO105	81620_02	2,125	1	A		A		A	
08	NAO105	81620_04	2,125	1	A		A		B+	Hispanic
08	NAO105	81620_06	2,125	3	B+	Female	A		A	
08	NAO105	81620_08	2,125	1	A		A		A	
08	NAO105	81620_11	2,125	1	A		A		B+	Hispanic
08	NAO105	81621_01	2,125	1	A		A		A	
08	NAO105	81621_03	2,125	1	A		A		A	
08	NAO105	81621_06	2,125	3	A		A		A	
08	NAO105	81621_07	2,125	1	A		A		A	
08	NAO105	81621_10	2,125	1	A		A		A	
08	NAO105	81621_11	2,125	1	A		A		A	
08	NAO105	81625_01	2,125	1	A		A		A	
08	NAO105	81625_02	2,125	1	A		A		A	
08	NAO105	81625_03	2,125	1	A		A		A	
08	NAO105	81625_06	2,125	1	A		A		A	
08	NAO105	81625_08	2,125	1	A		A		A	
08	NAO105	81625_11	2,125	3	A		A		A	
08	NAO105	81627_01	2,125	1	A		A		A	
08	NAO105	81627_02	2,125	1	A		B-	White	C-	White
08	NAO105	81627_03	2,125	1	A		A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO105	81627_07	2,125	1	A		A		A	
08	NAO105	81627_08	2,125	1	A		A		A	
08	NAO105	81627_12	2,125	3	A		A		B-	White
08	NAO105	81633_02	2,125	1	A		A		A	
08	NAO105	81633_03	2,125	1	A		A		A	
08	NAO105	81633_05	2,125	1	A		A		A	
08	NAO105	81633_06	2,125	3	B+	Female	A		A	
08	NAO105	81633_09	2,125	1	A		A		A	
08	NAO105	81633_10	2,125	1	A		A		A	
08	NAO105	81640_01	2,125	1	A		A		A	
08	NAO105	81640_02	2,125	1	A		A		A	
08	NAO105	81640_06	2,125	3	B+	Female	A		A	
08	NAO105	81640_08	2,125	1	A		A		B+	Hispanic
08	NAO105	81640_09	2,125	1	A		A		A	
08	NAO105	81640_11	2,125	1	A		A		A	
08	NAO105	81643_01	2,125	2	A		A		A	
08	NAO105	81643_02	2,125	1	A		A		A	
08	NAO105	81643_04	2,125	1	A		A		A	
08	NAO105	81643_06	2,125	1	A		A		A	
08	NAO105	81643_07	2,125	1	A		A		A	
08	NAO105	81643_12	2,125	2	A		A		A	
08	NAO105	81699_01	2,125	1	A		A		A	
08	NAO105	81699_04	2,125	1	A		A		A	
08	NAO105	81699_07	2,125	1	A		A		A	
08	NAO105	81699_10	2,125	1	A		A		A	
08	NAO105	81699_11	2,125	1	A		A		A	
08	NAO105	81699_12	2,125	4	A		B-	White	A	

Table.C.12. Differential Item Functioning Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO106	81601_02	2,125	2	A		A		A	
08	NAO106	81601_03	2,125	1	A		A		A	
08	NAO106	81601_05	2,125	1	B-	Male	B-	White	A	
08	NAO106	81601_08	2,125	1	A		A		A	
08	NAO106	81601_10	2,125	1	A		A		A	
08	NAO106	81601_12	2,125	2	A		A		A	
08	NAO106	81605_01	2,125	2	A		A		A	
08	NAO106	81605_03	2,125	1	A		A		A	
08	NAO106	81605_06	2,125	2	A		A		A	
08	NAO106	81605_07	2,125	1	A		A		A	
08	NAO106	81605_10	2,125	1	A		A		A	
08	NAO106	81605_11	2,125	1	A		A		A	
08	NAO106	81616_01	2,125	1	B-	Male	A		A	
08	NAO106	81616_04	2,125	1	B-	Male	A		A	
08	NAO106	81616_06	2,125	3	A		A		A	
08	NAO106	81616_07	2,125	1	A		A		A	
08	NAO106	81616_09	2,125	1	A		A		A	
08	NAO106	81616_11	2,125	1	B-	Male	A		A	
08	NAO106	81620_03	2,125	1	A		A		A	
08	NAO106	81620_04	2,125	1	A		A		A	
08	NAO106	81620_07	2,125	1	A		B-	White	A	
08	NAO106	81620_09	2,125	1	A		A		A	
08	NAO106	81620_10	2,125	1	A		A		A	
08	NAO106	81620_12	2,125	3	A		A		A	
08	NAO106	81621_02	2,125	1	A		A		A	
08	NAO106	81621_04	2,125	1	A		A		A	
08	NAO106	81621_05	2,125	1	A		A		A	
08	NAO106	81621_08	2,125	1	A		A		A	
08	NAO106	81621_09	2,125	1	A		A		A	
08	NAO106	81621_12	2,125	3	A		A		A	
08	NAO106	81625_04	2,125	1	A		A		A	
08	NAO106	81625_05	2,125	1	A		B+	Black	A	
08	NAO106	81625_07	2,125	1	A		A		A	
08	NAO106	81625_09	2,125	1	A		A		A	
08	NAO106	81625_10	2,125	1	A		A		A	
08	NAO106	81625_12	2,125	3	A		A		A	
08	NAO106	81627_04	2,125	1	A		A		A	
08	NAO106	81627_05	2,125	1	A		A		A	
08	NAO106	81627_06	2,125	3	A		A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAO106	81627_09	2,125	1	A		A		A	
08	NAO106	81627_10	2,125	1	B-	Male	A		A	
08	NAO106	81627_11	2,125	1	A		A		A	
08	NAO106	81633_01	2,125	1	A		A		A	
08	NAO106	81633_04	2,125	1	A		A		A	
08	NAO106	81633_07	2,125	1	B-	Male	A		A	
08	NAO106	81633_08	2,125	1	A		A		A	
08	NAO106	81633_11	2,125	1	A		A		A	
08	NAO106	81633_12	2,125	3	A		A		A	
08	NAO106	81640_03	2,125	1	A		A		A	
08	NAO106	81640_04	2,125	1	A		A		A	
08	NAO106	81640_07	2,125	1	B-	Male	A		B-	White
08	NAO106	81640_10	2,125	1	A		A		A	
08	NAO106	81640_11	2,125	1	A		A		A	
08	NAO106	81640_12	2,125	3	A		A		A	
08	NAO106	81643_03	2,125	1	A		B-	White	A	
08	NAO106	81643_05	2,125	1	A		A		A	
08	NAO106	81643_08	2,125	1	A		A		A	
08	NAO106	81643_09	2,125	1	A		A		A	
08	NAO106	81643_10	2,125	2	B+	Female	A		A	
08	NAO106	81643_11	2,125	2	B+	Female	A		A	
08	NAO106	81699_02	2,125	1	A		A		A	
08	NAO106	81699_03	2,125	1	A		A		A	
08	NAO106	81699_05	2,125	1	A		A		A	
08	NAO106	81699_06	2,125	4	A		A		A	
08	NAO106	81699_08	2,125	1	A		A		A	
08	NAO106	81699_09	2,125	1	A		A		A	

Table.C.13. Differential Item Functioning Analysis Results by Form for Grade 8

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAP101	81619_02P	803	2	A		A		A	
08	NAP101	81619_03P	803	1	A		A		A	
08	NAP101	81619_05P	803	1	C-	Male	A		A	
08	NAP101	81619_06P	803	2	A		A		A	
08	NAP101	81619_09P	803	1	B-	Male	A		A	
08	NAP101	81619_10P	803	1	A		A		A	
08	NAP101	81622_01P	803	1	A		A		A	
08	NAP101	81622_02P	803	1	A		A		A	
08	NAP101	81622_07P	803	1	A		A		A	
08	NAP101	81622_08P	803	1	A		A		A	
08	NAP101	81622_10P	803	1	A		A		A	
08	NAP101	81622_11P	803	3	B+	Female	B-	White	A	
08	NAP101	81623_01P	803	1	A		A		B-	White
08	NAP101	81623_03P	803	1	A		A		A	
08	NAP101	81623_07P	803	1	A		A		A	
08	NAP101	81623_09P	803	1	B-	Male	A		B-	White
08	NAP101	81623_11P	803	1	A		A		A	
08	NAP101	81623_12P	803	3	A		A		A	
08	NAP101	81625_01P	803	1	A		A		A	
08	NAP101	81625_02P	803	1	A		A		A	
08	NAP101	81625_03P	803	1	A		A		A	
08	NAP101	81625_06P	803	1	A		A		A	
08	NAP101	81625_08P	803	1	A		A		A	
08	NAP101	81625_11P	803	3	A		A		A	
08	NAP101	81626_01P	803	1	A		A		A	
08	NAP101	81626_04P	803	1	A		A		A	
08	NAP101	81626_05P	803	1	A		A		A	
08	NAP101	81626_07P	803	1	A		A		A	
08	NAP101	81626_10P	803	1	A		A		A	
08	NAP101	81626_12P	803	3	A		A		A	
08	NAP101	81630_01P	803	1	A		A		B-	White
08	NAP101	81630_03P	803	2	A		A		A	
08	NAP101	81630_04P	803	1	C-	Male	A		B+	Hispanic
08	NAP101	81630_05P	803	1	A		A		B-	White
08	NAP101	81630_08P	803	1	A		A		A	
08	NAP101	81630_12P	803	2	A		A		A	
08	NAP101	81633_02P	803	1	B-	Male	A		A	
08	NAP101	81633_03P	803	1	A		A		A	

Grade	Form ID	UIN	N	Max Score	DIF F vs. M	F vs. M Favored	DIF B vs. W	B vs. W Favored	DIF H vs. W	H vs. W Favored
08	NAP101	81633_05P	803	1	A		A		A	
08	NAP101	81633_06P	803	3	A		A		A	
08	NAP101	81633_09P	803	1	A		A		A	
08	NAP101	81633_10P	803	1	A		A		A	
08	NAP101	81636_01P	803	1	A		A		A	
08	NAP101	81636_03P	803	1	A		B+	Black	A	
08	NAP101	81636_05P	803	1	A		A		A	
08	NAP101	81636_06P	803	3	A		A		B-	White
08	NAP101	81636_09P	803	1	A		A		A	
08	NAP101	81636_10P	803	1	A		A		A	
08	NAP101	81639_01P	803	1	A		A		A	
08	NAP101	81639_04P	803	1	A		A		A	
08	NAP101	81639_05P	803	1	A		A		A	
08	NAP101	81639_06P	803	3	B+	Female	A		A	
08	NAP101	81639_08P	803	1	A		A		A	
08	NAP101	81639_11P	803	1	A		A		A	
08	NAP101	81643_01P	803	2	A		A		A	
08	NAP101	81643_02P	803	1	A		B+	Black	A	
08	NAP101	81643_04P	803	1	A		A		A	
08	NAP101	81643_06P	803	1	A		A		A	
08	NAP101	81643_07P	803	1	A		A		A	
08	NAP101	81643_12P	803	2	A		A		A	
08	NAP101	81698_01P	803	1	A		A		A	
08	NAP101	81698_02P	803	1	A		A		A	
08	NAP101	81698_04P	803	1	B+	Female	A		A	
08	NAP101	81698_05P	803	1	A		A		A	
08	NAP101	81698_06P	803	4	B+	Female	A		B-	White
08	NAP101	81698_07P	803	1	A		A		A	

Appendix D: MISA Rasch Analysis by Grade

Table.D.1. MISA Rasch Statistics - Grade 5

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
51600_01	MC	0.58	0.053	1.14	1.41				
51600_02	TE	2.28	0.082	0.96	0.72				
51600_03	TE	0.65	0.038	1.15	1.23	-0.97	0.97		
51600_04	MC	1.49	0.064	1.12	1.88				
51600_05	TE	1.97	0.074	0.89	0.62				
51600_06	CR	1.63	0.047	0.95	0.94	-2.62	2.62		
51600_07	MC	-0.95	0.048	1.07	1.08				
51600_08	TE	0.07	0.049	0.97	0.94				
51600_09	TE	-0.73	0.033	0.95	0.93	-0.49	0.49		
51600_10	MC	-1.05	0.048	1.01	1				
51600_11	TE	-0.11	0.049	0.97	1				
51600_12	CR	0.02	0.047	0.86	0.84	-2.22	2.22		
51601_01	MC	0.01	0.048	1.04	1.1				
51601_02	TE	-0.74	0.048	0.95	0.93				
51601_03	MC	-0.68	0.048	1.12	1.16				
51601_04	TE	-0.07	0.039	1.01	1.02	-1.43	1.43		
51601_05	MC	-0.41	0.036	1.18	1.19	-1.17	1.17		
51601_06	CR	0.47	0.047	0.84	0.82	-2.28	2.28		
51601_07	MC	-1.21	0.049	0.94	0.89				
51601_08	TE	1.56	0.065	1.12	1.18				
51601_09	TE	-0.49	0.048	1.03	1.04				
51601_10	TE	-0.70	0.047	1.02	1.02				
51601_11	MC	-0.41	0.048	1.01	1.03				
51601_12	CR	1.18	0.043	0.82	0.81	-1.80	1.80		
51602_01	TE	-0.85	0.049	0.95	0.93				
51602_02	MC	0.26	0.05	0.93	0.86				
51602_03	TE	2.54	0.093	1.05	1.29				
51602_04	TE	-1.12	0.037	0.91	0.91	-1.08	1.08		
51602_05	MC	-0.93	0.049	1.05	1.1				
51602_06	CR	0.65	0.039	1.01	1.04	-1.06	1.06		
51602_07	MC	-0.62	0.048	0.97	0.95				
51602_08	TE	-1.85	0.038	0.9	0.91	-0.61	0.61		
51602_09	MC	-0.88	0.049	1.03	1.02				
51602_10	TE	-0.34	0.048	0.98	0.99				
51602_11	MC	2.31	0.084	1.03	1.45				
51602_12	CR	0.67	0.039	1.08	1.1	-1.09	1.09		

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
51603_01	TE	-0.09	0.031	1.49	1.95	0.55	-0.55		
51603_02	TE	0.46	0.052	1.07	1.09				
51603_03	MC	-0.48	0.049	1.22	1.33				
51603_04	TE	0.99	0.04	1.15	1.84	-0.10	0.10		
51603_05	MC	-2.18	0.057	1.18	1.4				
51603_06	MC	-0.22	0.048	1.2	1.3				
51603_07	MC	0.77	0.055	1.22	1.81				
51603_08	TE	4.59	0.221	1	0.61				
51603_09	MC	-2.01	0.056	0.92	0.82				
51603_10	MC	-0.60	0.048	1.06	1.08				
51603_11	CR	1.81	0.049	0.88	0.81	-1.10	1.10		
51603_12	CR	-0.41	0.044	0.87	0.86	-1.94	1.94		
51604_01	MC	-0.59	0.048	1.12	1.15				
51604_02	MC	0.32	0.051	0.94	0.86				
51604_03	TE	0.88	0.055	1.04	1.34				
51604_04	MC	-2.21	0.058	0.93	0.9				
51604_05	MC	0.26	0.05	1.16	1.44				
51604_06	MC	-0.66	0.049	1.14	1.16				
51604_07	TE	-1.20	0.05	1.13	1.22				
51604_08	MC	0.37	0.051	0.98	1.07				
51604_09	TE	1.64	0.067	1	1.04				
51604_10	MC	0.97	0.056	1.05	1.02				
51604_11	CR	1.10	0.035	0.9	0.87	-1.98	0.10	1.88	
51604_12	CR	0.95	0.038	0.93	0.93	-2.96	0.02	2.94	
51605_01	MC	-1.83	0.038	1.12	1.24				
51605_02	MC	-3.54	0.062	0.89	0.55				
51605_03	MC	-1.98	0.039	0.93	0.91				
51605_04	TE	-2.25	0.042	0.94	0.91				
51605_05	MC	0.61	0.038	0.95	0.87				
51605_06	TE	-2.00	0.04	1.07	1.17				
51605_07	MC	-1.98	0.039	0.83	0.7				
51605_08	MC	-0.35	0.034	0.83	0.78				
51605_09	MC	-1.50	0.036	0.85	0.76				
51605_10	TE	-0.81	0.035	0.93	0.9				
51605_11	CR	0.46	0.031	0.94	0.94	-3.48	0.78	2.70	
51605_12	CR	0.75	0.025	0.85	0.84	-2.25	0.45	1.80	
51607_01	TE	-0.99	0.034	0.93	0.93				
51607_02	MC	-1.32	0.035	0.88	0.85				
51607_03	MC	-1.94	0.039	0.91	0.8				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
51607_04	MC	-2.61	0.045	0.9	0.8				
51607_05	MC	-2.24	0.041	0.88	0.82				
51607_06	MC	-1.74	0.038	0.88	0.77				
51607_07	MC	-1.39	0.036	1	0.96				
51607_08	MC	-2.37	0.043	0.82	0.62				
51607_09	MC	-2.09	0.04	0.95	0.85				
51607_10	MC	-2.01	0.04	0.95	0.87				
51607_11	CR	1.94	0.03	0.91	0.9	-3.18	0.33	2.85	
51607_12	CR	0.52	0.024	0.81	0.8	-2.13	0.29	1.84	
51609_01	TE	-1.84	0.038	1.22	1.51				
51609_02	MC	0.08	0.035	1.36	1.6				
51609_03	TE	-0.70	0.034	0.94	0.95				
51609_04	TE	-1.28	0.026	1.18	1.18	-0.96	0.96		
51609_05	MC	0.77	0.039	0.91	0.84				
51609_06	CR	1.42	0.031	0.84	0.76	-1.16	1.16		
51609_07	MC	-0.70	0.023	0.91	0.9	-0.36	0.36		
51609_08	MC	2.09	0.054	1.06	1.28				
51609_09	TE	-1.12	0.035	0.83	0.77				
51609_10	TE	-2.06	0.04	0.95	0.99				
51609_11	MC	1.64	0.048	1	1.03				
51609_12	CR	2.12	0.035	0.97	0.95	-3.22	3.22		
51613_01	TE	1.48	0.064	1	1.06				
51613_02	TE	1.14	0.045	1.16	1.19	-2.02	2.02		
51613_03	TE	-0.73	0.048	0.88	0.85				
51613_04	TE	-0.35	0.048	0.99	0.95				
51613_05	TE	2.98	0.108	1.01	1.22				
51613_06	CR	0.69	0.04	0.98	0.95	-1.21	1.21		
51613_07	TE	2.16	0.078	1.07	1.31				
51613_08	TE	-1.54	0.038	1.05	1.06	-1.09	1.09		
51613_09	TE	3.22	0.118	0.98	1.7				
51613_10	MC	2.39	0.085	1.07	1.41				
51613_11	TE	0.93	0.056	1.06	1.22				
51613_12	CR	2.46	0.056	0.88	0.78	-1.16	1.16		
51614_01	TE	-1.99	0.056	0.94	0.9				
51614_02	MC	-0.92	0.048	0.98	0.97				
51614_03	TE	2.24	0.081	1.08	1.4				
51614_04	TE	-1.00	0.049	0.94	0.91				
51614_05	MC	0.68	0.053	1.17	1.39				
51614_06	CR	1.18	0.039	0.95	0.94	-2.97	0.14	2.83	

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
51614_07	TE	-2.15	0.058	1.07	1.22				
51614_08	MC	0.38	0.051	1.21	1.47				
51614_09	MC	-0.87	0.048	1.15	1.19				
51614_10	MC	0.54	0.051	1.11	1.2				
51614_11	TE	0.71	0.053	1.21	1.48				
51614_12	CR	0.69	0.032	0.98	0.98	-1.61	0.26	1.35	
51615_01	MC	0.66	0.053	0.88	0.77				
51615_02	MC	-1.42	0.052	1.09	1.13				
51615_03	TE	-0.63	0.048	0.97	0.98				
51615_04	MC	-1.71	0.054	0.86	0.73				
51615_05	TE	-1.40	0.051	0.77	0.66				
51615_06	CR	0.90	0.032	0.92	0.89	-1.59	-0.89	2.48	
51615_07	TE	-1.38	0.051	0.96	0.93				
51615_08	TE	-0.60	0.049	0.97	0.95				
51615_09	MC	-0.53	0.048	1.19	1.25				
51615_10	TE	-0.15	0.048	1.3	1.45				
51615_11	MC	-1.48	0.051	0.95	0.87				
51615_12	CR	1.58	0.038	0.81	0.78	-2.17	0.05	2.12	
51616_01	MC	-1.39	0.036	0.93	0.87				
51616_02	MC	-1.14	0.035	1	0.98				
51616_03	MC	3.56	0.097	1	1.67				
51616_04	MC	-0.66	0.034	0.85	0.84				
51616_05	TE	-1.38	0.036	1.26	1.41				
51616_06	CR	2.77	0.033	0.91	0.76	-1.82	-0.55	2.36	
51616_07	TE	-1.54	0.037	1.02	0.98				
51616_08	TE	-0.35	0.034	0.79	0.75				
51616_09	MC	0.99	0.04	0.91	0.85				
51616_10	MC	-1.28	0.035	0.9	0.83				
51616_11	TE	-1.15	0.035	0.84	0.78				
51616_12	CR	1.22	0.026	0.8	0.79	-2.48	-0.09	2.57	
51617_01	TE	0.67	0.053	0.98	0.91				
51617_02	MC	-0.53	0.047	0.97	0.97				
51617_03	MC	-0.40	0.047	0.97	0.96				
51617_04	TE	-1.04	0.048	0.93	0.89				
51617_05	TE	-1.23	0.05	0.91	0.84				
51617_06	CR	1.54	0.04	0.82	0.69	-1.16	0.81	0.35	
51617_08	TE	0.11	0.05	0.86	0.83				
51617_09	MC	-0.79	0.048	0.92	0.89				
51617_10	MC	-1.32	0.05	0.92	0.83				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
51617_11	MC	-0.55	0.034	0.93	0.93				
51617_12	CR	1.72	0.043	0.93	0.71	-0.13	-0.19	0.31	
51619_01	MC	-0.17	0.034	1.03	1.05				
51619_02	MC	-1.79	0.038	0.9	0.81				
51619_03	TE	0.91	0.039	1.02	1.25				
51619_04	TE	-0.81	0.034	0.9	0.88				
51619_05	MC	0.59	0.037	1.05	1				
51619_06	CR	2.27	0.032	0.91	0.88	-2.89	1.40	1.49	
51619_07	MC	-0.83	0.034	0.95	0.95				
51619_08	MC	-0.52	0.034	0.85	0.8				
51619_09	TE	0.32	0.036	0.96	1.04				
51619_10	TE	-0.84	0.034	0.91	0.9				
51619_11	MC	1.07	0.041	1.33	2.33				
51619_12	CR	1.91	0.031	0.9	0.89	-3.28	0.55	2.73	
51620_01	MC	-0.22	0.048	0.96	1				
51620_02	TE	1.90	0.072	0.97	0.77				
51620_03	MC	-0.48	0.048	1.01	1.04				
51620_04	TE	1.33	0.061	1.03	1.06				
51620_05	MC	-1.26	0.049	0.93	0.9				
51620_06	MC	-0.46	0.047	1.07	1.08				
51620_07	TE	-1.20	0.037	1.21	1.22	-1.10	1.10		
51620_08	TE	2.49	0.088	1.02	1.22				
51620_09	MC	1.02	0.056	1.26	1.8				
51620_10	TE	-0.38	0.034	1.06	1.08	-0.80	0.80		
51620_11	CR	0.83	0.041	0.91	0.89	-1.39	1.39		
51620_12	CR	0.93	0.04	0.88	0.85	-1.20	1.20		
51632_01	MC	-0.91	0.048	1	0.98				
51632_02	MC	-0.38	0.047	1.11	1.15				
51632_03	TE	2.24	0.081	1.1	1.96				
51632_04	TE	-0.24	0.048	0.95	0.93				
51632_05	TE	-0.31	0.038	0.87	0.87	-1.33	1.33		
51632_06	TE	-0.36	0.047	0.78	0.74				
51632_07	MC	0.48	0.051	0.97	1.02				
51632_08	TE	0.73	0.054	0.87	0.8				
51632_09	TE	0.66	0.053	0.89	0.87				
51632_10	TE	-0.01	0.034	0.92	0.93	-0.58	0.58		
51632_11	CR	-0.85	0.031	0.75	0.69	0.16	-0.16		
51632_12	CR	-0.09	0.038	0.88	0.88	-1.35	1.35		
51633_01	TE	-0.10	0.035	1.16	1.2	-0.85	0.85		

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
51633_02	MC	0.02	0.049	1.31	1.45				
51633_03	MC	-0.40	0.048	1.18	1.25				
51633_04	MC	-0.20	0.048	1.02	1.04				
51633_05	MC	0.90	0.055	0.93	0.9				
51633_06	CR	2.18	0.049	1	0.98	-1.78	1.78		
51633_07	TE	-0.47	0.04	1.2	1.2	-1.53	1.53		
51633_08	MC	-0.03	0.049	1.33	1.58				
51633_09	MC	-1.70	0.054	0.99	0.99				
51633_10	MC	-1.18	0.05	1.04	1.06				
51633_11	MC	-0.56	0.049	1.16	1.23				
51633_12	CR	0.17	0.041	0.96	0.95	-1.65	1.65		
51636_01	MC	-1.81	0.038	0.91	0.85				
51636_02	MC	-0.80	0.034	1.07	1.1				
51636_03	MC	-2.28	0.042	0.98	0.92				
51636_04	MC	-1.76	0.038	0.97	0.93				
51636_05	MC	0.51	0.036	1.43	1.82				
51636_06	MC	-0.12	0.034	0.95	0.94				
51636_07	MC	0.16	0.035	1.19	1.36				
51636_08	TE	-0.31	0.034	0.97	0.96				
51636_09	TE	0.19	0.035	0.87	0.82				
51636_10	MC	-1.86	0.038	0.98	1.04				
51636_11	CR	0.83	0.031	0.99	0.99	-3.33	1.02	2.31	
51636_12	CR	0.79	0.023	0.88	0.89	-1.59	0.24	1.35	
51638_01	MC	0.25	0.035	1.13	1.24				
51638_02	TE	-2.08	0.04	0.93	0.86				
51638_03	MC	0.34	0.036	1.26	1.45				
51638_04	MC	0.55	0.037	1.3	1.68				
51638_05	TE	2.08	0.055	1.02	1				
51638_06	MC	-0.54	0.034	1.05	1.09				
51638_07	TE	-1.24	0.035	0.82	0.76				
51638_08	MC	-0.24	0.034	1.12	1.16				
51638_09	MC	0.87	0.039	1.23	1.64				
51638_10	MC	0.13	0.035	1.18	1.27				
51638_11	CR	1.24	0.025	0.88	0.87	-2.47	-0.21	2.68	
51638_12	CR	1.82	0.029	0.95	0.94	-2.86	0.32	2.54	
51648_01	MC	-1.13	0.035	0.9	0.87				
51648_02	TE	1.99	0.053	1.14	1.53				
51648_03	TE	1.72	0.049	1.04	1.5				
51648_04	TE	-1.74	0.038	1.02	1.04				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
51648_05	MC	-2.01	0.039	0.94	0.94				
51648_06	CR	0.86	0.024	0.95	0.93	-2.05	-0.20	2.25	
51648_07	TE	1.83	0.05	1	1.09				
51648_08	MC	-1.63	0.037	0.99	1				
51648_09	TE	0.43	0.037	1.13	1.17				
51648_10	MC	0.34	0.036	1.13	1.22				
51648_11	TE	2.04	0.053	0.91	0.76				
51648_12	CR	1.31	0.028	0.85	0.84	-3.15	0.14	3.00	
51649_01	MC	-0.67	0.048	1.26	1.34				
51649_02	MC	-1.70	0.053	0.98	0.95				
51649_03	MC	-0.82	0.048	0.98	0.97				
51649_04	MC	-0.65	0.048	1.06	1.1				
51649_05	MC	-0.41	0.047	1.11	1.15				
51649_06	CR	1.49	0.038	0.9	0.9	-2.86	0.00	2.86	
51649_07	MC	0.14	0.049	1.26	1.38				
51649_08	TE	0.13	0.049	0.97	0.99				
51649_09	TE	1.64	0.066	1.1	1.33				
51649_10	TE	0.40	0.051	1.06	1.14				
51649_11	TE	3.10	0.113	1.05	2.22				
51649_12	CR	0.85	0.037	0.86	0.85	-2.48	0.45	2.03	
51650_01	MC	-0.14	0.049	1.09	1.18				
51650_02	TE	-0.06	0.049	1	0.99				
51650_03	MC	-0.92	0.048	1.26	1.41				
51650_04	TE	0.02	0.05	0.97	0.95				
51650_05	MC	-0.58	0.048	0.99	1.01				
51650_06	TE	-0.45	0.049	1.04	1.08				
51650_07	MC	0.70	0.053	1.08	1.18				
51650_08	TE	1.14	0.058	1.11	1.16				
51650_09	TE	-0.52	0.048	0.78	0.74				
51650_10	TE	0.21	0.05	1.07	1.08				
51650_11	CR	1.41	0.043	0.88	0.87	-3.13	0.66	2.48	
51650_12	CR	1.47	0.039	0.83	0.81	-2.59	0.28	2.31	
51697_01	MC	-1.49	0.051	1.01	1.01				
51697_02	MC	0.64	0.053	1.06	1.05				
51697_03	MC	-1.50	0.051	0.87	0.79				
51697_04	TE	-0.98	0.048	1.05	1.06				
51697_05	MC	-1.96	0.055	0.8	0.68				
51697_06	CR	0.72	0.033	0.86	0.87	-2.95	0.12	1.21	1.62
51697_07	MC	-0.54	0.047	1.19	1.25				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
51697_08	TE	-0.23	0.048	1.01	1.01				
51697_09	TE	0.05	0.049	1.05	1.13				
51697_10	TE	-1.83	0.054	0.81	0.71				
51697_11	MC	-1.71	0.053	0.86	0.76				
51697_12	CR	0.68	0.033	0.89	0.9	-2.76	0.32	1.38	1.06
51698_01	MC	-0.53	0.048	1.06	1.09				
51698_02	TE	0.88	0.055	0.98	0.9				
51698_03	TE	1.11	0.058	1.05	1.32				
51698_04	TE	0.10	0.049	0.96	0.94				
51698_05	MC	-0.35	0.049	1.29	1.39				
51698_06	CR	1.74	0.036	0.9	0.88	-2.27	-0.07	0.78	1.56
51698_07	TE	1.88	0.071	1.01	1.09				
51698_08	MC	0.61	0.053	1.25	1.61				
51698_09	TE	2.48	0.088	1.04	1.23				
51698_10	MC	-0.61	0.048	1.1	1.13				
51698_11	TE	0.27	0.051	0.87	0.82				
51698_12	CR	2.28	0.04	0.87	0.81	-2.40	-0.12	1.46	1.06
51699_01	MC	-0.70	0.048	1	1				
51699_02	TE	-0.97	0.049	1	1.04				
51699_03	TE	0.52	0.052	0.91	0.87				
51699_04	TE	1.20	0.06	1.04	1.22				
51699_05	TE	-0.97	0.049	1.02	1.04				
51699_06	CR	1.11	0.034	0.78	0.77				
51699_07	TE	0.01	0.049	1.13	1.22	-2.48	-0.26	1.71	1.04
51699_08	MC	0.40	0.052	1.29	1.69				
51699_09	MC	0.95	0.057	1.17	1.5				
51699_10	MC	-2.06	0.056	1.02	1.04				
51699_11	TE	0.43	0.052	1.2	1.43				
51699_12	CR	1.31	0.033	0.85	0.82	-2.35	-0.42	1.11	1.66

Table.D.1. MISA Rasch Statistics - Grade 8

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81601_01	TE	0.68	0.038	1.1	1.11				
81601_02	TE	-0.53	0.027	1.05	1.05	-1.38	1.38		
81601_03	TE	-0.45	0.034	0.82	0.77				
81601_04	TE	0.41	0.037	1.09	1.32				
81601_05	TE	1.67	0.049	1.18	2.47				
81601_06	CR	-0.71	0.024	0.86	0.85	-0.74	0.74		
81601_07	MC	-1.78	0.025	0.87	0.78	0.04	-0.04		
81601_08	TE	-0.28	0.034	0.99	0.96				
81601_09	TE	2.80	0.074	1.01	1.65				
81601_10	TE	-0.62	0.034	1.16	1.22				
81601_11	TE	-1.23	0.035	0.82	0.75				
81601_12	CR	-0.42	0.027	0.8	0.8	-1.29	1.29		
81602_01	TE	0.37	0.052	0.97	0.93				
81602_02	TE	0.27	0.051	0.84	0.74				
81602_03	TE	0.45	0.052	1.07	1.12				
81602_04	TE	0.60	0.053	1.04	1				
81602_05	TE	0.50	0.053	1.04	1.03				
81602_06	MC	-0.25	0.049	0.94	0.94				
81602_07	TE	1.35	0.062	1.12	1.33				
81602_08	MC	-0.92	0.049	1.14	1.19				
81602_09	TE	3.55	0.138	1.02	1.55				
81602_10	MC	-0.90	0.049	0.87	0.84				
81602_11	CR	1.93	0.04	0.83	0.77	-2.22	0.08	2.14	
81602_12	CR	1.97	0.039	0.88	0.85	-2.82	-0.19	3.01	
81605_01	TE	-1.99	0.037	0.83	0.77				
81605_02	TE	0.46	0.053	0.97	1.07				
81605_03	MC	-0.90	0.048	1.11	1.13	-0.31	0.31		
81605_04	MC	-1.35	0.049	0.98	0.97				
81605_05	MC	-1.34	0.049	1.05	1.06				
81605_06	CR	-0.51	0.033	0.94	0.9	-0.40	0.40		
81605_07	TE	1.14	0.061	1.04	1.23				
81605_08	TE	-2.16	0.056	0.95	0.89				
81605_09	TE	-0.26	0.034	0.91	0.89	-0.74	0.74		
81605_10	MC	-1.10	0.049	0.97	0.96				
81605_11	MC	-2.26	0.057	0.96	0.99				
81605_12	CR	-2.05	0.038	0.89	0.97	-0.04	0.04		
81616_01	TE	0.55	0.054	1.11	1.21				
81616_02	TE	2.45	0.094	1.09	1.77				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81616_03	MC	-0.65	0.048	1.02	1.02				
81616_04	TE	2.86	0.111	1.06	1.79				
81616_05	TE	1.73	0.072	1.05	1.33				
81616_06	CR	1.38	0.04	1.04	0.99	-1.67	1.03	0.64	
81616_07	TE	1.67	0.071	0.97	0.88				
81616_08	TE	0.44	0.052	1.12	1.2				
81616_09	TE	-1.69	0.052	0.87	0.82				
81616_10	TE	1.07	0.06	0.95	0.85				
81616_11	TE	1.76	0.073	1.01	1.18				
81616_12	CR	1.03	0.037	0.79	0.77	-2.23	0.40	1.83	
81617_01	MC	0.37	0.052	1.23	1.72				
81617_02	TE	-3.48	0.083	0.95	1.09				
81617_03	TE	1.23	0.061	1.16	1.86				
81617_04	TE	2.28	0.083	0.97	0.98				
81617_05	TE	1.42	0.063	1.15	2.24				
81617_06	CR	-0.03	0.029	0.88	0.84	-1.10	-0.18	1.28	
81617_07	TE	-0.51	0.049	1.1	1.11				
81617_08	TE	-0.79	0.049	0.97	0.95				
81617_09	TE	-0.21	0.049	1.14	1.18				
81617_10	TE	0.06	0.05	0.82	0.75				
81617_11	TE	-0.77	0.048	1.03	1.03				
81617_12	CR	-0.07	0.03	0.8	0.78	-1.26	-0.39	1.65	
81618_01	TE	0.50	0.053	1.14	1.21				
81618_02	TE	1.87	0.072	1.15	1.53				
81618_03	TE	0.49	0.053	1.04	1.28				
81618_04	TE	1.22	0.06	1.19	1.4				
81618_05	TE	-0.90	0.049	0.96	0.95				
81618_06	CR	-0.12	0.031	0.94	0.95	-1.38	-1.06	2.44	
81618_07	TE	-0.78	0.049	0.92	0.89				
81618_08	MC	1.39	0.063	1.28	3.5				
81618_09	TE	-0.31	0.049	1.08	1.08				
81618_10	TE	-1.04	0.049	0.89	0.86				
81618_11	TE	-3.42	0.082	0.88	0.68				
81618_12	CR	-0.33	0.036	0.93	0.93	-2.66	-0.16	2.81	
81619_01	MC	-0.22	0.035	1.32	1.51				
81619_02	TE	0.97	0.029	1.03	1.03	-1.20	1.20		
81619_02	MC	0.97	0.029	1.03	1.03	-1.20	1.20		
81619_03	MC	-1.26	0.035	1.12	1.19				
81619_03	MC	-1.26	0.035	1.12	1.19				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81619_04	TE	3.40	0.093	1.02	1.72				
81619_05	TE	-0.25	0.034	0.9	0.87				
81619_05	MC	-0.25	0.034	0.9	0.87				
81619_06	CR	-0.14	0.026	0.79	0.78	-0.98	0.98		
81619_06	CR	-0.14	0.026	0.79	0.78	-0.98	0.98		
81619_07	TE	-1.32	0.036	0.95	0.94				
81619_08	TE	-0.93	0.024	0.98	0.98	-0.68	0.68		
81619_09	TE	0.12	0.035	0.93	0.92				
81619_09	MC	0.12	0.035	0.93	0.92				
81619_10	TE	-0.99	0.035	0.88	0.83				
81619_10	MC	-0.99	0.035	0.88	0.83				
81619_11	TE	-0.35	0.034	1.01	1.03				
81619_12	CR	1.69	0.033	0.85	0.78	-1.99	1.99		
81620_01	MC	-1.21	0.035	1.06	1.07				
81620_02	TE	-0.28	0.034	0.99	1.04				
81620_03	MC	0.76	0.039	1.25	1.82				
81620_04	TE	-0.24	0.024	1.03	1.05				
81620_06	CR	0.68	0.024	0.81	0.81	-2.09	-0.03	2.12	
81620_07	TE	-2.18	0.04	0.85	0.75				
81620_08	TE	-0.20	0.035	0.8	0.75				
81620_09	MC	0.67	0.038	1.05	1.23				
81620_10	TE	0.69	0.039	0.91	0.89				
81620_11	TE	-0.04	0.035	1.01	1.07				
81620_12	CR	1.62	0.028	0.88	0.9	-2.26	0.32	1.94	
81621_01	MC	-2.72	0.064	1.04	1.06				
81621_02	MC	-0.71	0.048	1.08	1.12				
81621_03	MC	-0.44	0.048	1.08	1.14				
81621_04	TE	0.63	0.055	0.94	0.86				
81621_05	MC	-1.87	0.053	1.06	1.13				
81621_06	CR	-0.20	0.032	0.89	0.89	-1.92	-0.25	2.17	
81621_07	TE	0.49	0.053	0.98	0.95				
81621_08	TE	-0.35	0.049	1.03	1.07				
81621_09	MC	0.74	0.056	1.2	1.85				
81621_10	TE	-0.19	0.049	0.99	1.05				
81621_11	TE	1.50	0.067	1.06	1.33				
81621_12	CR	1.19	0.033	0.88	0.83	-1.25	-0.84	2.09	
81622_01	MC	-0.32	0.049	1.31	1.46				
81622_01	MC	-0.32	0.049	1.31	1.46				
81622_02	TE	-1.27	0.05	0.78	0.71				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81622_02	MC	-1.27	0.05	0.78	0.71				
81622_03	MC	-0.76	0.048	1.17	1.27				
81622_04	TE	-3.17	0.074	0.82	0.54				
81622_05	TE	-0.84	0.048	0.94	0.95				
81622_06	TE	0.25	0.051	0.82	0.78				
81622_07	MC	0.08	0.05	1.04	1.09				
81622_07	MC	0.08	0.05	1.04	1.09				
81622_08	TE	-1.96	0.055	1.06	1.14				
81622_08	MC	-1.96	0.055	1.06	1.14				
81622_09	MC	-0.78	0.048	0.96	0.97				
81622_10	TE	-1.48	0.051	0.76	0.68				
81622_10	MC	-1.48	0.051	0.76	0.68				
81622_11	CR	0.91	0.037	0.79	0.78	-2.26	0.58	1.68	
81622_11	CR	0.91	0.037	0.79	0.78	-2.26	0.58	1.68	
81622_12	CR	1.00	0.036	0.76	0.72	-1.96	0.41	1.54	
81623_01	TE	1.86	0.073	1.12	2.49				
81623_01	MC	1.86	0.073	1.12	2.49				
81623_02	TE	1.60	0.068	0.96	1.2				
81623_03	MC	-0.79	0.048	1.21	1.27				
81623_03	MC	-0.79	0.048	1.21	1.27				
81623_04	TE	-0.19	0.049	1.28	1.47				
81623_05	TE	0.83	0.056	0.93	0.87				
81623_06	CR	1.10	0.039	0.83	0.82	-2.75	0.34	2.41	
81623_07	TE	0.23	0.051	1.16	1.39				
81623_07	MC	0.23	0.051	1.16	1.39				
81623_08	TE	2.14	0.081	1.04	1.83				
81623_09	TE	0.86	0.056	0.98	0.91				
81623_09	MC	0.86	0.056	0.98	0.91				
81623_10	TE	1.70	0.07	0.89	0.64				
81623_11	TE	1.12	0.059	0.81	0.61				
81623_11	MC	1.12	0.059	0.81	0.61				
81623_12	CR	1.24	0.033	0.82	0.76	-1.18	-0.72	1.90	
81623_12	CR	1.24	0.033	0.82	0.76	-1.18	-0.72	1.90	
81625_01	MC	-0.45	0.034	1.13	1.22				
81625_01	MC	-0.45	0.034	1.13	1.22				
81625_02	TE	0.49	0.037	1.12	1.29				
81625_02	MC	0.49	0.037	1.12	1.29				
81625_03	MC	-1.02	0.034	0.98	0.94				
81625_03	MC	-1.02	0.034	0.98	0.94				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81625_04	TE	-0.83	0.034	0.91	0.88				
81625_05	TE	0.59	0.038	1.11	1.25				
81625_06	MC	0.29	0.036	1.29	1.6				
81625_06	MC	0.29	0.036	1.29	1.6				
81625_07	TE	-0.73	0.034	1.07	1.09				
81625_08	MC	0.33	0.036	1.15	1.36				
81625_08	MC	0.33	0.036	1.15	1.36				
81625_09	MC	-0.59	0.034	0.99	1.01				
81625_10	TE	0.35	0.037	1.04	1.13				
81625_11	CR	0.45	0.024	0.83	0.82	-2.31	-0.27	2.58	
81625_11	CR	0.45	0.024	0.83	0.82	-2.31	-0.27	2.58	
81625_12	CR	-0.01	0.025	0.85	0.84	-2.51	-0.24	2.75	
81626_01	MC	-0.41	0.034	1.01	1.07				
81626_01	MC	-0.41	0.034	1.01	1.07				
81626_02	MC	-1.13	0.035	1.15	1.18				
81626_03	TE	-1.84	0.038	0.88	0.83				
81626_04	TE	1.85	0.051	1.04	1.12				
81626_04	MC	1.85	0.051	1.04	1.12				
81626_05	TE	-3.31	0.055	0.83	0.48				
81626_05	MC	-3.31	0.055	0.83	0.48				
81626_06	CR	1.04	0.026	0.86	0.86	-2.33	0.03	2.30	
81626_07	MC	-2.70	0.046	1	1.08				
81626_07	MC	-2.70	0.046	1	1.08				
81626_08	TE	-1.41	0.036	0.97	0.94				
81626_09	TE	-0.13	0.035	1.08	1.09				
81626_10	MC	-0.21	0.035	1.18	1.28				
81626_10	MC	-0.21	0.035	1.18	1.28				
81626_11	TE	0.15	0.036	0.86	0.8				
81626_12	CR	1.46	0.03	0.84	0.83	-3.15	0.65	2.51	
81626_12	CR	1.46	0.03	0.84	0.83	-3.15	0.65	2.51	
81627_01	MC	-1.20	0.049	1.08	1.15				
81627_02	TE	-1.47	0.05	0.95	0.95				
81627_03	TE	1.49	0.067	1.03	1.08				
81627_04	TE	0.54	0.054	1.18	1.29				
81627_05	MC	-1.63	0.051	0.91	0.84				
81627_06	CR	0.07	0.037	0.76	0.76	-2.80	-0.20	3.00	
81627_07	TE	0.76	0.056	1.43	2.11				
81627_08	MC	0.12	0.05	1.06	1.12				
81627_09	TE	0.49	0.053	0.98	0.98				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81627_10	TE	0.81	0.057	1.01	0.98				
81627_11	MC	-1.94	0.054	0.97	0.92				
81627_12	CR	1.86	0.042	0.88	0.85	-2.43	0.65	1.77	
81630_01	MC	-0.70	0.034	1.05	1.07				
81630_01	MC	-0.70	0.034	1.05	1.07				
81630_02	TE	-0.97	0.049	1.02	1.03				
81630_03	TE	-0.44	0.021	1.16	1.16	-1.11	1.11		
81630_03	MC	-0.44	0.021	1.16	1.16	-1.11	1.11		
81630_04	TE	-1.32	0.029	0.97	0.94				
81630_04	MC	-1.32	0.029	0.97	0.94				
81630_05	TE	0.44	0.037	0.93	0.85				
81630_05	MC	0.44	0.037	0.93	0.85				
81630_06	CR	-0.48	0.03	0.79	0.78	-1.81	1.81		
81630_07	TE	-0.61	0.034	1.03	1.03	-0.75	0.75		
81630_08	MC	-1.13	0.029	1.13	1.21				
81630_08	MC	-1.13	0.029	1.13	1.21				
81630_09	MC	-0.94	0.049	1.05	1.07				
81630_10	MC	0.17	0.036	1.15	1.25				
81630_11	TE	-1.14	0.035	0.84	0.81				
81630_12	CR	-0.03	0.031	0.91	0.91	-1.99	1.99		
81630_12	CR	-0.03	0.031	0.91	0.91	-1.99	1.99		
81633_01	MC	-1.20	0.035	1.05	1.08				
81633_02	TE	-0.02	0.035	0.95	0.92				
81633_02	MC	-0.02	0.035	0.95	0.92				
81633_03	MC	-0.82	0.034	0.89	0.85				
81633_03	MC	-0.82	0.034	0.89	0.85				
81633_04	TE	-1.11	0.035	0.9	0.88				
81633_05	MC	-1.27	0.035	1.08	1.08				
81633_05	MC	-1.27	0.035	1.08	1.08				
81633_06	CR	0.86	0.03	0.86	0.85	-3.44	0.28	3.17	
81633_06	CR	0.86	0.03	0.86	0.85	-3.44	0.28	3.17	
81633_07	MC	-0.08	0.035	1.03	1.1				
81633_08	TE	-0.59	0.034	1.18	1.26				
81633_09	TE	0.69	0.039	1.35	1.72				
81633_09	MC	0.69	0.039	1.35	1.72				
81633_10	MC	-1.89	0.038	0.9	0.83				
81633_10	MC	-1.89	0.038	0.9	0.83				
81633_11	MC	-1.28	0.035	0.9	0.85				
81633_12	CR	0.75	0.026	0.87	0.86	-2.62	-0.10	2.72	

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81636_01	TE	-0.16	0.049	1.11	1.15				
81636_01	MC	-0.16	0.049	1.11	1.15				
81636_02	TE	2.05	0.079	1.03	1.06				
81636_03	MC	0.10	0.05	1.18	1.43				
81636_03	MC	0.10	0.05	1.18	1.43				
81636_04	TE	3.29	0.128	1.01	1.38				
81636_05	MC	0.89	0.056	1.06	1.32				
81636_05	MC	0.89	0.056	1.06	1.32				
81636_06	CR	0.71	0.036	0.78	0.76	-2.29	0.64	1.65	
81636_06	CR	0.71	0.036	0.78	0.76	-2.29	0.64	1.65	
81636_07	MC	0.24	0.051	1.25	1.5				
81636_08	TE	-0.20	0.049	1.5	1.83				
81636_09	MC	-1.71	0.052	0.95	0.95				
81636_09	MC	-1.71	0.052	0.95	0.95				
81636_10	MC	-0.28	0.049	1.12	1.15				
81636_10	MC	-0.28	0.049	1.12	1.15				
81636_11	TE	1.68	0.07	1.05	1.06				
81636_12	CR	0.62	0.037	0.78	0.77	-2.64	0.34	2.30	
81637_01	MC	-1.22	0.05	0.89	0.84				
81637_02	TE	2.87	0.105	1.04	1.95				
81637_03	MC	0.21	0.051	1.11	1.2				
81637_04	TE	0.44	0.052	1.16	1.21				
81637_05	TE	-0.47	0.048	1.35	1.5				
81637_06	MC	0.16	0.05	1.16	1.31				
81637_07	TE	-1.47	0.051	1.17	1.37				
81637_08	MC	0.29	0.051	1.28	1.75				
81637_09	MC	1.10	0.058	1.06	1.38				
81637_10	TE	1.54	0.065	1	1.44				
81637_11	CR	2.04	0.041	0.84	0.83	-3.23	0.00	3.23	
81637_12	CR	2.60	0.042	0.8	0.73	-2.66	-0.40	3.06	
81639_01	TE	1.55	0.066	1.19	1.66				
81639_01	MC	1.55	0.066	1.19	1.66				
81639_02	TE	0.30	0.051	1.01	1.06				
81639_03	TE	-0.40	0.049	1.06	1.1				
81639_04	MC	-0.68	0.034	1.07	1.1				
81639_04	MC	-0.68	0.034	1.07	1.1				
81639_05	MC	-1.49	0.051	0.93	0.93				
81639_05	MC	-1.49	0.051	0.93	0.93				
81639_06	CR	1.37	0.045	0.86	0.85	-3.61	0.50	3.11	

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81639_06	CR	1.37	0.045	0.86	0.85	-3.61	0.50	3.11	
81639_07	TE	0.74	0.055	1.16	1.38				
81639_08	TE	2.36	0.087	1.01	1.75				
81639_08	MC	2.36	0.087	1.01	1.75				
81639_10	MC	1.60	0.068	1.14	1.92				
81639_11	TE	0.79	0.055	0.97	0.93				
81639_11	MC	0.79	0.055	0.97	0.93				
81639_12	CR	1.75	0.041	0.96	0.94	-2.66	0.48	2.18	
81640_01	TE	-0.99	0.048	0.91	0.88				
81640_02	TE	0.57	0.054	0.98	0.95				
81640_03	MC	-0.81	0.048	1.07	1.12				
81640_04	TE	-0.92	0.048	1	0.98				
81640_06	CR	0.55	0.035	0.85	0.84	-2.50	-0.12	2.62	
81640_07	TE	-1.86	0.053	0.92	0.93				
81640_08	MC	-1.57	0.051	0.96	0.93				
81640_09	TE	1.61	0.069	0.92	0.85				
81640_10	MC	-0.41	0.048	1.07	1.2				
81640_11	TE	-0.81	0.034	1.02	1.02				
81640_12	CR	1.27	0.038	0.88	0.85	-2.29	0.16	2.13	
81641_01	MC	0.09	0.05	1.22	1.43				
81641_02	MC	-0.61	0.048	1.11	1.17				
81641_03	MC	0.08	0.05	1.21	1.46				
81641_04	TE	0.39	0.051	1.04	1				
81641_05	MC	0.84	0.055	1.23	1.74				
81641_06	TE	1.26	0.061	0.98	1.07				
81641_07	TE	-0.47	0.048	1.16	1.17				
81641_08	MC	-1.38	0.051	0.93	0.88				
81641_09	MC	-1.21	0.05	0.92	0.9				
81641_10	MC	-1.22	0.05	1.01	0.97				
81641_11	CR	1.37	0.038	0.8	0.79	-2.75	-0.13	2.88	
81641_12	CR	0.74	0.034	0.8	0.78	-2.31	-0.84	3.15	
81643_01	TE	0.26	0.025	1.14	1.28	-0.31	0.31		
81643_01	MC	0.26	0.025	1.14	1.28	-0.31	0.31		
81643_02	MC	-0.94	0.034	1.05	1.07				
81643_02	MC	-0.94	0.034	1.05	1.07				
81643_03	MC	-0.27	0.035	0.95	0.95				
81643_04	TE	0.35	0.036	0.84	0.74				
81643_04	MC	0.35	0.036	0.84	0.74				
81643_05	TE	0.79	0.04	0.95	0.93				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81643_06	TE	-0.66	0.034	1.13	1.19				
81643_06	MC	-0.66	0.034	1.13	1.19				
81643_07	MC	-1.70	0.037	0.87	0.8				
81643_07	MC	-1.70	0.037	0.87	0.8				
81643_08	TE	-0.59	0.034	0.96	0.96				
81643_09	TE	-1.62	0.036	1.07	1.16				
81643_10	MC	-0.92	0.023	1.06	1.09	-0.18	0.18		
81643_11	CR	-0.13	0.026	0.81	0.8	-1.00	1.00		
81643_12	CR	-0.50	0.024	0.85	0.83	-0.55	0.55		
81643_12	CR	-0.50	0.024	0.85	0.83	-0.55	0.55		
81697_01	MC	-0.95	0.049	0.99	0.98				
81697_02	TE	-1.43	0.051	0.93	0.88				
81697_03	TE	1.93	0.075	0.94	0.89				
81697_04	TE	-0.99	0.049	0.94	0.92				
81697_05	MC	-2.41	0.06	0.9	0.75				
81697_06	CR	0.53	0.028	0.76	0.75	-2.56	-0.61	-0.23	3.395
81697_07	TE	-1.44	0.051	0.85	0.78				
81697_08	TE	0.68	0.054	0.91	0.87				
81697_09	MC	-1.59	0.052	0.87	0.78				
81697_10	TE	-0.74	0.048	0.82	0.78				
81697_11	MC	-1.89	0.055	0.81	0.68				
81697_12	CR	0.80	0.031	0.76	0.75	-2.52	-0.45	0.84	2.142
81698_01	TE	-0.53	0.048	0.93	0.9				
81698_01	MC	-0.53	0.048	0.93	0.9				
81698_02	MC	-1.02	0.049	1.07	1.08				
81698_02	MC	-1.02	0.049	1.07	1.08				
81698_03	TE	0.13	0.05	1.09	1.16				
81698_04	MC	0.06	0.05	1.04	1.1				
81698_04	MC	0.06	0.05	1.04	1.1				
81698_05	TE	-0.19	0.049	0.9	0.88				
81698_05	MC	-0.19	0.049	0.9	0.88				
81698_06	CR	0.41	0.028	0.77	0.75	-2.10	-0.88	0.76	2.215
81698_06	CR	0.41	0.028	0.77	0.75	-2.10	-0.88	0.76	2.215
81698_07	MC	-1.30	0.05	0.86	0.8				
81698_07	MC	-1.30	0.05	0.86	0.8				
81698_08	TE	-0.28	0.049	1.01	1.01				
81698_09	TE	0.63	0.054	1.11	1.07				
81698_10	TE	0.56	0.054	0.91	0.8				
81698_11	TE	0.40	0.052	0.93	1.02				

UIN	Item Type	Rasch Difficulty	SE	MS. Infit	MS. Outfit	Step 0-1	Step 1-2	Step 2-3	Step 3-4
81698_12	CR	0.26	0.029	0.76	0.75	-2.51	-0.74	0.84	2.413
81699_01	TE	0.07	0.05	0.94	0.98				
81699_02	TE	-0.61	0.048	0.97	0.94				
81699_03	TE	-0.81	0.048	1.25	1.35				
81699_04	TE	0.07	0.05	1.26	1.42				
81699_05	TE	1.74	0.073	0.97	1.11				
81699_06	CR	1.54	0.042	0.9	0.86	-2.48	0.88	1.61	
81699_07	TE	-0.72	0.048	1.02	1.02				
81699_08	MC	0.59	0.054	1.27	1.77				
81699_09	TE	0.00	0.05	0.9	0.9				
81699_10	MC	0.06	0.05	1.33	1.68				
81699_11	TE	2.61	0.1	1.05	1.93				
81699_12	CR	1.80	0.041	0.85	0.81	-2.27	0.49	1.78	