



Educational Improvement and
Assessment **P**rogram

2001–2002 TECHNICAL MANUAL



171 WATSON RD., DOVER, NH 03820 (800) 431-8901 WWW.MEASUREDPROGRESS.ORG

TABLE OF CONTENTS

Chapter 1—Background and Overview of Program	1
Purpose of This Manual	1
Background of NHEIAP	1
Organization of This Manual	2
Section I—Assessment Development	3
Chapter 2—Overview of Test Design	3
Curriculum Frameworks	3
Item Types	3
Common—Matrix-Sampled Design	3
Embedded Field Test	5
External Field Test	5
Test Booklet Design	5
Test Session Times	6
Chapter 3—Test Development Process	7
Test Item Development Committee Item Idea Generation	7
Internal Item Review	7
External Item Review	7
Item Editing	8
Reviewing and Refining	8
Operational Test Assembly	8
Editing Drafts of Operational Tests	9
Braille and Large-Print Translation	9
Chapter 4—Design of the ELA Assessment	11
ELA Blueprint	11
Item Types	11
Test Design	11
Reading Component	12
Content Specifications	12
Writing Component	17
Content Specifications	17
Test Design	17
Listening and Viewing Component	19
Content Specifications	19
Test Design	19
Chapter 5—Design of the Mathematics Assessment	21
Mathematics Blueprint	21
Content Specifications	22
Test Design	22
Chapter 6—Design of the Science Assessment	27
Science Blueprint	27
Content Specifications	27
Test Design	28

Chapter 7—Design of the Social Studies Assessment	31
Social Studies Blueprint	31
Content Specifications	31
Test Design	31
Section II—Test Administration	35
Chapter 8—Test Administration	35
Responsibility for Test Administration	35
Procedures	35
Administrator Training	35
State Participation Rates	35
Participation Requirements	35
Non-Participation in the Assessment	36
Documentation of Accommodations or Non-Participation	37
Section III— Development and Reporting of Scores	41
Chapter 9—Scoring	41
Machine-Scored Items	41
Scanning Quality Control	41
Electronic Data Files	42
I-Score	42
Preliminary Activities	43
Planning and Designing Documents	43
Reviewing Items and Guides (Benchmarking)	43
Selecting and Training Scoring Staff	43
Scoring Activities	44
Monitoring Readers	44
Scoring the Writing	44
Chapter 10—Item Analysis	47
Difficulty Indices (<i>p</i>)	47
Item-Test Correlations (Item Discrimination)	48
Summary of Item Analysis Results	48
Differential Item Functioning	50
Item Response Theory Analyses	53
Chapter 11—Reliability	55
Reliability and Standard Errors of Measurement	55
Reliability of Performance Level Categorization	58
Accuracy	58
Consistency	58
Calculating Accuracy	58
Calculating Consistency	59
Kappa	59
Results of Accuracy, Consistency, and Kappa Analyses	59

Chapter 12—Validity	61
Content-Related Evidence	61
External Evidence	61
Frequency of Homework Assignment	61
Attitude Toward Subject Matter	64
Frequency of Free Time Reading	64
Chapter 13—Equating and Scaling	67
Equating Forms Within a Year	67
Equating Across Years	67
Determining The Sets of Anchor Items	67
Translating Raw Scores to Scaled Scores and Performance Levels	69
Chapter 14—Reporting	73
Parent Letter/Individual Student Report	73
Student Label	73
Common Item School Report	74
School/District/State Report	74
Decision Rules	75
Quality Assurance	75
Section IV—References	79
Section V—Appendices	81
Appendix A	83
Decision Rules	83
Appendix B	95
IRT Parameter Files	95
Appendix C	137
Accuracy and Consistency of Classifications	137
Appendix D	150
Delta Plot Analyses Results	150
Appendix E	163
Sample Reports	163

CHAPTER 1—BACKGROUND AND OVERVIEW OF PROGRAM

PURPOSE OF THIS MANUAL

The purpose of this technical manual is to document the technical aspects of the 2001–2002 New Hampshire Educational Improvement and Assessment Program (NHEIAP). In May 2002, students in grades 3, 6, and 10 participated in NHEIAP. Students in all three grades were administered the English language arts and mathematics tests; students in grades 6 and 10 were administered the science and social studies tests also. This report provides information about the technical quality of these assessments, including a description of the processes used to develop, administer, and score the tests and to analyze the test results. This report is intended to serve as a guide for replicating and/or improving the procedures in subsequent years.

While some parts of this technical report may be used by laypersons, the intended audience is experts in psychometrics and educational research. The report assumes a working knowledge of measurement concepts such as “reliability” and “validity”, and statistical concepts such as “correlation” and “central tendency.” In some chapters, the reader is presumed also to have a basic familiarity with advanced topics in measurement and statistics.

BACKGROUND OF NHEIAP

In 1989, the State Board of Education adopted the goal of developing an educational assessment and improvement system as one of its top priorities for educational reform in New Hampshire. In 1992, a 27-member assessment steering committee submitted a detailed plan to the Commissioner and the Legislature for the implementation of this system. The first task identified in that plan was the formation of broad-based writing teams to develop end-of-grade-three curriculum and assessment frameworks in English language arts and mathematics. These frameworks, completed and published in 1993, provided the foundation for the development of the end-of-grade-three New Hampshire educational assessment. During 1994 and 1995, these frameworks were expanded to include curriculum standards for the end-of-grade twelve and proficiency standards for the end-of-grades three, six, and ten. K–12 curriculum frameworks were also developed for the areas of science and social studies.

In June 1993, the Legislature enacted a new chapter of state law (RSA 193-C) relative to the NHEIAP. The purpose of this program is “to establish what New Hampshire students should know and be able to do and to develop and implement effective methods for assessing that learning and its application so that local decisions about curriculum development and delivery can be made.” RSA 193-C requires all public school districts to participate in the assessment portion of this program. It also provides for widespread participation by educators, business people, government officials, community representatives, and parents in the development and implementation of this important effort.

End-of-grade-three English language arts and mathematics assessment instruments were piloted in June 1993, and have been administered statewide each year since May 1994. Assessment instruments for English language arts, mathematics, science, and social studies were piloted in May 1995, with samples of students at the end-of-grades six and ten and have been administered statewide each year since 1996.

NHEIAP is implemented by the New Hampshire Department of Education and the assessment contractor, Measured Progress, Inc., of Dover, New Hampshire.

ORGANIZATION OF THIS MANUAL

The organization of this manual is based on the conceptual flow of an assessment's life span; it begins with the initial test specification and addresses all the intermediate steps that lead to final score reporting. Section I covers the development of the NHEIAP tests. It consists of six chapters covering general design issues; the test development process; and the specific designs of the English language arts, mathematics, science, and social studies assessment. Section II consists of a single chapter describing the administration of the tests. Section III contains six chapters covering scoring, item analysis, reliability, validity, equating and scaling, and reporting. Section IV contains references and Section V contains the appendices.

SECTION I—ASSESSMENT DEVELOPMENT

CHAPTER 2—OVERVIEW OF TEST DESIGN

CURRICULUM FRAMEWORKS

NHEIAP items are directly linked to the curriculum standards described in New Hampshire’s *Curriculum Frameworks*. These content standards are the basis for the reporting categories developed for each content area and are used to help guide the development of test items. No other content is included in the statewide assessment. An item may address part, all, or several of the content standards.

ITEM TYPES

New Hampshire’s educators and students are familiar with the two item types, multiple-choice and open-response, used in the assessment. The function of each item type is described below.

Multiple-choice items were used, in part, to provide breadth of coverage of a content area. Because they require no more than a minute for most students to answer, these questions make efficient use of limited testing time and allow coverage of a wide range of knowledge and skills.

Open-response items typically require students to use higher-order thinking skills—evaluation, analysis, and summarization, and so on—in constructing a satisfactory response. Open-response items should take most students approximately five to ten minutes to complete. It should be noted that the use of previously released NHEIAP items to prepare students to answer this kind of question is appropriate and encouraged.

COMMON—MATRIX-SAMPLED DESIGN

The 2001–2002 NHEIAP continued to measure what students know and are able to do by using the item types described above. The tests continued to be structured using both common and matrix-sampled items. Common items are those taken by all students at a given grade level. In addition to these items, a larger pool of matrix-sampled items is divided among the different forms of the test at each grade level. Each student took only one form of the test and so answered a fraction of the matrix-sampled items in the entire pool. This design provides reliable and valid results at the student level. It also provides greater breadth of coverage of a content area for school results while minimizing testing time.

Beginning with the May 2002 administration, the test design was modified so that student, school, and district scores were based on common items only. Prior to this time, results were based on both common and matrix-sampled items. Matrix-sampled items will continue to be used for year-to-year equating, as well as to provide additional information for the content diagnostic display. In order to maintain adequate reliabilities for the student- and school-level scores, the number of common items was increased and the number of test forms increased from eight to twelve.

Tables 2-1 through 2-4 provide a comparison of the percentages of multiple-choice and open-response items and the total scores points between the previous and current test designs.

**TABLE 2-1: GRADE 3 ENGLISH LANGUAGE ARTS
COMPARISON OF CURRENT WITH PREVIOUS TEST DESIGN**

Comparisons	Prior to May 2002		May 2002	
	Common	Matrix	Common	Matrix
Student and school scores				
Percent MC and OR				
Student	67	33	64	36
School	57	43	64	36
Score points				
Student level	75		67	
School level	175		55	
Content display display	175		151	

**TABLE 2-2: GRADE 3 MATHEMATICS
COMPARISON OF CURRENT WITH PREVIOUS TEST DESIGN**

Comparisons	Prior to May 2002		May 2002	
	Common	Matrix	Common	Matrix
Student and school scores				
Percent MC and OR				
Student	67	33	68	32
School	56	44	68	32
Score points				
Student level	60		50	
School level	172		50	
Content diagnostic display	172		146	

**TABLE 2-3: GRADES 6 AND 10 ENGLISH LANGUAGE ARTS
COMPARISON OF CURRENT WITH PREVIOUS TEST DESIGN**

Comparisons	Prior to May 2002		May 2002	
	Common	Matrix	Common	Matrix
Student and school scores				
Percent MC and OR				
Student	65	35	64	36
School	59	41	64	36
Score points				
Student level	68		55	
School level	194		55	
Content diagnostic display	194		175	

**TABLE 2-4: GRADES 6 AND 10 MATHEMATICS, SCIENCE, AND SOCIAL STUDIES
COMPARISON OF CURRENT WITH PREVIOUS TEST DESIGN**

Comparisons	Prior to May 2002		May 2002	
	Common	Matrix	Common	Matrix
Student and school scores				
Percent MC and OR				
Student	59	41	60	40
School	57	43	60	40
Score points				
Student level		58		50
School level		184		50
Content diagnostic display		184		146

EMBEDDED FIELD TEST

Historically, NHEIAP field tests were administered independently of the statewide assessment at out-of-state schools willing to participate. In recent years, however, it has become increasingly difficult to find schools that have the time to field test, and sample sizes were decreasing to an undesirable level. Therefore, the 2001-2002 NHEIAP redesign included an embedded field test in all content areas that was transparent to test takers and that had a negligible impact on testing time. Because the field test was taken by all students, it provided the sample size needed to produce reliable data on which to inform item selection for future tests.

The embedded field test achieved two other objectives. First, it created a pool of replacement items needed due to natural attrition caused by the release of all common items each year in English language arts, mathematics, science, and social studies. Second, the embedded field test ensured that there would be sufficient numbers of items to fill the gaps in coverage of the content standards that result when common items are released and matrix-sampled items move to common.

EXTERNAL FIELD TEST

The writing and listening/ viewing portions of the English language arts frameworks are assessed through a common writing prompt, and a common videotaped selection, and the cover art on the test booklets. To include multiple writing prompts, videotaped selections, and several art pieces in the embedded field test would increase testing time significantly. As a result, a sufficient number of writing prompts, videotaped selections and accompanying items, and sample art selections were field-tested to yield a pool of items for the next three years. This limited field-test effort was administered in the fall of 2001 to students in out-of-state schools.

TEST BOOKLET DESIGN

In order to accommodate the modified test design, there were 12 unique test forms at each grade. The third-grade students took their tests in a scannable test booklet, while sixth- and tenth-grade students used a separate test booklet and scannable response booklet.

TEST SESSION TIMES

During the two-week testing window, schools were able to schedule testing sessions at any time provided they followed the sequence in the scheduling guidelines detailed in the test administration manuals and that all testing classes within a school were on the same schedule. The end-of-grade three test requires a total testing time of approximately five and three-quarter hours, divided among eight test parts within three test sessions. The end-of-grades six and ten tests require approximately nine hours each, divided among 14 test parts within five test sessions.

The timing and scheduling guidelines for NHEIAP tests were based on estimates of the time it would take an average student to respond to each type of question that made up the test:

- multiple-choice items—1 minute per question, and
- open-response items—10 minutes per question.

For the English language arts reading test, the scheduling guidelines included an estimate of 10 minutes to read each passage used in the assessment.

Students needing time beyond the suggested amounts were allowed time to finish. In general, the extra time was no more than 50 percent of the recommended original time for that part. If necessary, students needing extra time for any one part may have been moved to a different location (e.g., the library) to complete that part. Manuals for test coordinators and administrators provided detailed instructions for processing materials and administering the tests.

CHAPTER 3—TEST DEVELOPMENT PROCESS

TEST ITEM DEVELOPMENT COMMITTEE ITEM IDEA GENERATION

The ongoing development of NHEIAP tests is a cooperative effort by staff from the Department of Education, Measured Progress, and the Test Item Development Committees comprised of teachers, curriculum specialists, and other interested groups from across the state. There is a separate committee for each grade level and content area tested. All test items were developed in accordance with the standards established in the curriculum frameworks. Development tasks included constructing, reviewing, revising, and selecting test items. Measured Progress, under the supervision of the Department of Education, was responsible for field testing items, assigning items to test forms, and producing the final materials.

The committees' primary roles are to develop test items for the NHEIAP and to interpret testing data so that those items could be selected for the program. The NHEIAP test item development committee for each content area at grades 3, 6, and 10 met a minimum of two times. In the development phase, the committees reviewed the curriculum standards and the test specifications; they brainstormed or drafted test items and scoring rubrics to fit those specifications. After the items were field tested, the committees reviewed the embedded field-test data and made recommendations about selecting, revising, or eliminating specific items from the item pool for the operational test. At that time, the committees also confirmed that each item aligned directly to New Hampshire's *Curriculum Frameworks* and was thus assigned to the appropriate content category reported in school and district results. Because all common NHEIAP items are released to the public each year, the committees repeat these activities annually as new items are developed in order to replenish the item pool.

INTERNAL ITEM REVIEW

- The lead or peer test developer within the content area reviewed the items, open-response scoring guides, and any reading selections, graphics, and videotaped selections.
- The content reviewer considered item “integrity;” item content and structure; appropriateness to designated content area; item format; clarity; possible ambiguity; keyability; single “keyness” (one correct response); appropriateness and quality of reading selections, videotaped program, and graphics; and appropriateness of scoring guide descriptions and distinctions (as correlated to the item and within the guide itself).
- The content reviewer also considered scorability and evaluated whether the scoring guide adequately addressed performance on the item.
- Fundamental questions the content reviewer considered, but was not limited to, included the following:
 - What is the item asking?
 - Is the key the only possible key? (Is there only *one* correct answer?)
 - Is the open-response item scorable as written (were the correct words used to elicit the response defined by the guide)?
 - Is the wording of the scoring guide appropriate and parallel to the item wording?
 - Is the item complete (e.g., with scoring guide, content codes, keys, grade level, and contract identified)?
 - Is the item appropriate for the designated grade level?

EXTERNAL ITEM REVIEW

Item sets were brought to Test Item Development Committee meetings for review and revision.

ITEM EDITING

Editors reviewed and edited the item after the Test Item Development Committee item review to ensure uniform style (based on the *Chicago Manual of Style, 14th Edition*) and adherence to sound testing principles. These principles included the stipulation that items

- were correct with regard to grammar, punctuation, usage, and spelling;
- were written in a clear, concise style;
- contained unambiguous explanations to students as to what is required to attain a maximum score;
- were written at a reading level that would allow the student to demonstrate his or her knowledge of the tested subject matter, regardless of reading ability;
- exhibited high technical quality regarding psychometric characteristics;
- had appropriate answer options or score-point descriptors; and
- were free of potentially sensitive content.

REVIEWING AND REFINING

Test developers presented item statistics to the development committees to assist in the committees' recommendation for placement of items into the common and matrix portions of the test. The Department of Education reviewed and approved new items and any edited items with the assistance of Measured Progress at a final review meeting for each grade level/content area combination.

OPERATIONAL TEST ASSEMBLY

Test assembly is the sorting and laying out of item sets into test forms. Criteria considered during this process included the following:

- **Content coverage/match to test design.** The curriculum specialist completed an initial sorting of items into sets based on a balance of content categories across sessions and forms, as well as a match to the test design (e.g., number of multiple-choice and open-response items).
- **Item difficulty and complexity.** Item statistics drawn from the data analysis of previously tested items were used to ensure that there were similar levels of difficulty and complexity across forms.
- **Visual balance.** Item sets were reviewed to ensure that each reflected a similar length and “density” of selected items (e.g., length/complexity of reading selections, or number of graphics).
- **Option balance.** Each item was checked to verify that it contained a roughly equivalent number of key options (As, Bs, Cs, and Ds).
- **Name balance.** Item sets were reviewed to ensure that a diversity of names was used.
- **Bias.** Each item set was reviewed to ensure fairness and balance based on gender, ethnicity, religion, socio-economic status, and other factors.
- **Page fit.** Item placement was modified to ensure the best fit and arrangement of items on any given page.
- **Reading load.** The amount of reading material was balanced as evenly as possible across forms.
- **Initial items.** Where feasible, the more appealing or less imposing items in the session are placed at the beginning of the session.
- **Equating items.** These items are identical from year to year, including position and location in test form, type of font, and size of graphic. It is critical that equating items remain unchanged to ensure proper item analysis.
- **Facing page issues.** For multiple-choice items associated with a single stimulus (a graphic or reading selection), consideration was given to whether those items needed to begin on a left- or right-hand page, as well as to the nature and amount of material that needed to be placed on

facing pages. These considerations served to minimize the amount of “page flipping” required of students.

- **Relationships between forms.** Sets of “common” items were placed identically in each version of the forms. Although matrix-sampled item sets differ from form to form, they must take up the same number of pages in each form so that sessions and content areas begin on the same page in every form. Therefore, the number of pages needed for the longest form often determines the layout of each form.
- **Visual appeal.** The visual accessibility of each page of the form was always taken into consideration, including such aspects as the amount of “white space,” the density of the text, and the number of graphics.

EDITING DRAFTS OF OPERATIONAL TESTS

Any changes made by the test construction specialist must be reviewed and approved by the test developer. Once a form had been laid out in what was considered its final form, it was reread to identify any final considerations, including the following:

- **Editorial changes.** All text was scrutinized for editorial accuracy, including consistency of instructional language, grammar, spelling, punctuation, and layout. Measured Progress’s publishing standards are based on *The Chicago Manual of Style, 14th Edition*.
- **“Keying” items.** Items were thoroughly read again at this phase to ensure that no items “key”, or provide clues to, one another either within one session or across sessions within one form. Decisions about moving keying items are based on the severity of the “key-in” and the placement of the items in relation to each other within the form.
- **Key patterns.** The final sequence of keys was reviewed to ensure that their order appeared random (e.g., no recognizable pattern, and no more than three of the same key in a row).

BRAILLE AND LARGE-PRINT TRANSLATION

Form 1 of the grades 3, 6, and 10 tests was translated into Braille by a subcontractor who specializes in test materials for students who are blind and visually-impaired. In addition, Form 1 for each grade was adapted into a large-print version.

CHAPTER 4—DESIGN OF THE ELA ASSESSMENT

The *K–12 Language Arts Curriculum Framework* defines language arts as the integrated communication processes of reading; writing; speaking, listening, and viewing; literature; and English language uses.

ELA BLUEPRINT

New Hampshire’s *Curriculum Frameworks* identifies a total of seven curriculum standards in English language arts. Of these seven standards, the NHEIAP assessment is based on the four provided below.

- Students will demonstrate the interest and ability to read age-appropriate materials fluently, with understanding and appreciation.
- Students will demonstrate the interest and ability to write effectively for a variety of purposes and audiences.
- Students will demonstrate the interest and ability to listen and view attentively and critically.
- Students will demonstrate competence in understanding, appreciating, interpreting, and critically analyzing classical and contemporary American and British literature as well as literary works translated into English.

The three reporting categories in the English language arts assessment are reading, writing, and listening and viewing. The first and last curriculum standards above are included under the broader category of reading.

ITEM TYPES

The NHEIAP English language arts assessment included multiple-choice and open-response items. Multiple-choice items are worth 1 point each; open-response items are worth 4 points each.

TEST DESIGN

The tables below summarize the numbers and types of questions that were used in each form of the NHEIAP English language arts assessment for 2001–2002.

TABLE 4-1: GRADE 3 ENGLISH LANGUAGE ARTS SESSION DESIGN

		Number MC	Number OR	Writing Prompt	Minutes per Test Part
Part 1	Writing prompt	0	0	1	60
Part 2	Reading	16	2	0	35
Part 3	Videotaped Program	6	1	0	30
Part 4	Reading	8	2	0	40
	Grammar/Spelling	4	0	0	
	Viewing	1	0	0	
Part 5	Reading	8	1	0	40

TABLE 4-2: GRADES 6 AND 10 ENGLISH LANGUAGE ARTS SESSION DESIGN

		Number MC	Number OR	Writing Prompt	Minutes per Test Part
Part 1	Writing prompt	0	0	1	60
Part 2	Videotaped Program	6	1	0	30
Part 3	Reading	12	2	0	40
	Editing	4	0	0	
Part 4	Reading	12	2	0	40
	Editing	2	0	0	
Part 5	Reading	4	1	0	35
	Viewing	1	0	0	

Key:

MC = multiple-choice items

OR = open-response items

Reading Component

Content Specifications

The first major reporting category at the student, school, and district levels is reading. The data generated for this reporting category were based on questions related to three types of reading passages that reflect the first and fourth standards above. The passage types were identical to those that have been used in the NHEIAP in past years. Approximately one third of the possible points for reading are based on each of the three passage types: literary and narrative works, informational or content pieces, and practical sources.

- Literary passages are represented by a variety of genres, including fiction, fantasy, poetry, drama, fables, folktales, legends, and historical fiction.
- Informational or content passages include non-fiction, essays, biographies, autobiographies, informational articles, and factual presentations.
- Practical passages are functional materials that instruct or advise the reader, including directions and how-to-do-it books.

Passages included both long and short “authentic” texts—selected from reading sources that students at each grade level would be likely to encounter in their classroom and independent reading. Attention was given to use of selections that refer to New Hampshire or that have been written by New Hampshire authors. None of the passages were written specifically for the assessment, but instead were collected from published works.

The main difference in the passages used for grades 3, 6, and 10 is their degree of difficulty. All passages were selected to be appropriate for the intended audience; however, the ideas expressed become increasingly more complex at grades 6 and 10.

The items related to these passages require students to demonstrate their skills in both literal comprehension (where the answer is stated explicitly in the text) and inferential comprehension (where the answer is implied by the text and/or the text must be connected to relevant prior knowledge to determine an answer). In addition, some questions focused on the reading skills reflected in the first content standard of the curriculum frameworks. Items of this type required students to use the skills and strategies of reading to answer items—for example, how to identify the author’s principal purpose, such

as to persuade, entertain, or to inform—and to demonstrate their understanding of how words and images communicate to readers.

The following charts outline the total number of possible points for reading—as reported—by content standard and item type.

READING

TABLE 4-3: GRADE 3 NUMBER OF POINTS POSSIBLE

READING	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Literary/Narrative							
The Cat of Cats, Cats, Cat (poems)	0	0	0	4	1	8	8
A Gingered January	0	0	0	4	1	8	8
Mouse and the Happy Hearts	0	0	0	4	1	8	8
Rain, Spring Rain (poems)	0	0	0	4	1	8	8
Snowball Moon	8	2	16	0	0	0	16
Content/Informational							
Beachcombing	0	0	0	4	1	8	8
A Crayon is Born	0	0	0	4	1	8	8
In the Days of Dinosaurs	0	0	0	8	2	16	16
River to the Sea	8	1	12	0	0	0	12
The Secret of the Stripe	0	0	0	4	1	8	8
Practical							
Invisible Ink	0	0	0	4	1	8	8
Les Billes	4	1	8	0	0	0	8
May Book Order Form	4	0	4	0	0	0	4
Up, Up, and Away	0	0	0	4	1	8	8
What Makes Celery Crunchy?	0	0	0	4	1	8	8

TABLE 4-4: GRADE 6 NUMBER OF POINTS POSSIBLE

	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Literary/Narrative							
Frederick Douglass	0	0	0	4	1	8	8
How I Made the Team	0	0	0	8	2	16	16
Journey to Freedom	8	2	16	0	0	0	16
The Thief and the Spider	0	0	0	4	1	8	8
Walking the Log	4	0	4	0	0	0	4
Who Has Seen the Wind?	0	0	0	4	1	8	8
Content/Informational							
A Mom with a Mission	0	0	0	8	2	16	16
Pioneer Doctor of the Prairie	4	1	8	0	0	0	8
The Upside Down Tree	0	0	0	4	1	8	8
Practical							
Make a Medieval Book	4	0	4	0	0	0	4
My Favorite Homemade Pizza	0	0	0	4	1	8	8
Sandy Point Trail	4	1	8	0	0	0	8
Shower Power	0	0	0	4	1	8	8
Storyworks	0	0	0	8	2	16	16

TABLE 4-5: GRADE 10 NUMBER OF POINTS POSSIBLE

	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Literary/Narrative							
One Perfect Rose	0	0	0	4	1	8	8
Sixteen	0	0	0	8	2	16	16
Summer Reading	8	1	12	0	0	0	12
The Underground Railroad	0	0	0	4	1	8	8
Content/Informational							
The Brothers Grimm	0	0	0	4	1	8	8
Immigration Still Makes America Strong	0	0	0	4	1	8	8
The Language of Life: A Festival of Poets	4	0	4	0	0	0	4
That's the Way the Ball Bounces	0	0	0	8	2	16	16
What You Should Know About RADON	4	1	8	0	0	0	8
Practical							
As a Consumer	8	2	16	0	0	0	16
Beyond High School	0	0	0	4	1	8	8
Snowmobiling Safety	0	0	0	8	2	16	16
Style Music Company	0	0	0	4	1	8	8

Writing Component

Content Specifications

The design for the writing component of the test has one common writing prompt and several multiple-choice items. The common writing prompt assessed students' abilities to write for a variety of purposes and audiences. In addition to the writing prompt, multiple-choice items addressing editing, grammar, and spelling were included in this assessment.

The prompts were developed with the following criteria as guidelines:

- the prompts must be interesting to students;
- the prompts must be accessible to all students (i.e., all students would have something to say about the topic); and
- the prompts must generate sufficient text to be effectively scored.

The prompts used in the 2001–02 NHEIAP follow.

Grade 3 prompt: Look at the picture on the cover of this booklet. Make up a story about what is happening.

Grade 6 prompt: If you could travel anywhere, where would you go and why? Describe what you would do when you got there.

Grade 10 prompt: Choose a book or a movie that you think other people should read or view. Explain your choice.

The writing portion of the ELA assessment included writing prompts and multiple-choice items. The writing prompts are scored on a scale of 1-6 points; the final writing score is the sum of two independent readers' ratings. Multiple-choice items are worth 1 point each.

Test Design

Each student responded to one common writing prompt. Responses to a given prompt may contain elements of the narrative, expository, and/or persuasive modes of writing.

In addition to the writing prompts, third-grade students responded to four common multiple-choice items that deal with spelling and grammar. Sixth- and tenth-grade students responded to four common multiple-choice items and two matrix-sampled items that deal with editing and grammar.

TABLE 4-6: GRADE 3 NUMBER OF POINTS POSSIBLE

	Common			Matrix			Total Possible Points
	MC	Prompt	Points	MC	Prompt	Points	
Writing prompt	0	1	12	0	0	0	12
Spelling/grammar items	4	0	4	0	0	0	4

TABLE 4-7: GRADE 6 NUMBER OF POINTS POSSIBLE

	Common			Matrix			Total Possible Points
	MC	Prompt	Points	MC	Prompt	Points	
Writing prompt	0	1	12	0	0	0	12
Editing items	4	0	4	24	0	24	28

TABLE 4-8: GRADE 10 NUMBER OF POINTS POSSIBLE

	Common			Matrix			Total Possible Points
	MC	Prompt	Points	MC	Prompt	Points	
Writing prompt	0	1	12	0	0	0	12
Editing items	4	0	4	24	0	24	28

Listening and Viewing Component

Content Specifications

Listening and viewing are assessed through the use of videotaped programs. The subject matter of the videotaped programs vary from year to year, including literary and informational programs. These programs are approximately 10–15 minutes long and appropriate for the grade level viewing the program. The cover art on the students' test booklets provided another opportunity to assess viewing.

The NHEIAP English language arts assessment included multiple-choice and open-response items. Multiple-choice items are worth 1 point each; open-response items are worth 4 points each.

Test Design

Each student responded to six multiple-choice items and one open-response item based on a common videotaped selection for that grade level. One common multiple-choice item about the cover art on the test booklet was also included.

TABLE 4-9: GRADE 3 NUMBER OF POINTS POSSIBLE

	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
The Paper Crane	6	1	10	0	0	0	10
A Child's Calendar	1	0	1	0	0	0	1

TABLE 4-10: GRADE 6 NUMBER OF POINTS POSSIBLE

	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Miles from Nowhere	6	1	10	0	0	0	10
Dream Keeper Girl	1	0	1	0	0	0	1

TABLE 4-11: GRADE 10 NUMBER OF POINTS POSSIBLE

	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
New Hampshire and the Civil War	6	1	10	0	0	0	10
Distant Thunder	1	0	1	0	0	0	1

CHAPTER 5—DESIGN OF THE MATHEMATICS ASSESSMENT

MATHEMATICS BLUEPRINT

The mathematics framework was based on New Hampshire’s *Curriculum Frameworks*, which identifies a total of eight curriculum standards in the four reporting categories as listed below.

Curriculum Goal 1: *Problem Solving and Reasoning*

Curriculum Goal 2: *Communication and Connections*

Curriculum Goal 3: *Numbers, Numeration, Operations, and Number Theory*

Curriculum Goal 4: *Geometry, Measurement, and Trigonometry*

Curriculum Goal 5: *Data Analysis, Statistics, and Probability*

Curriculum Goal 6: *Functions, Relations, and Algebra*

Curriculum Goal 7: *Mathematics of Change*

Curriculum Goal 8: *Discrete Mathematics*

For students to function effectively as mathematical problem-solvers, they must be taught how to apply and communicate basic concepts and procedures as well as how to do the procedures. **Content items** measure what students have been taught directly, including the basic concepts and procedural skills from all the curriculum goals. **Application items** measure what the students can do with what they have been taught. Included are items requiring students to combine the basic concepts and procedures to solve real-life and mathematical problems, to evaluate their own ideas and the ideas of others using mathematical reasoning, and to communicate their ideas using the wealth of symbolic, pictorial, graphic, and verbal representations available in mathematics.

These eight goals have been used to create the reporting category framework for mathematics as shown below. The goal for distribution of items, or emphasis, across goals varies from grade to grade.

TABLE 5-1: GRADE 3 MATHEMATICS FRAMEWORK

Standard	Percentage of Items Emphasizing Content	Percentage of Items Emphasizing Application
Curriculum Goals 1 & 2		25%
Curriculum Goal 3	25%	
Curriculum Goal 4	20%	
Curriculum Goals 5, 6, 7, & 8	30%	

TABLE 5-2: GRADE 6 MATHEMATICS FRAMEWORKS

Standard	Percentage of Items Emphasizing Content	Percentage of Items Emphasizing Application
Curriculum Goals 1 & 2		23%
Curriculum Goal 3	22%	
Curriculum Goal 4	20%	
Curriculum Goals 5 & 8	15%	
Curriculum Goals 6 & 7	20%	

TABLE 5-3: GRADE 10 MATHEMATICS FRAMEWORKS

Standard	Percentage of Items Emphasizing Content	Percentage of Items Emphasizing Application
Curriculum Goals 1 & 2		15%
Curriculum Goal 3	18%	
Curriculum Goal 4	17%	
Curriculum Goals 5 & 8	25%	
Curriculum Goals 6 & 7	25%	

CONTENT SPECIFICATIONS

The NHEIAP mathematics assessment included multiple-choice and open-response items. Multiple-choice items are worth 1 point each; open-response items are worth 4 points each.

TEST DESIGN

The tables below summarize the numbers and types of items that were used in each form of the NHEIAP mathematics assessment for 2001–2002.

TABLE 5-4: GRADE 3 MATHEMATICS TEST DESIGN

Session	Common		Matrix		Time (minutes)
	MC	OR	MC	OR	
1	14	2	0	0	35
2	10	1	2	1	35
3	10	1	2	0	30
Total	34	4	4	1	105

TABLE 5-5: GRADE 6 MATHEMATICS TEST DESIGN

Session	Common		Matrix		Time (minutes)
	MC	OR	MC	OR	
1	15	2	2	0	40
2	0	3	0	0	25
3	15	0	2	1	40
Total	30	5	4	1	105

TABLE 5-6: GRADE 10 MATHEMATICS TEST DESIGN

Session	Common		Matrix		Time (minutes)
	MC	OR	MC	OR	
1	15	2	2	0	40
2	0	3	0	0	25
3	15	0	2	1	40
Total	30	5	4	1	105

Key:

MC = multiple-choice items

OR = open-response items

The charts on the following pages outline the total number of possible points, as reported, by reporting category and item type.

MATHEMATICS

TABLE 5-7: GRADE 3 NUMBER OF POINTS POSSIBLE

Curriculum Standard	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Problem Solving and Reasoning (1)	5	1	9	4	9	40	29
Communication and Connections (2)	8	0	8	9	3	21	29
Numbers, Numeration, Operations, and Number Theory (3)	10	1	14	17	1	21	35
Geometry, Measurement, and Trigonometry (4)	9	1	13	11	2	19	32
Data Analysis, Statistics, and Probability (5)	3	1	7	4	0	4	11
Functions, Relations, and Algebra (6)	4	0	4	6	3	18	22
Mathematics of Change (7)	0	0	0	4	2	12	12
Discrete Mathematics (8)	1	0	1	2	2	10	11

TABLE 5-8: GRADE 6 NUMBER OF POINTS POSSIBLE

Curriculum Standard	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Problem Solving and Reasoning (1)	4	0	4	6	2	14	18
Communication and Connections (2)	4	1	8	6	1	10	18
Numbers, Numeration, Operations, and Number Theory (3)	7	1	11	7	4	23	34
Geometry, Measurement, and Trigonometry (4)	6	1	10	15	1	19	29
Data Analysis, Statistics, and Probability (5)	3	0	3	2	2	10	13
Functions, Relations, and Algebra (6)	4	1	8	8	0	8	16
Mathematics of Change (7)	2	0	2	4	2	12	14
Discrete Mathematics (8)	1	1	5	1	1	5	10

TABLE 5-9: GRADE 10 NUMBER OF POINTS POSSIBLE

Curriculum Standard	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Problem Solving and Reasoning (1)	2	1	6	2	2	10	16
Communication and Connections (2)	3	0	3	6	5	26	29
Numbers, Numeration, Operations, and Number Theory (3)	5	1	9	20	3	32	41
Geometry, Measurement, and Trigonometry (4)	9	1	13	8	3	20	33
Data Analysis, Statistics, and Probability (5)	3	1	7	5	2	13	20
Functions, Relations, and Algebra (6)	4	0	4	14	2	22	26
Mathematics of Change (7)	2	2	10	5	2	13	23
Discrete Mathematics (8)	3	0	3	1	0	1	4

CHAPTER 6—DESIGN OF THE SCIENCE ASSESSMENT

SCIENCE BLUEPRINT

The science framework was based on New Hampshire’s *Curriculum Frameworks*, which identifies a total of six curriculum strands in the six reporting categories as listed below.

Curriculum Strand 1: *Science as Inquiry*

Curriculum Strand 2: *Science, Technology, and Society*

Curriculum Strand 3: *Life Science*

Curriculum Strand 4: *Earth/Space Science*

Curriculum Strand 5: *Physical Science*

Curriculum Strand 6: *Unifying Themes and Concepts*

These curriculum strands have been used to create the reporting category framework for science as shown below.

TABLE 6-1: GRADE 6 SCIENCE FRAMEWORK*

	Process			
	Standard	Curriculum Strands 1 & 2	Curriculum Strand 6	Percent
Content	Curriculum Strand 3			33%
	Curriculum Strand 4			33%
	Curriculum Strand 5			34%
Percent		20%	80%	

*No defined percentages were established for the shaded cells.

TABLE 6-2: GRADE 10 SCIENCE FRAMEWORK*

	Process			
	Standard	Curriculum Strands 1 & 2	Curriculum Strand 6	Percent
Content	Curriculum Strand 3			35%
	Curriculum Strand 4			30%
	Curriculum Strand 5			35%
Percent		20%	80%	

*No defined percentages were established for the shaded cells.

CONTENT SPECIFICATIONS

The NHEIAP science assessment included multiple-choice and open-response items. Multiple-choice items are worth 1 point each; open-response items are worth 4 points each.

TEST DESIGN

The tables below summarize the numbers and types of questions that were used in each form of the NHEIAP science assessment for 2001–2002. The NHEIAP science assessment is administered at grades 6 and 10 only.

TABLE 6-3: GRADES 6 AND 10 SCIENCE TEST DESIGN

Session	Common		Matrix		Time (minutes)
	MC	OR	MC	OR	
1	15	2	2	0	40
2	0	3	0	0	25
3	15	0	2	1	40
Total	30	5	4	1	105

Key:

MC = multiple-choice items

OR = open-response items

The charts on the following pages outline the total number of possible points, as reported, by reporting category and item type.

SCIENCE

TABLE 6-4: GRADE 6 NUMBER OF POINTS POSSIBLE

Curriculum Standard	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Science as Inquiry (1)	4	1	8	6	2	14	22
Science, Technology, and Society (2)	1	1	5	3	2	11	16
Life Science (3)	7	1	11	14	2	22	33
Earth/Space Science (4)	8	1	12	14	2	22	34
Physical Science (5)	7	1	11	13	2	21	32
Unifying Themes and Concepts (6)	11	3	23	10	3	22	45

TABLE 6-5: GRADE 10 NUMBER OF POINTS POSSIBLE

Curriculum Standard	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Science as Inquiry (1)	2	1	6	3	2	11	17
Science, Technology, and Society (2)	2	1	6	4	1	8	14
Life Science (3)	8	1	12	15	3	27	39
Earth/Space Science (4)	9	1	13	15	2	23	36
Physical Science (5)	9	1	13	14	5	34	47
Unifying Themes and Concepts (6)	6	0	6	1	2	9	15

CHAPTER 7—DESIGN OF THE SOCIAL STUDIES ASSESSMENT

SOCIAL STUDIES BLUEPRINT

The social studies framework was based on New Hampshire’s *Curriculum Frameworks*, which identifies a total of 18 content standards in the four disciplines—civics and government, economics, geography, and history—as listed below.

Curriculum Standards 1-4: *Civics and Government*

Curriculum Standards 5-9: *Economics*

Curriculum Standards 10-15: *Geography*

Curriculum Standards 16-18: *History*

These eighteen standards have been used to create the reporting category framework for social studies as shown below.

TABLE 7-1: GRADES 6 AND 10 SOCIAL STUDIES FRAMEWORK

Standard	Percentage of Questions Emphasizing Content	Percentage of Questions Emphasizing Application *
Civics and Government	25%	
Economics	25%	
Geography	25%	
History	25%	

* In Social Studies, there is no set percentage of items that emphasize application.

CONTENT SPECIFICATIONS

The NHEIAP social studies assessment included multiple-choice and open-response items. Multiple-choice items are worth 1 point each; open-response items are worth 4 points each.

TEST DESIGN

The tables below summarize the numbers and types of questions that were used in each form of the NHEIAP social studies assessment for 2001–2002. The NHEIAP social studies assessment is administered at grades 6 and 10 only.

TABLE 7-2: GRADES 6 AND 10 SOCIAL STUDIES TEST DESIGN

Session	Common		Matrix		Time (minutes)
	MC	OR	MC	OR	
1	15	2	2	0	40
2	0	3	0	0	25
3	15	0	2	1	40
Total	30	5	4	1	105

Key:

MC = multiple-choice items

OR = open-response items

The charts on the following pages outline the total number of possible points, as reported, by reporting category and item type.

SOCIAL STUDIES

TABLE 7-3: GRADE 6 NUMBER OF POINTS POSSIBLE

Curriculum Standard	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Civics and Government (1-4)	8	1	12	12	3	24	36
Economics (5-9)	8	1	12	12	3	24	36
Geography (10-15)	8	1	12	12	3	24	36
History (16-18)	6	2	14	12	3	24	38
Social Studies Uses (4, 9, 15, & 16)	1	4	17	7	6	31	48

TABLE 7-4: GRADE 10 NUMBER OF POINTS POSSIBLE

Curriculum Standard	Common			Matrix			Total Possible Points
	MC	OR	Points	MC	OR	Points	
Civics and Government (1-4)	8	1	12	12	3	24	36
Economics (5-9)	8	1	12	12	3	24	36
Geography (10-15)	6	2	14	14	3	26	40
History (16-18)	8	1	12	10	3	22	34
Social Studies Uses (4, 9, 15, & 16)	6	2	14	7	4	23	37

SECTION II—TEST ADMINISTRATION

CHAPTER 8—TEST ADMINISTRATION

RESPONSIBILITY FOR TEST ADMINISTRATION

As indicated in the *Administration Manual for Principals/Test Coordinators*, principals and/or their designated test coordinator were responsible for the proper administration of the NHEIAP. Manuals and certification of proper test administration forms were used to ensure the uniformity of administration procedures from school to school.

The testing period for the 2001–2002 school year was May 6 through May 17, 2002. The actual days of testing within this period were determined by each school’s personnel. They were able to schedule test sections any time during the two-week period, providing they adhered to the guidelines presented in the instruction manuals. Days were also to be reserved for makeup testing of students absent during the regular test sessions.

PROCEDURES

Principals and/or the designated test coordinator were instructed to read the *Instruction Manual for Principals/Test Coordinators* prior to testing and to be familiar with the directions provided in the *Instruction Manual for Test Administrators*. The manuals provided each school with checklists to help staff prepare for testing. The checklists outlined tasks for school staff to perform before, during, and after test administration. Along with these checklists, the *Instruction Manual for Principals/Test Coordinators* outlined the nature of the testing material being sent to each school, how to inventory the material, how to track it during administration, and how to return the material once testing was complete. It also contained information about student participation and accommodations. The *Instruction Manual for Test Administrators* also included checklists for the administrators to prepare themselves, their classrooms, and the students for the administration of the test. This manual contained sections that detailed the procedure to be followed for each test session, scripts to be read to the students, and instructions on preparing the material prior to returning it to the principal/coordinator for its shipment to Measured Progress.

ADMINISTRATOR TRAINING

In addition to distributing the manuals, the Department of Education and Measured Progress also conducted regional workshops to train and inform school personnel about NHEIAP assessment procedures. These workshops were presented in Manchester, Concord, and Whitefield.

STATE PARTICIPATION RATES

Participation Requirements

All students in grades 3, 6, and 10, including students with disabilities and students with limited English proficiency, are expected to take part in the statewide assessment program in one of the following ways:

- participate in the general statewide assessment without accommodations;
- participate in the general statewide assessment with accommodations; or
- participate in the NHEIAP Alternate Assessment, available only for students with an Individualized Education Program (IEP) who meet criteria specified in the *Procedures for*

Determining How Each Student Will Participate in the New Hampshire Educational Improvement and Assessment Program.

Notes:

- It is the responsibility of school administrators to inform teachers, parents, and students of the testing calendar and to ensure that school events are scheduled so that they will *not* interfere with the statewide testing program.
- Students who are repeating grades 3 or 6 or who, in accordance with local school district policy, are considered to be in grade 10 on the day testing begins shall participate in NHEIAP.
- Students enrolled in ungraded programs shall participate in NHEIAP, if they are in their third, sixth, or tenth year of education beyond kindergarten, readiness, and/or a transition program.
- The results of a nationally-recognized English language proficiency assessment may be used by a local team to excuse, on a case-by-case basis, certain students with limited English proficiency from the current year's general assessment. (See item 3 under the section on the participation of students with limited English proficiency without identified disabilities in NHEIAP in the *Procedures for Determining How Each Student Will Participate in the New Hampshire Educational Improvement and Assessment Program.*)
- In extraordinary circumstances, such as a student experiencing long-term severe emotional distress, a Section 504 placement team may choose, on a case-by-case basis, to excuse the student from the current year's general assessment.
- Federal regulations require that **all** students with disabilities shall participate in the assessment. In other words, LEP students with an IEP and a Section 504 plan and/or limited English proficiency may not be excused from the assessment.

All students were eligible to utilize appropriate assessment accommodations from the *Table of Reportable Test Accommodations* when participating in the general statewide assessment. Any accommodation(s) utilized for the assessment of individual students was the result of a group decision made at the local level. These accommodations must have been consistent with those used during the student's regular classroom instruction, to include test taking, and, if applicable, the student's IEP or Section 504 Plan.

If the accommodation(s) were not included in the *Table of Reportable Test Accommodations*, a member of the IEP team contacted the Department of Education before April 1 to determine if the use of such accommodation(s) preserved the validity and comparability of assessment results. If the accommodations did not preserve the validity and comparability of assessment results, then the student was counted in the novice category and assigned a minimum score in pertinent school, district, and state reports. Individual student reports indicated the actual proficiency level and scaled score that the student attained together with a note indicating that the test was administered using nonstandard accommodations.

Non-Participation in the Assessment

In accordance with New Hampshire Education Law, "all public school students in the designated grades [3, 6, and 10] shall participate in the assessment" portion of NHEIAP. In addition, the federal Improving America's Schools Act, in particular Title I, and the Individuals with Disabilities Education Act Amendments of 1997 require that all public school students take part in state and district-wide assessments.

Thus, the three reasons why a student did not participate in the general NHEIAP follow:

- A student participated in the NHEIAP Alternate Assessment.
- A limited- or non-English speaking student did not participate based on the results of a nationally recognized English language proficiency test.
- A student with a Section 504 plan did not test based on the placement team's decision.

Documentation of Accommodations or Non-Participation

Information about the accommodations given to students or the reason for non-participation was provided on the outside back cover of the grade 3 self-contained test booklet or the grade 6 or 10 student response booklet. This information was coded in by staff, not students, after testing was completed. The *Instruction Manual for Principals/Test Coordinators* and the *Instruction Manual for Test Administrators* provided directions on coding the information related to accommodations and non-participation. Every student who did not participate in the assessment had to be accounted for in the designated section of the response booklet.

TABLE 8-1: GRADE 3 STATE PARTICIPATION RATES

	ELA		Mathematics	
	Number	Percent	Number	Percent
Students Tested (took all sessions)	15,745	99	15,777	99
NHEIAP Assessment Tests	15,610	98	15,642	99
NHEIAP Alternate Assessment	135	1	135	1
Other Students Included in this Report (Students Assigned Minimum Scores)	77	0	48	0
Absent	27	0	40	0
Used of nonstandard test accommodations in accordance with Federal IDEA-97	50	0	8	0
Non- or limited-English proficient students excused from the assessment without taking an English language proficiency assessment	0	0	0	0
Students Not Participating in NHEIAP	37	0	34	0
Excused in accordance with 504 Plan	3	0	1	0
Non- or limited-English proficient students excused based on results of an English language proficiency assessment	34	0	33	0

TABLE 8-2: GRADE 6 STATE PARTICIPATION RATES

	ELA		Mathematics	
	Number	Percent	Number	Percent
Students Tested (took all sessions)	17,385	99	17,405	99
NHEIAP Assessment Tests	17,268	99	17,288	99
NHEIAP Alternate Assessment	117	1	117	1
Other Students Included in this Report (Students Assigned Minimum Scores)	80	0	61	0
Absent	67	0	59	0
Used of nonstandard test accommodations in accordance with Federal IDEA-97	13	0	2	0
Non- or limited-English proficient students excused from the assessment without taking an English language proficiency assessment	0	0	0	0
Students Not Participating in NHEIAP	64	0	63	0
Excused in accordance with 504 Plan	5	0	6	0
Non- or limited-English proficient students excused based on results of an English language proficiency assessment	59	0	57	0
	Science		Social Studies	
	Number	Percent	Number	Percent
Students Tested (took all sessions)	17,357	99	17,336	99
NHEIAP Assessment Tests	17,240	98	17,219	98
NHEIAP Alternate Assessment	117	1	117	1
Other Students Included in this Report (Students Assigned Minimum Scores)	106	1	127	1
Absent	104	1	125	1
Used of nonstandard test accommodations in accordance with Federal IDEA-97	2	0	2	0
Non- or limited-English proficient students excused from the assessment without taking an English language proficiency assessment	0	0	0	0
Students Not Participating in NHEIAP	66	0	66	0
Excused in accordance with 504 Plan	7	0	7	0
Non- or limited-English proficient students excused based on results of an English language proficiency assessment	59	0	59	0

TABLE 8-3: GRADE 10 STATE PARTICIPATION RATES

	ELA		Mathematics	
	Number	Percent	Number	Percent
Students Tested (took all sessions)	15,021	97	15,041	97
NHEIAP Assessment Tests	14,962	97	14,982	97
NHEIAP Alternate Assessment	59	0	59	0
Other Students Included in this Report (Students Assigned Minimum Scores)	423	3	417	3
Absent	414	3	412	3
Used of nonstandard test accommodations in accordance with Federal IDEA-97	4	0	1	0
Non- or limited-English proficient students excused from the assessment without taking an English language proficiency assessment	5	0	4	0
Students Not Participating in NHEIAP	42	0	28	0
Excused in accordance with 504 Plan	14	0	1	0
Non- or limited-English proficient students excused based on results of an English language proficiency assessment	28	0	27	0
	Science		Social Studies	
	Number	Percent	Number	Percent
Students Tested (took all sessions)	15,030	97	14,948	97
NHEIAP Assessment Tests	14,971	97	14,889	96
NHEIAP Alternate Assessment	59	0	59	0
Other Students Included in this Report (Students Assigned Minimum Scores)	427	3	508	3
Absent	421	3	502	3
Used of nonstandard test accommodations in accordance with Federal IDEA-97	2	0	2	0
Non- or limited-English proficient students excused from the assessment without taking an English language proficiency assessment	4	0	4	0
Students Not Participating in NHEIAP	29	0	30	0
Excused in accordance with 504 Plan	1	0	2	0
Non- or limited-English proficient students excused based on results of an English language proficiency assessment	28	0	28	0

SECTION III— DEVELOPMENT AND REPORTING OF SCORES

CHAPTER 9—SCORING

MACHINE-SCORED ITEMS

After test administration was completed, principals or test coordinators returned the 2001–2002 test materials to Measure Progress via United Parcel Service. Using this delivery service, documentation of test materials, from pick-up to delivery was available through its tracking service. Once the scannable documents had been logged in, identified with appropriate scannable, pre-printed school information sheets, examined for extraneous materials, and batched, they were moved into the scanning area. For all grade 3 test booklets and grades 6 and 10 response booklets to be imaged, this area is the last stop in the processing loop in which the documents themselves are handled for machine- and open-response scoring.

At that point, 100% of the response documents and other scannable information necessary to produce the required reports had been captured and converted into an electronic format, including all student identification and demographics, multiple-choice responses, and digital image clips of hand-written responses. The digital image clip information allowed Measured Progress to replicate student responses just as they appeared on the original documents, but they had been transferred onto the readers' monitors. The one exception was the student writing samples. These pages were imaged, but the pages containing the actual students' writing samples were shunted out of the scanner and hand-scored by Measured Progress's readers. After scoring was completed, these same pages were rescanned to capture the readers' scores. From that point on, the entire process—data processing, scoring, “range-finding,” data analysis, reporting—was accomplished without further references to the originals.

The first step in that conversion was the removal of the booklet bindings so that the individual pages could pass through the scanners, one at a time. Once cut, the sheets were put back in their proper boxes and placed in storage until needed for the scanning/imaging process.

Customized scanning programs for all scannable documents were prepared to selectively read the student response booklets and to format the scanned information electronically according to predetermined requirements. Any information (including multiple-choice response data) that had been designated time-critical or process-critical was handled first.

In addition to numerous real-time quality control checks, duplex read, a transport printer that prints a unique identifying number on each sheet of each booklet, and on-line editing capability, the new 5000i scanners offer features that make them compatible with Internet technology.

Scanning Quality Control

NCS scanners are equipped with many built-in safeguards that prevent data errors. The scanning hardware is continually monitored for conditions that will cause the machine to shut down if standards are not met. It will display an error message and prevent further scanning until the condition is corrected. The areas monitored include document page and integrity checks, user-designated on-line edits, and many internal checks of electronic functions.

Before every scanning shift begins, Measured Progress's operators perform a daily diagnostic routine. This is yet another step to protect data integrity, and one that has been done faithfully for the many years that we have been involved in production scanning. In the rare event that the routine detects a photocell that appears to be out of range, we calibrate that machine and perform the test again. If the read is still not up to standard, we call for assistance from our field service engineer.

As a final safeguard, spot checks of scanned files, bubble by bubble and image by image, were routinely made throughout scanning runs. The result of these precautions, from the original layout of the scanning form to the daily vigilance of our operators, was a scan error rate well below 1 per 1,000.

Electronic Data Files

Once the data had been entered and the scanning logs and other paperwork completed, the booklets themselves were put into storage. When it had been determined that the files were complete and accurate, those files were duplicated electronically and made available for the following processing steps. Completed files were loaded onto our local area network (LAN) for transfer to Measured Progress's proprietary I-Score system for scoring. Those files were then used to identify (and print out) papers to be used in the benchmarking processes, and the data was made transferable via the Internet, CD-ROM, or optical disk.

Items Scored by Readers

Test and response materials were handled as little as possible to minimize the possibility of loss, mishandling, or breach of security. Once scanned, either by optical mark reader or the I-Score system, papers were stored securely in areas with limited personnel access.

As explained in the following sections on scoring, the I-Score system itself ensures the security of responses and test items: all scoring is "blind"; that is, no student names are associated with viewed responses of raw scores and all scoring personnel are subject to the same nondisclosure requirements and supervision as regular Measured Progress staff.

I-SCORE

After the 2001–2002 test materials had been loaded into the LAN, I-Score sent electronically scanned images of student work to individual readers at computer terminals who evaluated each response and recorded each student's score via keypad or mouse entry. When the reader had finished with one response the next response appeared immediately on the computer screen. In that way, the system guaranteed complete anonymity of individual students and ensured the randomization of responses during scoring.

Although I-Score is based on conventional scoring techniques, it also offers numerous benefits, not the least of which is raising the bar on scoring process capability. Some of the benefits follow:

- real-time information on scorer reliability, read-behinds, and overall process monitoring;
- early access to subsets of data for tasks such as standard setting;
- reduced material handling, which not only saves time and labor, but also enhances the security of materials; and
- immediate access to samples of student response and scores for reporting and analysis through electronic media.

Scoring operations, directed by the manager of scoring services, are carried out by a highly qualified staff. The staff included:

- chief readers, who oversee all training and scoring within particular content areas;
- quality assurance coordinators (QACs), who lead benchmarking and training activities and monitor scoring consistency and rates;
- verifiers, who perform read-behinds of readers and assist at scoring tables as necessary; and
- readers, who perform the bulk of the scoring.

Preliminary Activities

Preliminary activities for scoring included (1) participating in the planning and design of documents to be used for scoring, (2) reviewing items and scoring guides for benchmarking and training and the creation of training packets, and (3) selecting scoring staff and training them for scoring.

Planning and Designing Documents

Scoring personnel advised program management and Department of Education staff of the program design in order to support an efficient and effective scoring process. Scoring staff contributed also to the design of

- response documents and image-capture process to yield acceptable image clips (also defining file format and layout); and
- scoring benchmarks composed of the guide, content background information, and anchor papers.

Reviewing Items and Guides (Benchmarking)

Before the scheduled start of scoring activities, scoring center staff reviewed test items and scoring guides for benchmarking. At that point, chief readers and selected QACs prepared scorer-training materials. Measured Progress's scoring staff, test developers, and Department of Education staff selected one or two anchor examples for each item score point. An additional six to ten responses per item were chosen as part of the training pack. The anchor pack consisted of mid-range exemplars, while the training pack exemplars illustrated the range within each score point. The chief readers, who worked closely with QACs for each content area, facilitated the selection of response exemplars. One of the greatest difficulties in the selection of anchor and training exemplars was finding a sufficient number of papers representing the highest scores (4 and 6) as such scores are fairly rare.

Selecting and Training Scoring Staff

Selecting Quality Assurance Coordinators and Verifiers

Because the read-behinds performed by the QACs and verifiers moderated the scoring process and thus maintained the integrity of the scores, individuals to fill those positions were selected for their accuracy. In addition, QACs, who train readers to score each item in their content areas, were selected for their ability to instruct and for their level of expertise in their content areas. For this reason, QACs typically are retired teachers who have demonstrated a high level of expertise in their respective disciplines. The ratio of QACs and verifiers to readers was approximately 1:11.

Training Quality Assurance Coordinators and Verifiers

To ensure that all QACs provided consistent training and feedback, the chief readers spent two days training and qualifying the QACs, and the QACs reviewed all items with the verifiers before scoring. In addition, QACs rotated among tables, supervising readers and reading behind verifiers, who in turn read behind a different table of readers each day.

Selecting Readers

Applicants were required to demonstrate their ability by participating in a preliminary scoring evaluation. The I-Score system enables Measured Progress to efficiently measure a prospective reader's ability to score student responses accurately. After having participated in a training session, applicants were required to achieve at least 80% exact scoring agreement for a qualifying pack consisting of 20 responses to a predetermined item in their content area. Those 20 responses were randomly selected from a bank of

approximately 150, all of which had been selected by QACs and approved by the chief readers and developers.

Training Readers

The QACs first applied the language of the scoring guide for an item to its anchor pack exemplars. Once discussion of the anchor pack had concluded, readers attempted to score the training pack exemplars correctly. The QACs then reviewed the training pack and answered any questions readers had before actual scoring began. With this system, two aspects of scoring efficiency are in conflict. First, in order to minimize training expense, it is desirable to train each reader on as few items as possible. Second, to prevent reader drift and to minimize retraining requirements, it is desirable to score a given item in a brief period of time. But the lower the number of unique items each reader scores, the greater the number of readers required to score that item quickly. To minimize that conflict, we divided each content area's readers into two or more groups. On the first day of scoring, each group was trained to score a different item. When a group had completed all of an item's responses, those readers were trained on another item (or set).

Scoring Activities

Grade 3 student test booklets and grades 6 and 10 student response booklets were digitally scanned and scored on a file server for a dedicated, secure LAN. I-Score then distributed digital images of student response to readers. Training and scoring took place over a period of approximately two weeks. Items were randomly assigned to readers; thus, each item in a student's response booklet was more than likely scored by a different reader. By using the maximum possible number of readers for each student, the procedure effectively minimized error variance due to reader sampling. All writing prompt responses were scored twice. All common and matrix-sampled open-response items were scored once with a 2% read-behind to ensure consistency among readers and accuracy of individual readers.

Monitoring Readers

After a reader scored a student response, I-Score determined whether that response should also be scored by another reader, scored by a QAC or verifier, or routed for special attention. To meet state, federal, or client requirements, student responses indicating possible child abuse or suicidal tendencies may be flagged by readers for school attention. Also, readers can flag responses that are noteworthy exemplars of a particular score point used for program publications. QACs and verifiers used I-Score to produce daily reader accuracy and speed reports. QACs and verifiers were able to obtain current reader accuracy reports and speed reports on-line at any time.

Scoring the Writing

Because there is only one direct measure of writing, each student's writing sample is scored twice, i.e., each paper is rated independently by two scorers using the NHEIAP Annotated Holistic Scoring Guide. With this approach, the two scorers independently assign a holistic rating (1 to 6) to each paper and identify relevant annotations from a menu of comments addressing strengths and weaknesses in the writing. Differences in ratings greater than one point are arbitrated by a table leader. Each student's final writing score is the sum of the two scorers' ratings. The annotations include comments pertaining to the analytic elements of topic development, organization, details, sentence structure, wording, and mechanics. The comments reflect positive or negative features of the writing sample that influenced the scorer's holistic rating. The actual comments are provided in reports to teachers and parents. Furthermore, at the school, district, and state levels, percentages of students receiving positive and negative comments in each analytic category are reported. Refer to Tables 9-1 and 9-2 for copies of the general open-response scoring guide and the Annotated Holistic Scoring Guide.

TABLE 9-1 OPEN-RESPONSE SCORING GUIDE

Score Point	Description
4	The student completes all important components of the task and communicates ideas clearly. The student demonstrates in-depth understanding of the relevant concepts and/or processes. When instructed to do so, the student chooses more efficient and/or sophisticated processes. When instructed to do so, the student offers insightful interpretations or extensions (e.g., generalizations, applications, and analogies).
3	The student completes the most important components of the task and communicates clearly. The student demonstrates understanding of major concepts even though he/she overlooks or misunderstands some less important ideas or details.
2	The student completes most important components of the task and communicates these clearly. The student demonstrates that there are gaps in his/her conceptual understanding.
1	The student shows minimal understanding. The student addresses only a small portion of the required task(s).
0	The students' response is incorrect or irrelevant.
B	Blank/no response.

HOLISTIC SCORING GUIDE

1	2	3	4	5	6
<ul style="list-style-type: none"> Little or no topic development, organization, and/or details Little or no awareness of audience and/or task Errors in usage, grammar, and mechanics may interfere with communication. 	<ul style="list-style-type: none"> Weak topic development, organization, few details Limited awareness of audience and/or task Errors in usage, grammar, and mechanics may be distracting to the length and complexity of the piece. 	<ul style="list-style-type: none"> Elementary development of topic and supporting details, limited focus Simplistic use of vocabulary/language Errors in usage, grammar, and mechanics may be distracting to the length or complexity of the piece. 	<ul style="list-style-type: none"> Moderate fluency, adequate details, focused Acceptable use of vocabulary/language Some errors in usage, grammar, and mechanics relative to length or complexity of the piece 	<ul style="list-style-type: none"> Well-developed, strong details Logical organization Appropriate use of language Few errors in usage, grammar, and mechanics relative to length or complexity of the piece 	<ul style="list-style-type: none"> Richly developed topic and details Careful and/or subtle organization Effective and/or rich language Control of usage, grammar, and mechanics

ANALYTIC ANNOTATION GUIDE

	COMMENTS	NEEDS
TOPIC DEVELOPMENT	<p>TX originality, insight, depth</p> <p>TY voice (writer's expression and/or insight engages reader)</p>	<p>TJ more development of focus/topic</p> <p>TK more thoughtful approach</p>
ORGANIZATION	<p>OX ideas flow smoothly</p> <p>OY clear focus</p>	<p>OJ smoother flow of ideas</p> <p>OK clearer focus</p>
DETAILS	<p>DX rich and/or interesting details</p> <p>DY effective use of details</p>	<p>DJ more development of details</p> <p>DK more details to support the topic</p>
SENTENCE STRUCTURE	<p>SX variety in structure and length</p> <p>SY complete and correct sentences</p>	<p>SJ variety in structure and length</p> <p>SK complete and correct sentences</p>
WORDING	<p>WX word choice enhances meaning</p> <p>WY varied vocabulary</p>	<p>WJ more effective use of language</p> <p>WK more varied vocabulary</p>
Mechanics	<p>MX use of capitalization and punctuation adds clarity</p> <p>MY spelling enhances readability</p>	<p>MJ greater control of punctuation and capitalization</p> <p>MK greater control of spelling</p> <p>HL legible handwriting</p>

CHAPTER 10—ITEM ANALYSIS

As noted in Brown (1983)¹, “a test is only as good as the items it contains.” A complete evaluation of a test’s quality must include an evaluation of each item. Both the *Standards for Educational and Psychological Testing* and the *Code of Fair Testing Practices in Education* include standards for identifying quality items. Questions should assess only knowledge or skills that are identified as part of the domain being tested and should avoid assessing irrelevant factors. They should also be unambiguous and free of grammatical errors, potentially insensitive content or language, and other confounding characteristics. Further, items must not unfairly disadvantage test takers from particular racial, ethnic, or gender groups.

Both qualitative and quantitative analyses are conducted to ensure that NHEIAP items meet these standards. Other sections of this manual delineate the qualitative checks on item quality. This section focuses on the more quantitative evaluations. The statistical evaluations are presented in three parts: 1) difficulty indices, 2) item-test correlations, and 3) differential item functioning. The item analyses presented here are based on the statewide administration of the NHEIAP in the spring of 2002.

DIFFICULTY INDICES (*P*)

All multiple-choice and open-response items were evaluated in terms of item difficulty according to standard classical test theory practices. Difficulty was defined as the average proportion of points achieved on an item, and was measured by obtaining the average score on an item and dividing by the maximum score for the item. Multiple-choice items were scored dichotomously (correct v. incorrect), so for those items, the difficulty index is simply the proportion of students who correctly answered the item. Open-response items and writing prompts are scored polytomously, where a student can achieve a score of 0, 1, 2, 3, or 4 for the open-response items, and a score from 0 to 6 (where 0 indicates no response) on the writing prompt. The writing prompt is scored twice and the scores are added together, resulting in a maximum score of 12. By computing the difficulty index as the average proportion of points achieved, the indices for the different item types are placed on a similar scale; the index ranges from 0.0 to 1.0 regardless of the item type. Although this index is traditionally described as a measure of difficulty, it is properly interpreted as an “easiness index” because larger values indicate easier items.

An index of 0.0 indicates that all students received no credit for the item, and an index of 1.0 indicates that all students received full credit for the item. Ideally, the items on an assessment will have a range of difficulties between 0.25 and 0.9 with most items falling between 0.4 and 0.7. Items that have either a very high or very low difficulty index are considered to be potentially problematic because they are either so difficult that few students get them right or so easy that nearly all students get them right. In either case, such items should be reviewed for appropriateness for inclusion on the assessment. If an assessment were comprised entirely of very easy or very hard items, all students would receive nearly the same scores and the assessment would not be able to differentiate among students.

¹ Brown, F. G. (1983). *Principles of educational and psychological testing* (3rd Edition). Fort Worth: Holt, Rinehart and Winston.

ITEM-TEST CORRELATIONS (ITEM DISCRIMINATION)

A desirable feature of an item is that the higher ability students perform better on the item than lower ability students. The correlation between student performance on a single item and total test score is a commonly used measure of this characteristic of an item. Within classical test theory, the item-test correlation is referred to as the item's discrimination because it indicates the extent to which successful performance on an item discriminates between high and low scores on the test. The discrimination index used to evaluate NHEIAP multiple-choice items, which are scored 0 or 1, was the point-biserial correlation between item score and a criterion total score on the test. For open-response items and writing prompts, the item discrimination index used was the Pearson product-moment correlation. The theoretical range of these statistics is -1 to $+1$, with a typical range from $.3$ to $.6$.

Discrimination indices can be thought of as measures of how closely an item assesses the same knowledge and skills assessed by other items contributing to the criterion total score. That is, the discrimination index can be thought of as a measure of construct consistency. In light of this interpretation, the selection of an appropriate criterion total score is crucial to the interpretation of the discrimination index. Because each form of the NHEIAP was constructed to be parallel in content, the criterion score selected for each item was the raw score total for each form. The analyses were conducted for each form separately.

SUMMARY OF ITEM ANALYSIS RESULTS

Summary statistics of the difficulty and discrimination indices for each item are provided in Tables 10-1 through 10-3. The average difficulty and discrimination values are provided separately for multiple-choice and open-response items as well as for the total set of items. In general, the item difficulty and discrimination indices are in acceptable and expected ranges. Very few items were answered correctly at near-chance or near-perfect rates. Similarly, the positive discrimination indices indicate that most items were assessing consistent constructs, and students who performed well on individual items tended to perform well overall. There were a small number of items with near-zero discrimination indices, but none were reliably negative. Occasionally, items with less-desirable statistical characteristics need to be included in assessments to ensure that content is appropriately covered, but there were very few such cases on NHEIAP.

A comparison of indices across grade levels is complicated because these indices are population dependent. Direct comparisons would require that either the items or students were common across groups. However, one can say that for English Language Arts and Social Studies, the difficulty values were fairly consistent across grade levels. For Mathematics and Science, however, students in higher grade levels found their items more difficult than students in lower grades found their items.

Comparing the difficulty indices of multiple-choice and open-response items is inappropriate because multiple-choice items can be answered correctly by guessing. Thus, it is not surprising that the difficulty indices for multiple-choice items tend to be higher (indicating easier items) than the difficulty indices for open-response items. Similarly, the partial credit allowed by open-response items is advantageous in the computation of item-test correlations, so the discrimination indices for these items tend to be larger than the discrimination indices of multiple-choice items.

TABLE 10-1: AVERAGE DIFFICULTY AND DISCRIMINATION OF DIFFERENT ITEM TYPES FOR EACH GRADE-CONTENT AREA COMBINATION – GRADE 3

Content Area		Item Type		
		All	Multiple Choice	Open Response
ELA	Difficulty	0.67 (0.15)	0.71 (0.14)	0.5 (0.09)
	Discrimination	0.4 (0.1)	0.37 (0.08)	0.52 (0.07)
	N	102	83	19
Mathematics	Difficulty	0.68 (0.17)	0.71 (0.17)	0.53 (0.1)
	Discrimination	0.38 (0.1)	0.35 (0.08)	0.53 (0.05)
	N	98	82	16

Note: The numbers in parentheses are standard deviations.

TABLE 10-2: AVERAGE DIFFICULTY AND DISCRIMINATION OF DIFFERENT ITEM TYPES FOR EACH GRADE-CONTENT AREA COMBINATION – GRADE 6

Content Area		Item Type		
		All	Multiple Choice	Open Response
ELA	Difficulty	0.65 (0.13)	0.68 (0.12)	0.5 (0.08)
	Discrimination	0.39 (0.11)	0.35 (0.08)	0.57 (0.04)
	N	110	91	19
Mathematics	Difficulty	0.58 (0.21)	0.6 (0.22)	0.46 (0.11)
	Discrimination	0.38 (0.12)	0.33 (0.09)	0.57 (0.07)
	N	95	78	17
Science	Difficulty	0.62 (0.2)	0.67 (0.18)	0.41 (0.15)
	Discrimination	0.33 (0.11)	0.3 (0.09)	0.47 (0.04)
	N	95	78	17
Social Studies	Difficulty	0.61 (0.17)	0.66 (0.14)	0.39 (0.08)
	Discrimination	0.35 (0.1)	0.32 (0.08)	0.51 (0.05)
	N	95	78	17

Note: The numbers in parentheses are standard deviations.

TABLE 10-3: AVERAGE DIFFICULTY AND DISCRIMINATION OF DIFFERENT ITEM TYPES FOR EACH GRADE-CONTENT AREA COMBINATION – GRADE 10

Content Area		Item Type		
		All	Multiple Choice	Open Response
ELA	Difficulty	0.67 (0.14)	0.7 (0.13)	0.51 (0.06)
	Discrimination	0.47 (0.13)	0.42 (0.1)	0.66 (0.04)
	N	110	91	19
Mathematics	Difficulty	0.43 (0.14)	0.45 (0.14)	0.34 (0.09)
	Discrimination	0.43 (0.15)	0.38 (0.11)	0.65 (0.06)
	N	95	78	17
Science	Difficulty	0.51 (0.17)	0.55 (0.16)	0.32 (0.08)
	Discrimination	0.39 (0.13)	0.35 (0.11)	0.57 (0.05)
	N	95	78	17
Social Studies	Difficulty	0.58 (0.15)	0.63 (0.12)	0.38 (0.05)
	Discrimination	0.47 (0.11)	0.44 (0.1)	0.63 (0.04)
	N	95	78	17

Note: The numbers in parentheses are standard deviations.

DIFFERENTIAL ITEM FUNCTIONING

Investigations of item or test bias seek to determine whether scores for subgroups of students may be affected by attributes other than those the test is intended to measure. Such investigations usually begin by examining whether subgroups of students perform differently than expected on individual items. Specifically, differences due to irrelevant factors are examined. If such differential item functioning (DIF) is detected, a qualitative assessment of the item is made to determine whether the item is biased against a particular group. It should be noted that the detection of DIF does not imply that the item is biased, but is a flag that an item may be biased.

Investigations of test fairness, in contrast to bias, seek to determine whether the test predicts academic success equally well for minorities and non-minorities. Although these concepts are related, the first is generally considered a measurement issue, while the second is a legal issue.

The *Code of Fair Testing Practices in Education* explicitly states that subgroup differences in performance should be examined when sample size permits, and actions should be taken to make certain that differences in performance are due to construct-relevant, rather than irrelevant, factors. The *Standards for Educational and Psychological Testing* includes similar guidelines. As part of the effort to identify such problems, NHEIAP items were evaluated in terms of DIF statistics.

DIF procedures are designed to identify items for which subgroups of interest perform differentially beyond the impact of differences in overall achievement. For the NHEIAP, male/female comparisons were done for all grade/content combinations. Ethnic group comparisons, which are usually conducted on tests such as these, were not done in some cases due to small sample sizes (i.e., less than 200 students in either the focal or reference group).

The standardization procedure (Dorans and Kulick, 1986) was employed to detect DIF. This procedure calculates the difference in item performance for groups of students matched for achievement on the total test. The standardization index ranges from -1 to +1 for multiple-choice items and is adjusted to the same

scale (by dividing by 4) for open-response items. Negative numbers indicate that the item was more difficult for female or non-White students.

Dorans and Holland (1993) suggested that index values between -0.05 and $+0.05$ should be considered to indicate negligible DIF; values between -0.10 and -0.05 and between $+0.05$ and $+0.10$ be considered to indicate “low” DIF; and that items with values outside the $[-0.10, +0.10]$ range be considered to indicate “high” DIF. Each item was categorized according to the guidelines adapted from Dorans and Holland (1993). Table 10-4 shows the numbers of items in each classification for each grade/content combination. Numbers are shown for the male/female and White/Hispanic comparisons; the White/Black comparison could only be done at grade 3. Table 10-5 shows the number of items in each classification that favor females vs. males. Also included is the total number and percent of items in each classification. The information is shown for each grade/content combination by item type (multiple-choice vs. open-ended).

TABLE 10-4: NHEIAP DIF ANALYSIS

Grade	Content Area	Male/Female Diff. Class									White/Hispanic Diff. Class									White/Black Diff. Class								
		All			M/C			OR/SA			All			MC			OR/SA			All			MC			OR/SA		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
3	ELA	33	8	1	28	6	1	5	2	0	20	16	6	14	15	6	6	1	0	22	14	6	15	14	6	7	0	0
	Mathematics	35	2	1	31	2	1	4	0	0	21	12	5	18	11	5	3	1	0	32	4	2	28	4	2	4	0	0
6	ELA	35	5	2	28	5	2	7	0	0	20	17	5	13	17	5	7	0	0									
	Mathematics	30	5	0	26	4	0	4	1	0	29	6	0	24	6	0	5	0	0									
	Science	30	3	2	26	2	2	4	1	0	24	8	3	19	8	3	5	0	0									
	Social Studies	29	4	2	24	4	2	5	0	0	19	12	4	15	11	4	4	1	0									
10	ELA	33	7	2	26	7	2	7	0	0	32	6	4	26	5	4	6	1	0									
	Mathematics	34	1	0	29	1	0	5	0	0	27	6	2	24	4	2	3	2	0									
	Science	30	3	2	25	3	2	5	0	0	28	6	1	24	5	1	4	1	0									
	Social Studies	25	7	3	22	5	3	3	2	0	30	5	0	26	4	0	4	1	0									

Key:

A = negligible DIF

B = low DIF

C = high DIF

TABLE 10-5: MALE V. FEMALE DIFFERENTIAL ITEM FUNCTIONING (DIF) CATEGORIZATION BY ITEM TYPE

Grade	Content Area	Item Type	Negligible DIF				Low DIF				High DIF			
			Favor Female	Favor Male	N	%	Favor Female	Favor Male	N	%	Favor Female	Favor Male	N	%
3	ELA	Multiple-Choice	28	37	65	0.78	3	14	17	0.20	0	1	1	0.01
		Open-Response	15	2	17	0.89	2	0	2	0.11	0	0	0	0.00
	Mathematics	Multiple-Choice	41	32	73	0.89	0	8	8	0.10	0	1	1	0.01
		Open-Response	10	6	16	1.00	0	0	0	0.00	0	0	0	0.00
6	ELA	Multiple-Choice	30	47	77	0.85	2	9	11	0.12	0	3	3	0.03
		Open-Response	17	0	17	0.89	2	0	2	0.11	0	0	0	0.00
	Mathematics	Multiple-Choice	33	33	66	0.85	5	6	11	0.14	0	1	1	0.01
		Open-Response	12	4	16	0.94	1	0	1	0.06	0	0	0	0.00
	Science	Multiple-Choice	34	32	66	0.85	3	7	10	0.13	0	2	2	0.03
		Open-Response	10	3	13	0.76	4	0	4	0.24	0	0	0	0.00
	Social Studies	Multiple-Choice	30	36	66	0.85	4	5	9	0.12	0	3	3	0.04
		Open-Response	13	0	13	0.76	4	0	4	0.24	0	0	0	0.00
10	ELA	Multiple-Choice	43	27	70	0.77	6	12	18	0.20	0	3	3	0.03
		Open-Response	15	0	15	0.79	4	0	4	0.21	0	0	0	0.00
	Mathematics	Multiple-Choice	45	25	70	0.90	2	4	6	0.08	0	2	2	0.03
		Open-Response	10	6	16	0.94	0	1	1	0.06	0	0	0	0.00
	Science	Multiple-Choice	33	21	54	0.69	4	14	18	0.23	1	5	6	0.08
		Open-Response	10	2	12	0.71	4	1	5	0.29	0	0	0	0.00
	Social Studies	Multiple-Choice	31	26	57	0.73	3	13	16	0.21	0	5	5	0.06
		Open-Response	8	0	8	0.47	8	0	8	0.47	1	0	1	0.06

ITEM RESPONSE THEORY ANALYSES

In addition to the classical test theory item analyses previously described, the NHEIAP tests were analyzed according to item response theory (IRT) models. IRT uses mathematical models to define a relationship between an unobserved measure of student ability, usually referred to as theta (θ), and the probability (p) of getting a dichotomous item correct or of getting a particular score on a polytomous item. In IRT, it is assumed that all items are independent measures of the same construct or ability (i.e., the same θ). There are several commonly used IRT models to specify the relationship between θ and p (Hambleton and van der Linden, 1999; Hambleton and Swaminathan, 1985).

For polytomous items, the generalized partial credit model can be defined as:

$$P_{jk}(\theta) = \frac{\exp \sum_{v=0}^k [Da_j(\theta - b_j + d_v)]}{\sum_{c=1}^m \exp \sum_{v=1}^c [Da_j(\theta - b_j + d_v)]}$$

where j indexes the items
 k indexes students
 a represents item discrimination
 b represents item difficulty
 d represents category step parameter, and
 D is a normalizing constant equal to 1.701

In the case of the NHEIAP assessment, the a_j term in the above equation is equal to 1.0 for all items. For the dichotomous items, the above equation reduces to the following:

$$P_j(\theta) = \frac{\exp(\theta - b_j)}{1 + \exp(\theta - b_j)}$$

The process of determining the specific mathematical relationship between θ and p is referred to as item calibration. Once items are calibrated, they are defined by a set of parameters which specify a non-linear, monotonically increasing relationship between θ and p . Once the item parameters are known, the $\hat{\theta}$ for each student can be calculated. In IRT, $\hat{\theta}$ is considered to be an estimate of the student's true score or ability and has some characteristics that may make its use preferable to the use of raw scores in rank ordering students in terms of ability. For more information about item calibration and $\hat{\theta}$ determination the reader is referred to Lord and Novick (1968) or Hambleton and Swaminathan (1985).

In the NHEIAP, ability estimates for students are found using an expected a posteriori (EAP) procedure. The EAP values are found using a set of known item parameters, ξ , along with an observed response string, X (see Baker, 1992):

$$E(\theta_j | X_j, \xi) = \bar{\theta}_j = \frac{\sum_k^q X_k L(x_k) A(x_k)}{\sum_k^q L(x_k) A(x_k)}$$

where: k indexes the items ($k = 1, 2, \dots, q$),
 X_k is the observed response string,
 $L(X_k)$ is the likelihood for a particular response pattern, and
 $A(X_k)$ are the quadrature weights.

This Bayesian approach is non-iterative and allows for a direct solution, namely $\bar{\theta}_j$ as an estimation of ability. In the above equation $A(X_j)$ are the final adjusted quadrature weights for the fixed X_k produced by the EM cycle of the Bayesian model item parameter estimation stage used in PARSCALE. The likelihood function can be found using:

$$L(X_k | \theta_j, \xi) = \prod_k^q P_k(\theta_j)^{X_{kj}} Q_k(\theta_j)^{1-X_{kj}}.$$

The posterior standard deviation can then be used to represent the standard error around an estimated ability:

$$PSD(\theta_j) = \sqrt{\frac{\sum_k^q (x_k - \theta_j)^2 L(x_k) A(x_k)}{\sum_k^q L(x_k) A(x_k)}}.$$

For the NHEIAP tests, all items for all forms were simultaneously calibrated. Simultaneously calibrating items across forms has the effect of putting all items on the same scale. Consequently, the $\hat{\theta}$ s for all students will be on the same scale. This important property of IRT analyses was used as the method for equating forms within a year.

Parscale v3.5 (Muraki & Bock, 1996) was the software used to do the IRT analyses for the NHEIAP. The item parameters resulting from the analyses are provided in Appendix B. Each item occupied only one block in the calibration run, and the 1.701 normalizing constant was used. A default convergence criterion of 0.001 was used, and all calibrations converged within 30 iterations. A prior distribution was specified for the threshold parameter through the use of Parscale's TPRIOR command.

Details regarding procedures used for equating are discussed in Chapter 13.

CHAPTER 11—RELIABILITY

Although an individual item's performance is an important focus for evaluation, a complete evaluation of an assessment must also address the way items function together and complement one another. Tests that function well provide an accurate assessment of the student's level of ability. Unfortunately, no test can do this perfectly. A variety of factors can contribute to a given student's score being either higher or lower than his or her true ability. For example, a student may misread an item or mistakenly bubble in the wrong bubble when he or she knew the answer; similarly a student may get an item correct by guessing, even though he or she did not know the answer. Collectively, these extraneous factors that impact a student's score are referred to as measurement error. Any assessment includes some amount of measurement error; that is, no measurement can be perfectly accurate. This is true of academic assessments—no assessment can measure students with perfect accuracy; some students will receive scores that underestimate their true ability, and other students will receive scores that overestimate their true ability. When tests have a high amount of measurement error, student scores are very unstable. Students with high ability may get low scores or vice versa. Consequently, one cannot reliably tell a student's true level of ability with such a test. Items that function well together produce assessments that have less measurement error; that is, the errors made should be small on average and student scores on such a test will consistently represent their ability. Such assessments are described as reliable.

There are a number of ways to estimate an assessment's reliability. One possible approach is to give the same test to the same students at two different points in time. If students receive the same scores on each test, then the extraneous factors affecting performance are small and the test is reliable (this is referred to as test-retest reliability). A potential problem with this approach is that students may remember questions from the first administration or may have gained (or lost) knowledge or skills in the interim between the two administrations. A solution to the 'remembering questions' problem is to give a different, but parallel test at the second administration. If student scores on each test correlate highly, the test is considered reliable. This is known as alternate forms reliability, because an alternate form of the test is used in each administration. This approach, however, does not address the problem that students may have gained (or lost) knowledge or skills in the interim between the two administrations. One way to address these problems is to split the test in half and then correlate students' scores on the two half-tests; this in effect treats each half-test as a complete test. By doing this, the problems associated with an intervening time interval are alleviated. This is known as a split-half estimate of reliability. If the two half-test scores correlate highly, items on the two half-tests must be measuring very similar knowledge or skills. This is evidence that the items complement one another and function well as a group. This also suggests that measurement error will be minimal.

The split-half method requires a judgement regarding the selection of which items contribute to which half-test score. This decision may have an impact on the resulting correlation; different splits will give different estimates of reliability. Cronbach (1951) provided a statistic, α , that avoids this concern about the split-half method. Cronbach's α gives an estimate of the average of all possible splits for a given test. Cronbach's α is often referred to as a measure of internal consistency because it provides a measure of how well all the items in the test measure one single underlying ability.

RELIABILITY AND STANDARD ERRORS OF MEASUREMENT

Table 11-1 presents Cronbach's α coefficient separately for multiple-choice and open-response items as well as for the total set of items. The numbers of each item type are also shown; for the open-response items, the total possible number of points is given in parentheses. Cronbach's α is computed using the following formula:

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

where i indexes the item
 n is the total number of items,
 $\sigma^2(Y_i)$ represents individual item variance, and
 σ_x^2 represents the total test variance

According to Feldt and Brennan (1989), a prescribed distribution of items over categories (such as different item types) indicates the presumption that at least a small, but important, degree of unique variance is associated with the categories. In contrast, Cronbach's coefficient α is built upon the assumption that there are no such local or clustered dependencies. A stratified version of coefficient α corrects for this problem:

$$\alpha_{strat} = 1 - \frac{\sum_{j=1}^k \sigma_{x_j}^2 (1 - \alpha)}{\sigma_x^2}$$

where j indexes the subtests or categories,
 $\sigma_{x_j}^2$ represents the variance of the k individual subtests or categories,
 α is the unstratified Cronbach's α coefficient, and
 σ_x^2 represents the total test variance

Table 11-1 also shows the stratified coefficient α . Stratified coefficient α was calculated separately for each common item test and grade level. The stratification was based on item types (multiple-choice v. open response).

TABLE 11-1: COEFFICIENTS α AND STRATIFIED α

Grade	Content Area	α	α_{mc}	N_{mc}	α_{cr}	N_{cr}	Stratified α
3	ELA	0.89	0.87	35	0.79	7 (36)	0.9
	Mathematics	0.84	0.84	34	0.63	4 (16)	0.86
6	ELA	0.89	0.86	35	0.85	7 (36)	0.91
	Mathematics	0.85	0.84	30	0.7	5 (20)	0.87
	Science	0.83	0.79	30	0.68	5 (20)	0.85
	Social Studies	0.81	0.75	30	0.69	5 (20)	0.83
10	ELA	0.92	0.89	35	0.88	7 (36)	0.93
	Mathematics	0.9	0.87	30	0.83	5 (20)	0.92
	Science	0.89	0.85	30	0.76	5 (20)	0.9
	Social Studies	0.9	0.87	30	0.81	5 (20)	0.91

Table 11-2 presents descriptive statistics, Cronbach's α , and the standard error of measurement for each grade/content combination.

TABLE 11-2: RELIABILITIES, STANDARD ERRORS OF MEASUREMENT, AND DESCRIPTIVE STATISTICS

Grade	Content Area	N	Total Points	Min	Max	Mean	SD	Rel	SEM
3	ELA	15728	71	0	64	40.89	10.14	0.89	3.37
	Mathematics	15731	50	0	50	32.10	8.61	0.84	3.40
6	ELA	17373	71	0	66	39.78	10.15	0.89	3.34
	Mathematics	17374	50	0	50	30.51	9.73	0.85	3.74
	Science	17371	50	0	49	29.25	7.30	0.83	3.00
	Social Studies	17371	50	0	48	24.82	7.38	0.81	3.19
10	ELA	15394	71	0	66	41.69	12.44	0.92	3.60
	Mathematics	15408	50	0	50	21.75	11.03	0.90	3.51
	Science	15407	50	0	45	24.93	9.12	0.89	3.09
	Social Studies	15406	50	0	49	24.76	9.84	0.90	3.17

RELIABILITY OF PERFORMANCE LEVEL CATEGORIZATION

All test scores contain measurement error; thus classifications of students into proficiency level categories based on test scores are also subject to measurement error. After the proficiency levels were specified (based on standard setting) and students were classified into those levels (based on their test performance), empirical analyses were conducted to determine the statistical accuracy and consistency of the classifications. For these analyses, the terms accuracy and consistency are described below.

ACCURACY

Accuracy refers to the extent to which decisions based on observed test scores match decisions that would have been made if the scores did not contain any measurement error (i.e., observed score=true score in the classical test theory sense of true score). It is important to note that because errorless scores do not exist, the determination of accuracy is an estimate.

CONSISTENCY

Consistency measures the extent to which classification decisions based on test scores match the decisions that would be made based on scores from a second, parallel, form of the same test. This concept is similar to test-retest reliability, but applied to student categorizations, not individual student scores. Consistency can be evaluated directly from actual responses to test items if two complete, parallel forms of the test are given to the same group of students. However, this is usually impractical for a variety of logistical reasons.

To address these issues, techniques have been developed to estimate both the accuracy and consistency of classification decisions based on a single administration of a test. The technique developed by Livingston and Lewis (1995) was used for the NHEIAP. This technique was seen as appropriate because it can be used with both open-response and multiple-choice items, whereas previous techniques presumed all items were dichotomously scored (e.g., Subkoviak, 1986).

CALCULATING ACCURACY

The accuracy and consistency estimation techniques described below make use of the concept of “true scores” in the sense of classical test theory. A true score is the score that would be obtained on a test that had no measurement error. It is a theoretical concept that cannot be observed, although it can be estimated. Following Livingston and Lewis (1995), the true-score distribution for each of the NHEIAP tests was estimated using a four-parameter beta distribution, which is a flexible model that allows for extreme degrees of skewness in test scores.

In the Livingston and Lewis method, the estimated “true scores” are used to classify students into their “true” performance category, which is labeled “true status.” After various technical adjustments (which are described in Livingston and Lewis, 1995), a 4 × 4 contingency table is created for each test and grade level. The cells in the table are the proportion of students who were jointly classified into each performance category by their actual (or observed) scores on the NHEIAP (i.e., observed status) and by the “true scores” (i.e., “true status”). As an example, Table 11-3 shows the accuracy contingency table for tenth-grade social studies. The accuracy contingency tables for all grades and subjects are provided in Appendix C under step 5. Additional steps in the analysis are also shown in Appendix C.

TABLE 11-3: ACCURACY CONTINGENCY TABLE FOR GRADE 10 SOCIAL STUDIES

True Status	Observed Status			
	Novice	Basic	Proficient	Advanced
Novice	0.44	0.07	0.00	0.00
Basic	0.04	0.26	0.04	0.00
Proficient	0.00	0.03	0.10	0.01
Advanced	0.00	0.00	0.00	0.01

Proportions on the diagonal (in bold) indicate exact agreement between the observed status and “true status.” If the test were perfectly accurate, all of the off-diagonal cells would be zero. Accuracy is the sum of the diagonal (i.e., the proportion of exact agreement across the four proficiency levels). In Table 11-3, the diagonal sums to .81, indicating that 81 percent of the students were classified into exactly the same proficiency categories by their observed scores and their “true scores.”

Table 11-4 provides the accuracy (sum of the diagonals) for each grade content area combination for NHEIAP. The numbers in Table 11-4 are of a similar magnitude to what has been reported in other state testing programs.

CALCULATING CONSISTENCY

To estimate consistency, the distribution of “true scores” is used to estimate what the distribution of student classifications would be on an independent, parallel test form. After statistical adjustments (see Livingston and Lewis, 1995), a new 4×4 contingency table is created for each test and grade level, giving the proportions of students jointly classified into each proficiency category by the actual test and by another (hypothetical) parallel test form. Consistency, which is the proportion of students classified into exactly the same categories by the two forms, is the sum of the diagonal for the new contingency table. The consistency contingency tables are shown under step 7 in Appendix C and the sums of the diagonals are given in Table 11-4. As with the accuracy results, the consistency results are similar to those reported for other state testing programs.

KAPPA

Another way to measure consistency is to use Cohen’s (1960) coefficient κ (kappa), which assesses the proportion of consistent classifications after removing the proportion of consistent classification that would be expected by chance. Cohen’s κ can be used to estimate the classification consistency of a test from two parallel forms of the test. The second form in this case was the one estimated using the Livingston and Lewis (1995) method. Cohen’s κ is shown in Table 11-4. Because κ is corrected for chance, the values of κ are lower than the other consistency estimates in Table 11-4.

RESULTS OF ACCURACY, CONSISTENCY, AND KAPPA ANALYSES

The accuracy, consistency, and kappa indices for all grades and subjects are summarized in Table 11-4.

TABLE 11-4: ESTIMATES OF ACCURACY AND CONSISTENCY OF PERFORMANCE LEVEL CLASSIFICATION

Grade	Content Area	Accuracy	Consistency	Kappa (k)
3	ELA	0.74	0.65	0.50
	Mathematics	0.73	0.62	0.46
6	ELA	0.78	0.69	0.55
	Mathematics	0.74	0.64	0.47
	Science	0.75	0.65	0.46
	Social Studies	0.74	0.64	0.44
10	ELA	0.79	0.71	0.58
	Mathematics	0.78	0.70	0.56
	Science	0.78	0.70	0.53
	Social Studies	0.81	0.73	0.56

In some circumstances, the decisions associated with a particular threshold may have been viewed as more important than some other decisions. For example, if a college gave credit to students who achieved an Advanced Placement test score of four or five, but not one, two, or three, one might be interested in the accuracy of the dichotomous decision, below four versus four or above. In the NHEIAP one may be interested in the dichotomous decision of Basic or above versus below Basic (or Novice). Table 11-5 reports accuracy and consistency for all the possible dichotomous categorizations on the NHEIAP.

TABLE 11-5: ACCURACY AND CONSISTENCY OF DICHOTOMOUS CATEGORIZATIONS

Grade	Content Area	Accuracy			Consistency		
		N/B	B/P	P/A	N/B	B/P	P/A
3	ELA	0.90	0.88	0.96	0.86	0.83	0.94
	Mathematics	0.90	0.87	0.95	0.86	0.82	0.93
6	ELA	0.90	0.91	0.98	0.86	0.87	0.97
	Mathematics	0.88	0.89	0.97	0.83	0.84	0.96
	Science	0.86	0.90	0.98	0.80	0.86	0.97
	Social Studies	0.86	0.90	0.98	0.80	0.85	0.97
10	ELA	0.91	0.90	0.98	0.88	0.87	0.96
	Mathematics	0.89	0.91	0.97	0.85	0.88	0.96
	Science	0.89	0.91	0.98	0.84	0.88	0.97
	Social Studies	0.89	0.93	0.99	0.85	0.90	0.98

Again, these results are similar to what has been reported for other state testing programs.

CHAPTER 12—VALIDITY

As noted in the *Standards for Educational and Psychological Testing*, validity is the most important consideration in test evaluation. Validity refers to whether specific inferences made from test scores are appropriate, meaningful, and useful. There are several types of validity-related evidence that can be used to support appropriate, meaningful, and useful inferences based on test scores.

CONTENT-RELATED EVIDENCE

As noted in the *Standards*, evidence of test validity begins with test development and continues throughout the entire testing process. Chapters 1 and 2 provide evidence regarding the alignment between the content of the NHEIAP and the New Hampshire's *Curriculum Frameworks*.

EXTERNAL EVIDENCE

External validity of the NHEIAP is conveyed by the relationship of test scores and situational variables such as frequency of homework assignment, attitude towards subject matter, and frequency of reading during free time. These situational variables were all based on student questionnaire data collected during the administration of the NHEIAP. Note that not all the questionnaire items referred to in the following subsections were asked regarding all of the subjects assessed by the NHEIAP. Note also that no inferential statistics are included. However, because the numbers of students are large enough, differences in average scores could be shown to be statistically significant.

FREQUENCY OF HOMEWORK ASSIGNMENT

Grades 6 and 10 examinees were asked how often they are assigned homework in mathematics and in science. Charts in Figures 12-1 and 12-2 indicate that there is a positive relationship between frequency of homework assignment and their scores in NHEIAP mathematics and science. Although the relationship is not straightforward in grade 6 science, there is a drop in the average scaled score from “almost every class” to “I am not usually assigned homework in science.”

Figure 12-1
Science Homework and NHEIAP Scores

Question: How often are you assigned science homework?

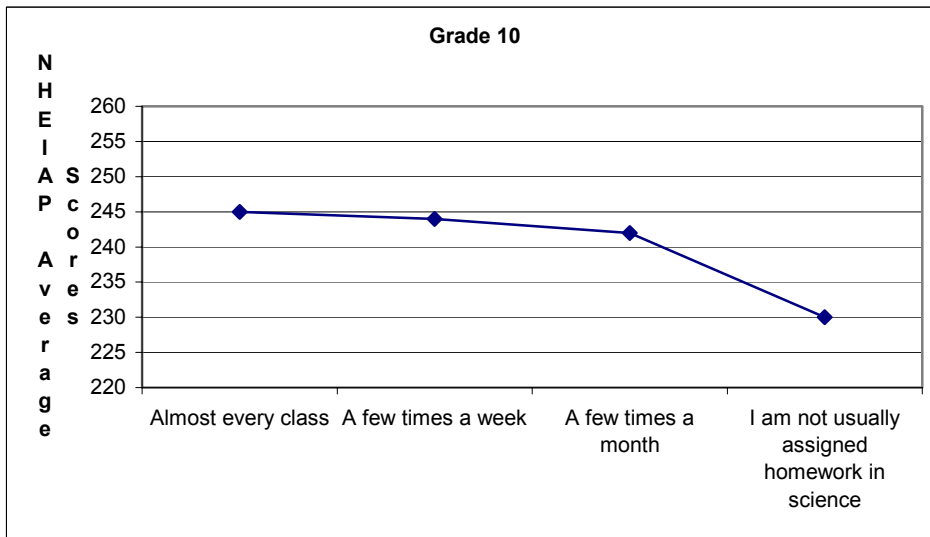
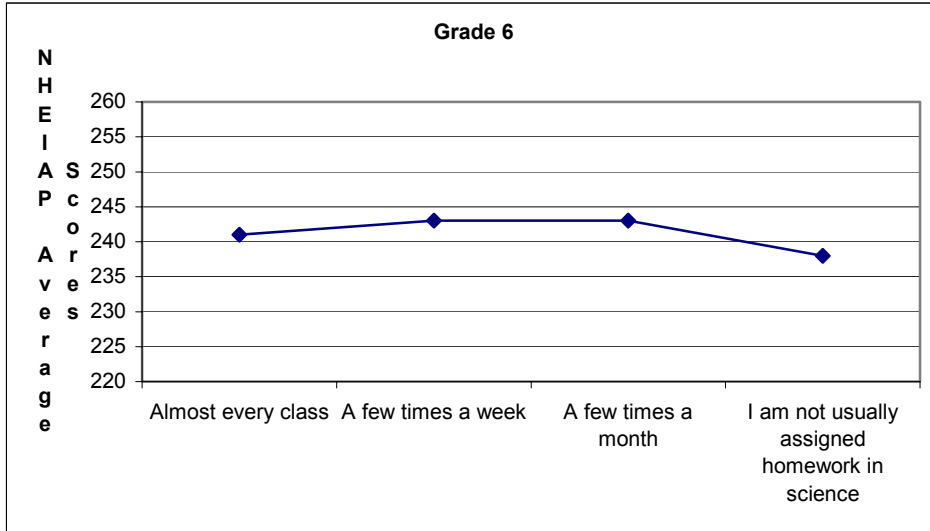
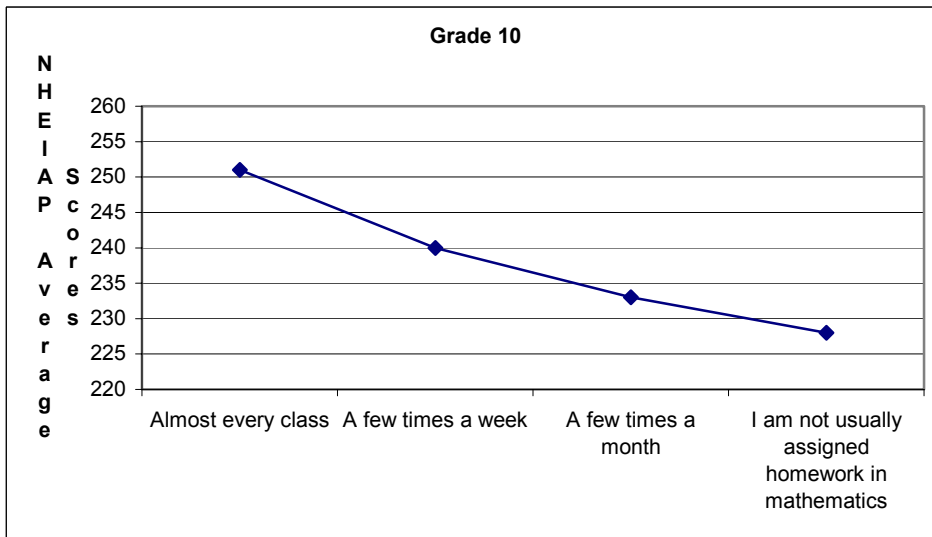
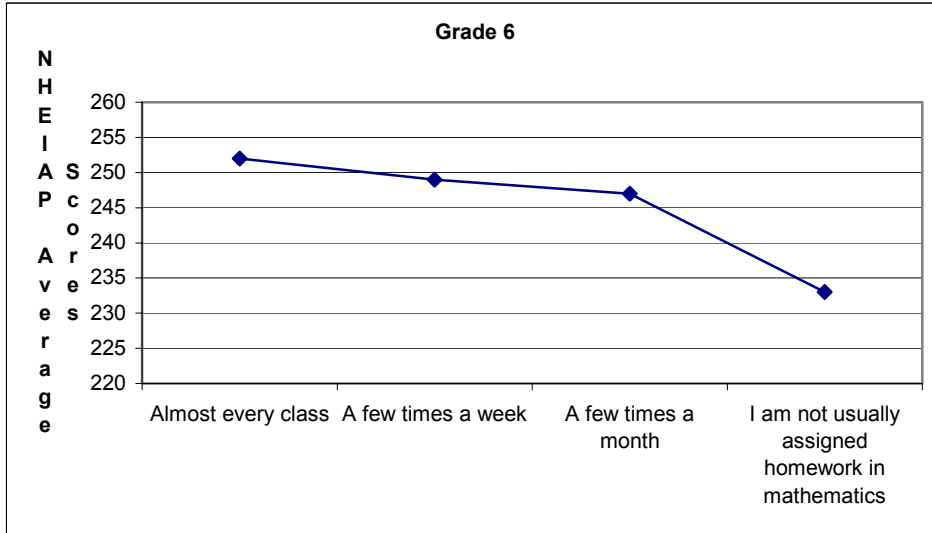


Figure 12-2
Mathematics Homework and NHEIAP Scores

Question: How often are you assigned mathematics homework?

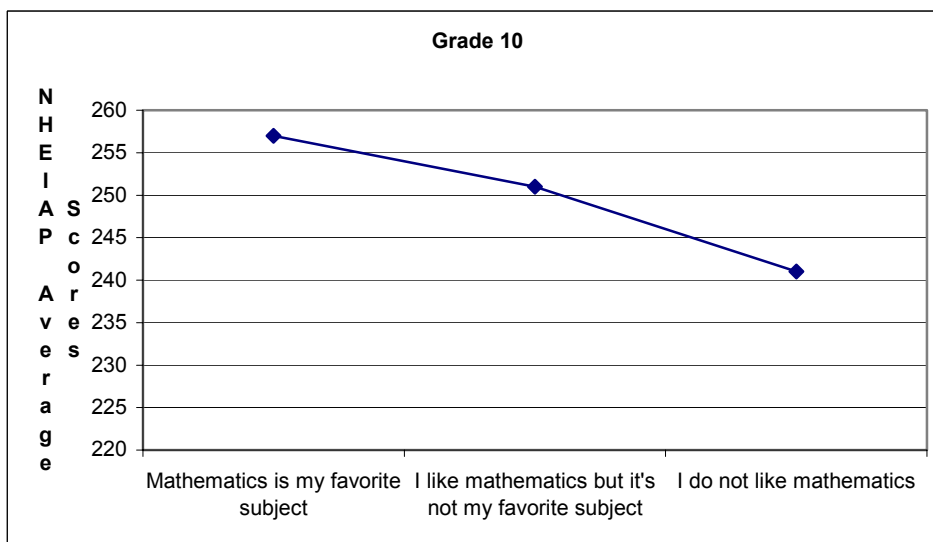
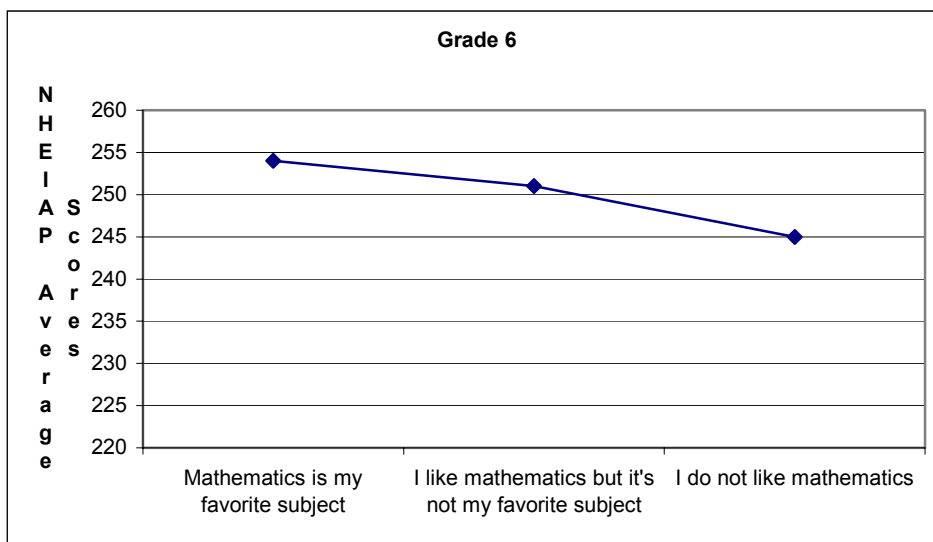


ATTITUDE TOWARD SUBJECT MATTER

A questionnaire item related to examinees' attitude toward mathematics was administered to grades 6 and 10 examinees. Charts in Figure 12-3 indicate a positive relationship between how well students like mathematics and their NHEIAP mathematics scores.

Figure 12-3
Attitude Towards mathematics and NHEIAP Scores

Question: Which best describes how well you like mathematics?

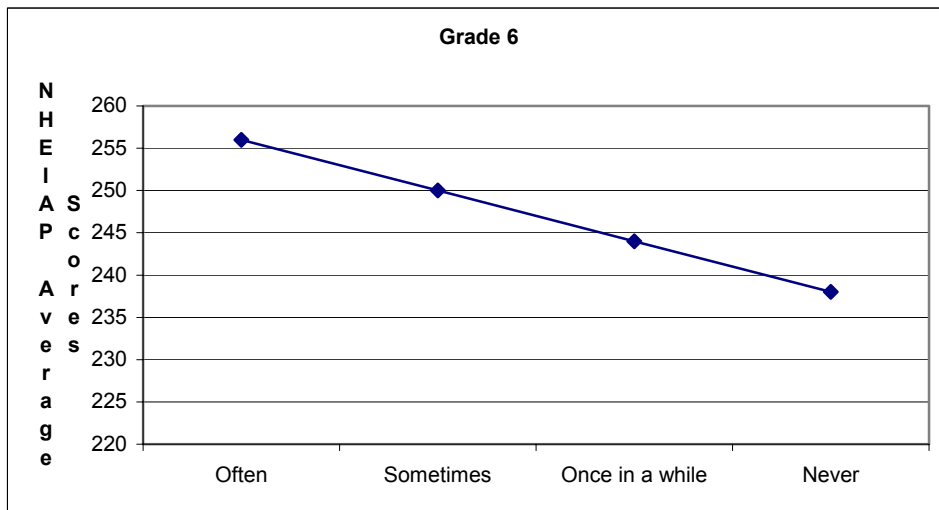


FREQUENCY OF FREE TIME READING

All students who participated in the NHEIAP were asked how often they choose to read on their free time. Figure 12-4 indicates a positive relationship between frequency of free time reading and NHEIAP scores in ELA.

Figure 12-4
Frequency of Free Time Reading and NHEIAP Scores

Questions: How often do you choose to read on your free time?



CHAPTER 13—EQUATING AND SCALING

EQUATING FORMS WITHIN A YEAR

Because test forms differ in difficulty (see Tables 13-1 through 13-3), adjustments to students' scores need to be made so that students who received an easier form of the test are not given an advantage and students who received a more difficult form of the test are not disadvantaged. Equating is the process by which these adjustments are made.

As stated in the previous section of this manual, for the NHEIAP tests, an IRT equating method was used. Specifically, the method involved simultaneously calibrating all items across forms, then estimating θ for each student using the calibrated item parameters.

EQUATING ACROSS YEARS

In equating test forms from one year to the next a fixed b IRT procedure was used. Thus, anchor items from the previous year's administration were identified during this year's calibrations, and their IRT parameters were fixed to last year's values. This method results in all person and item parameters being on the same θ scale as last year. Below is a description of how the anchor items were selected.

DETERMINING THE SETS OF ANCHOR ITEMS

During the development stage of NHEIAP 2002, matrix items that were also administered in 2001 were identified as potential equating items. These items were designated based on the following criteria:

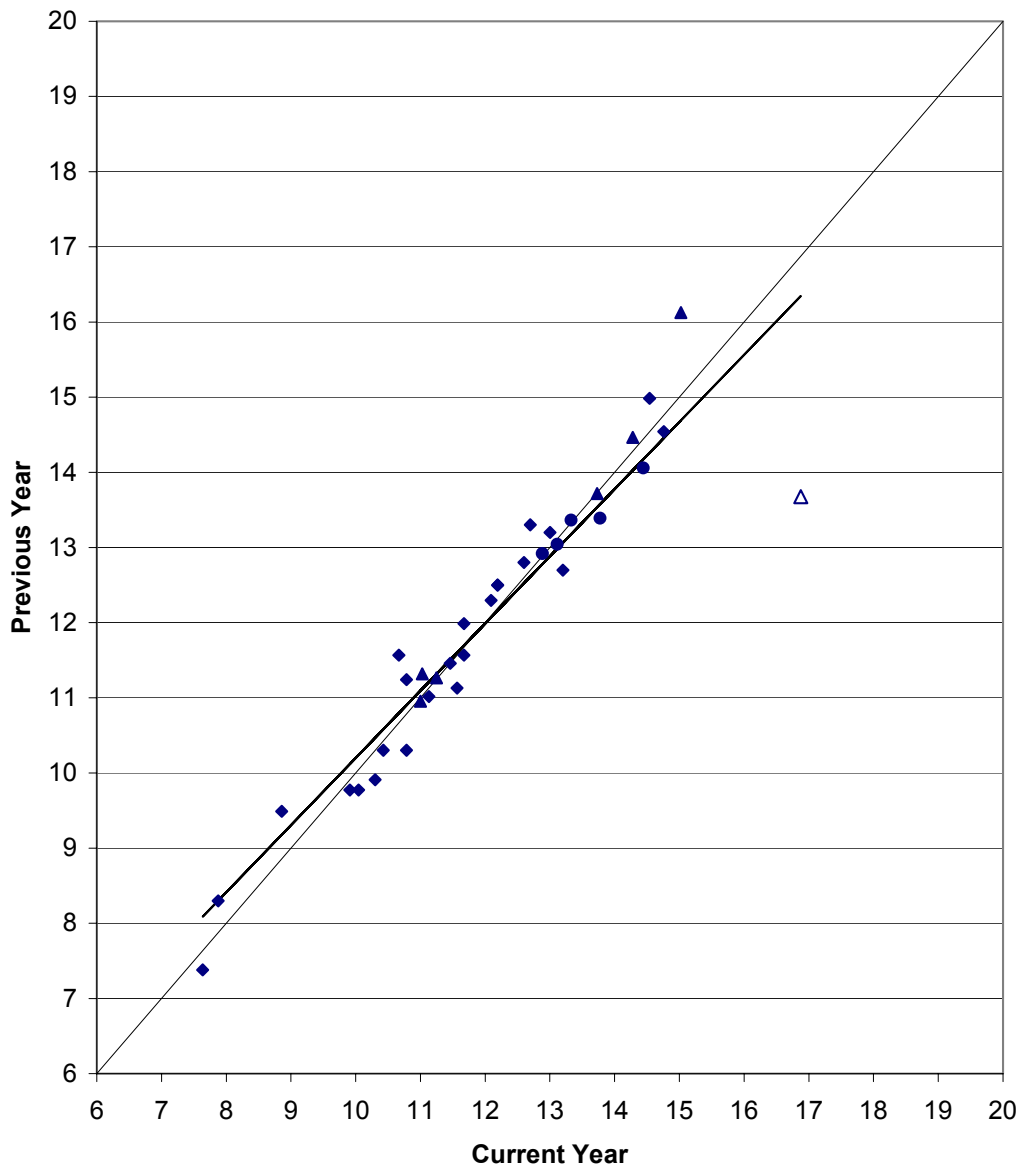
1. The average difficulty of the equating items is about the same as the average difficulty of those items in the previous year's test.
2. The total points from the equating items are about equivalent to 40% of the total points on the test.
3. The position of each item in the current test form is about the same as its position in the previous year's test form.
4. The distribution of the items across different relevant categories (i.e. item types and content areas) is similar to that of the whole test.
5. There should not be any significant change in the item from one administration to the other.

To determine the final set of equating items for each grade level and subject combination a differential item functioning (DIF) approach using the delta plot method was applied. The p-values of each multiple-choice item were transformed to the delta metric. Each item has two p-values, one for each test administration. The delta scale is an inverse normal transformation of percentage correct to a linear scale with a mean of 13 and standard deviation of 4 (Holland & Wainer, 1993). A high delta value indicates a difficult item. For open-response items, the average score divided by the maximum possible score or adjusted p-value was transformed to the delta metric. The delta values computed for the potential equating items were plotted for each subject in each grade level.

Figure 13-1 is an example of a delta plot for equating items. The dark diagonal line is the trend line and the light diagonal line is the identity line. Different shapes were used to identify different item types: ♦ for multiple choice items; ▲ for short answer items; and, ● for open-response items. The perpendicular distance of each item to the regression line was computed. The unshaded shape indicates the item with the greatest perpendicular distance from the regression line. Items that were not more than three standard deviations away from the regression line were used as equating items. Results of delta plot analyses for NHEIAP are in Appendix D and are presented in tabular form.

An additional criterion was applied for open-response items in order to be included as equating or anchor items. For each potential equating item, a sample of 200 papers from the 2001 test was randomly selected and rescored by this year's scorers. The scores for the two years were compared, and items for which there was a large difference between the average scores were excluded as equating items.

Figure 13-1
Sample Delta Plot
(♦ MC ▲ SA ● OR)



TRANSLATING RAW SCORES TO SCALED SCORES AND PERFORMANCE LEVELS

NHEIAP scores in each content area are reported on a scale that ranges from 200 to 300. Scaled scores supplement the NHEIAP proficiency-level results by providing information about the position of a student's results within a proficiency level. School- and district-level scaled scores are calculated by computing the average of student-level scaled scores. Students' raw scores, or total number of points, on the NHEIAP tests are translated to scaled scores using a data analysis process called **scaling**. Scaling simply converts raw points from one scale to another. In the same way that the same temperature can be expressed on either the Fahrenheit or Celsius scales and the same distance can be expressed either in miles or kilometers, student scores on the NHEIAP tests could be expressed as raw scores (i.e., number right) or scaled scores.

It is important to note that converting from raw scores to scaled scores does not change the students' proficiency-level classifications. Given the relative simplicity of raw scores, it is fair to question why scaled scores are used in NHEIAP reports instead of raw scores. Foremost, scaled scores offer the advantage of simplifying the reporting of results across content areas, grade levels, and subsequent years. Because the standard-setting process typically results in different cut scores across content areas on a raw score basis, it is useful to transform these raw cut scores to a scale that is more easily interpretable and consistent. For the NHEIAP, a score of 240 is the cut score between the **Novice** and **Basic** proficiency levels. This is true regardless of which content area, grade, or year one may be concerned with. If one were to use raw scores, the raw cut score between **Novice** and **Basic** may be, for example, 35 in mathematics at grade 6, but may be 33 in mathematics at grade 10. Using scaled scores greatly simplifies the task of understanding how a student performed.

As previously stated, student scores on the NHEIAP are reported in integer values from 200 to 300 with three scores representing cut scores on each assessment. Scaled scores of 200 to 239 represent **Novice**, 240-259 represent **Basic**, 260 to 279 represent **Proficient**, and 280-300 represent **Advanced**.

The scaled scores are obtained by a simple translation of ability estimates ($\hat{\theta}$ s) using the linear relationship between threshold values on the θ metric and their equivalent values on the scaled score metric. Students' ability estimates are based on their responses to test items. The threshold values are in Table 13-2. The linear equation

$$\text{Scaled Score} = m\hat{\theta} + b$$

where m is the slope and b is the intercept, determines the scaled scores.

TABLE 13-2: THRESHOLD VALUES FOR TRANSLATING ABILITY ESTIMATES TO SCALED SCORES

Grade	Content Area	Novice/Basic (240)	Basic/Proficient (260)	Proficient/Advanced (280)
3	ELA	-0.20	0.35	0.90
	Mathematics	-0.34	0.23	0.80
6	ELA	-0.20	0.40	1.00
	Mathematics	-0.20	0.40	1.00
	Science	0.05	0.53	1.01
	Social Studies	-0.10	0.40	0.90
10	ELA	-0.30	0.30	0.90
	Mathematics	-0.08	0.51	1.10
	Science	0.05	0.54	1.03
	Social Studies	0.14	0.67	1.20

Tables 13-3 through 13-5 show the scaled score distributions for English Language Arts, Mathematics, Science and Social Studies.

TABLE 13-3: SCALED SCORE DISTRIBUTIONS - GRADE 3

Score	ELA		Mathematics	
	N	%	N	%
200	271	1.72	69	0.44
202	55	0.35		
204	74	0.47	39	0.25
206	87	0.55	42	0.27
208	95	0.60		
210	107	0.68	47	0.30
212			71	0.45
214	104	0.66		
216	129	0.82	107	0.68
218	138	0.88	131	0.83
220	182	1.16	148	0.94
222	173	1.10	153	0.97
224	162	1.03	181	1.15
226	394	2.51	210	1.33
228	225	1.43		
230	256	1.63	255	1.62
232	285	1.81	257	1.63
234	304	1.93	279	1.77
236	363	2.31	337	2.14
238	363	2.31	736	4.68
240	405	2.58	422	2.68
242	392	2.49	486	3.09
244	495	3.15	523	3.32
246	517	3.29	544	3.46
248	537	3.41	550	3.50
250	594	3.78	610	3.88
252	544	3.46	601	3.82
254	674	4.29	685	4.35
256	677	4.30	629	4.00
258	629	4.00	1413	8.98
260	668	4.25		
262	681	4.33	734	4.67
264	714	4.54	725	4.61
266	658	4.18	706	4.49
268				
270	634	4.03	664	4.22
272	562	3.57		
274	486	3.09	649	4.13
276	462	2.94	619	3.93
278	406	2.58	485	3.08
280				
282	320	2.03		
284				
286	281	1.79	447	2.84
288	182	1.16	398	2.53
290				
292	145	0.92	295	1.88
294	110	0.70	231	1.47
296				
298	77	0.49	130	0.83
300	111	0.71	123	0.78

Note: Scaled scores that correspond to the shaded cells were unassigned.

TABLE 13-4: SCALED SCORE DISTRIBUTIONS - GRADE 6

Score	ELA		Mathematics		Science		Social Studies	
	N	%	N	%	N	%	N	%
200	161	0.93	153	0.88	615	3.54	261	1.50
202	32	0.18			148	0.85	96	0.55
204	54	0.31	50	0.29	191	1.10		
206	65	0.37	72	0.41	231	1.33	119	0.69
208	81	0.47						
210	95	0.55	114	0.66	285	1.64	167	0.96
212	119	0.68	117	0.67	255	1.47	216	1.24
214	115	0.66			345	1.99		
216	146	0.84	169	0.97			242	1.39
218	371	2.14	201	1.16	382	2.20	290	1.67
220	207	1.19	219	1.26	500	2.88		
222	211	1.21	230	1.32	527	3.03	385	2.22
224	266	1.53	291	1.67			444	2.56
226	269	1.55	302	1.74	568	3.27	526	3.03
228	290	1.67	339	1.95	664	3.82	615	3.54
230	694	3.99	401	2.31				
232	392	2.26	346	1.99	731	4.21	688	3.96
234	413	2.38	442	2.54	831	4.78	764	4.40
236	458	2.64	466	2.68	913	5.26	781	4.50
238	990	5.70	904	5.20	961	5.53	887	5.11
240	532	3.06					850	4.89
242	587	3.38	1021	5.88	990	5.70		
244	652	3.75	534	3.07			959	5.52
246	625	3.60	564	3.25	1013	5.83	911	5.24
248	627	3.61	1194	6.87	1009	5.81	860	4.95
250	675	3.89	619	3.56			860	4.95
252	688	3.96	599	3.45	984	5.66	924	5.32
254	1387	7.98	1303	7.50	950	5.47	818	4.71
256	682	3.93	675	3.89				
258	659	3.79	1275	7.34	901	5.19	1444	8.31
260	639	3.68			779	4.48		
262			608	3.50			594	3.42
264	624	3.59	635	3.65	687	3.95	597	3.44
266	577	3.32	600	3.45				
268	551	3.17	557	3.21	511	2.94	469	2.70
270	486	2.80	493	2.84			367	2.11
272	394	2.27			431	2.48	345	1.99
274	362	2.08	469	2.70				
276			418	2.41	316	1.82	267	1.54
278	311	1.79			236	1.36	195	1.12
280	253	1.46	355	2.04				
282	171	0.98					138	0.79
284					183	1.05		
286	133	0.77	244	1.40			115	0.66
288					116	0.67	73	0.42
290	119	0.68	199	1.15				
292	97	0.56					42	0.24
294					64	0.37		
296	42	0.24					29	0.17
298			120	0.69	27	0.16		
300	71	0.41	76	0.44	27	0.16	33	0.19

Note: Scaled scores that correspond to the shaded cells were unassigned.

TABLE 13-5: SCALED SCORE DISTRIBUTIONS - GRADE 10

Score	ELA		Mathematics		Science		Social Studies	
	N	%	N	%	N	%	N	%
200	483	3.14	515	3.34	1113	7.22	1224	7.94
202	42	0.27						
204	60	0.39	94	0.61	175	1.14	202	1.31
206	53	0.34			205	1.33	202	1.31
208	55	0.36	152	0.99			249	1.62
210	62	0.40			216	1.40		
212	70	0.45	230	1.49	281	1.82	260	1.69
214	73	0.47			327	2.12	245	1.59
216	171	1.11	313	2.03			287	1.86
218	104	0.68	357	2.32	357	2.32	359	2.33
220	96	0.62			352	2.28	352	2.28
222	212	1.38	409	2.65	372	2.41		
224	132	0.86	464	3.01			360	2.34
226	123	0.80	509	3.30	386	2.51	451	2.93
228	329	2.14	509	3.30	524	3.40	454	2.95
230	183	1.19			506	3.28	472	3.06
232	193	1.25	528	3.43	555	3.60	509	3.30
234	454	2.95	520	3.37	662	4.30	558	3.62
236	254	1.65	478	3.10			584	3.79
238	594	3.86	1013	6.57	1309	8.50	627	4.07
240	347	2.25	480	3.12			614	3.99
242	345	2.24	475	3.08	651	4.23	642	4.17
244	384	2.49	493	3.20	720	4.67	651	4.23
246	867	5.63	461	2.99				
248	494	3.21	435	2.82	683	4.43	648	4.21
250	526	3.42	890	5.78	697	4.52	638	4.14
252	537	3.49	420	2.73	707	4.59	652	4.23
254	587	3.81	398	2.58			591	3.84
256	1229	7.98	405	2.63	700	4.54	576	3.74
258	623	4.05	808	5.24	623	4.04	569	3.69
260	659	4.28	344	2.23	625	4.06		
262	616	4.00	353	2.29			499	3.24
264	594	3.86	371	2.41	547	3.55	424	2.75
266	593	3.85	312	2.02	522	3.39	361	2.34
268	584	3.79	337	2.19				
270	536	3.48	284	1.84	431	2.80	307	1.99
272			284	1.84	348	2.26	226	1.47
274	479	3.11	273	1.77				
276	406	2.64	237	1.54	255	1.66	219	1.42
278	331	2.15	218	1.41	209	1.36	148	0.96
280	267	1.73						
282			222	1.44			89	0.58
284	209	1.36	183	1.19	135	0.88		
286	168	1.09			83	0.54	74	0.48
288			189	1.23				
290	118	0.77	137	0.89			38	0.25
292					61	0.40		
294	76	0.49	96	0.62			24	0.16
296					37	0.24		
298	42	0.27	83	0.54				
300	34	0.22	129	0.84	33	0.21	21	0.14

Note: Scaled scores that correspond to the shaded cells were unassigned.

CHAPTER 14—REPORTING

The NHEIAP tests were designed to measure student performance against the curriculum standards described in the *Curriculum Frameworks*. Consistent with this purpose, primary results on the NHEIAP tests are reported in terms of proficiency levels that describe student performance in relation to these established state standards. There are four proficiency levels: **Advanced**, **Proficient**, **Basic**, and **Novice**. Students receive a separate proficiency-level classification (based on total scaled score) in each content area in which they complete a test. There is no overall classification of student performance across content areas. School- and district-level results are reported as the number and percentage of students attaining each proficiency level at each grade level tested. Disaggregations of students are also reported at the school, district, and state levels.

In addition to proficiency levels, the NHEIAP results are also reported as scaled scores. Scaled scores in each content area range from 200 to 300. The major purpose of including scaled scores in the NHEIAP reports is to enhance the level of feedback provided to students, parents, and teachers. Each of the four proficiency levels encompasses a **range** of student performance. A student whose test performance is just above **Novice** and a student whose level of performance is slightly below **Proficient** are both classified as **Basic**. However, scaled-score results are more precise since they pinpoint a student's performance (score) on the continuum of scores within proficiency levels. The additional information provided by scaled scores is critical in forming the most accurate impression of performance possible.

To provide as much information as possible about student performance for as broad an audience as possible, four different levels of the NHEIAP reports were developed: student, school, district, and state. The Decision Rules for reporting NHEIAP results are included in Appendix A.

Table 14-1 lists the primary NHEIAP reports.

TABLE 14-1: PRIMARY NHEIAP REPORTS

1	Parent Letter/Individual Student Report
2	Student Label
3	Common Item School Report
4	School Report
5	District Report
6	State Report

PARENT LETTER/INDIVIDUAL STUDENT REPORT

Student reports show the scaled score for each content area, as well as the student's proficiency level. For the writing prompt, the scores awarded by the two readers are provided, along with some text indicating student strengths and/or needs. At the bottom of the report, the student's proficiency level is indicated alongside a table that shows the percentages of students at the school, district and state who scored at each proficiency level. The reverse side of the report provides some general information about the assessment, including information about the proficiency levels and the standard error of measurement.

STUDENT LABEL

To aid schools in keeping track of student scores, schools were supplied with student score information on individual adhesive labels that staff could affix to files, if desired.

COMMON ITEM SCHOOL REPORT

The common item school report provides a roster of all the students in the school and indicates their performance on the common items in the assessment. One report is provided for each content area. Information is provided about each common item, including the item type, the correct response (for multiple-choice items), and the total possible points. For each student, each multiple-choice item is marked either with a plus sign (+), indicating that the student chose the correct response, or a letter (A-D), indicating which incorrect response the student chose. For constructed response items, the number of points the student attained is shown. At the end of the item responses, each student's writing score, writing annotations (using two-letter codes), scaled score, and proficiency level are indicated. At the bottom of the report, the average percent correct on each item is shown for the school, district, and state.

SCHOOL/DISTRICT/STATE REPORT

The school, district and state reports consist of a summary of students tested as well as a report for each content area. The descriptions below apply to the school reports; the other reports are the same except that school information is not included on either of the other reports and district information is not included on the state report.

The summary of student participation gives the number and percentage of students who participated at the school, district, and state levels. The numbers are provided separately for students tested, students who were not tested but were included in the report, and students who were not included in the report.

For each content area, there is a two-page score summary report. The first page provides a definition of each of the proficiency levels along with a table showing the number and percentage of students at the school, district and state who scored at each level for each of the past three years. The table also shows the cumulative average over the three years. At the bottom of the first page are results by subtopic areas. For each area, the total possible number of points and the average percent of points attained at the school, district and state levels are shown. Also, the mean scaled scores for the school, district, and state for each of the three previous years as well as the cumulative average are provided.

The second page of the content area report shows results broken down by a number of different reporting categories (gender, educational disability, Title 1 program, socioeconomic status, English language proficiency status, ethnicity, migrant, and, at grade 3, reading recovery) as well as by responses to the questionnaire items. This information is provided for the school and the state on the school-level report, for the district and the state on the district-level report, and for the state only on the state-level report.

For each reporting category, the following information is given:

- the number and percent of students in that category
- the mean scaled score for the group
- the percentage in the response category who are “basic or above” and “proficient or above”.

For each questionnaire item response category, only the percentage of students in each category is reported at the school or district level. At the state level, the report shows the percentage of students in each category, the mean scaled score, and the percentage in the category who are “basic or above” and “proficient or above”.

A similar version of these reports is produced for schools and/or districts where fewer than 11 students were assigned proficiency levels. The Department of Education has determined that summative data based on fewer than 11 students could jeopardize confidentiality of student level results. Therefore, the

number and percent of students at each proficiency level is based on three-year cumulative data, instead of a single year's results.

DECISION RULES

To ensure that reported results for NHEIAP 2001–2002 are accurate relative to collected data and other pertinent information, a document that delineates analysis and reporting rules was created. These decision rules were observed in the analyses of NHEIAP test data and in reporting the assessment results. Moreover, these rules are the main reference for quality assurance checks.

An excerpt of the decision rules document used for reporting results of the NHEIAP May 2002 administration is in Appendix D. The first set of rules pertains to general issues in reporting scores. Each issue is described and pertinent variables are identified. The actual rules applied are described by the way they impact analyses and aggregations and their specific impact on each of the reports. The general rules are further grouped into issues pertaining to test items, school type, student non-participation, and number of students for aggregations. The second set of rules pertains to reporting student participation. It describes which students were counted and reported for each subgroup in the student participation report.

QUALITY ASSURANCE

This section describes the different stages of the quality assurance program implemented for the NHEIAP 2001–2002. The goals of the program are to ensure that

- the accuracy of all data reported through independent verification of the calculated data.
- all data reported is placed in the correct position on the report shell.
- the report shell is grammatically and aesthetically correct.

Stage 1

The NHEIAP Measurement, Design and Analysis (MDA) Quality Assurance Program commences once the following occurs:

1. The MDA Data Analyst accepts the raw test data results from Data Processing.
2. The report shells have been updated, quality reviewed, and approved by the DOE.
3. The Decision Rules, including calculation methods, have been documented and approved by the DOE.

Stage 2

Reference information is collected prior to and during the review process, including:

1. SAU, district, and school names, census, and codes,
2. list of children who are reporting exceptions,
3. list of home-schooled children,
4. proficiency level scaled score ranges,
5. answer keys, item types, and subreporting categories for content diagnostic display reporting,
6. raw score to scaled score conversion tables, and
7. DOE approved state results.

Stage 3

Review the decision rules for any unique reporting situations and, using the SAU, district, and school list, select a sample of districts and schools for the quality assurance review, being sure to include districts and/or schools with unique reporting requirements.

Stage 4

Score the test for each student. The following steps are completed for each content area.

1. Copy the file from Data Processing with the test results for each student to an excel spreadsheet.
2. Using the item information, score the common items for each student, that is, replace all correct answers with a "1".
3. Compute the raw score for each student by totaling the "1's" for each student.
4. Using the conversion table and the raw score, determine the scaled score and performance level for each student.
5. Using the Decision Rules, remove to a separate spreadsheet all students exempted from reporting. Compare to the lists of exempted students and investigate any differences.
 - a. Categorize whether or not the students are included in the aggregated reporting and whether they are considered "not tested" or "Other" on the Common Item report and why.

Stage 5

Compute and verify the state average percent correct for each common item.

Stage 6

Compute and verify the state average proficiency level and scaled score.

Stage 7

Compute and verify state counts on the Summary of Students Tested page.

Stage 8

Compute and verify the state proficiency level percentages.

Stage 9

Compute state averages and percentages for Reporting Categories and Questionnaire items.

Stage 10

Compare the computed state numbers to the state report.

Stage 11

Using the list of sample districts previously selected, copy the students for each sample district to a separate worksheet. Compute the same averages and percents for the school and district level as described above. Be sure to compute data for in and out of district reporting.

Stage 12

For each sample school, print the previous year's school report.

Stage 13

Print all the common item reports, school reports, district reports, labels, and a sample of student reports for the sample districts, including the in and “out-of-district” reports. Using the above computed data, review the report output. Using the reports from the prior year, check all history on the school and district reports.

1. Advise the Report Programmers or the Data Analyst if there is a problem.
2. Document the problem and follow up and verify that the correction was made.

Stage 14

When all corrections have been made and QA staff is satisfied that the reports are correct, move a copy of the report files to the appropriate folder in FINAL REPORTS and advise that the files may be sent for printing.

SECTION IV—REFERENCES

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SECTION V—APPENDICES

APPENDIX A
DECISION RULES

**New Hampshire Educational Improvement and Assessment Program
May 2002 Decision Rules**

Issue	Rule #	Description	Pertinent Variable	Impact on Analyses/Aggregation	Impact on Parent Letter	Impact on School/District Reports	Impact on Common Item Report
ITEMS							
ELA	1	Common includes multiple-choice, open-response and 1 writing prompt	Form = 0 in IREF	Used to compute proficiency levels and scaled scores for individual students. Also used in computing subscores for school, district, and state reports. Included in the criterion score for the item analyses. Those items identified as equating items are used to equate scores from year to year. A blank writing prompt score is replaced with a 0 for sparse data matrix.	Used in computing proficiency levels, scaled scores, and standard errors.	Used in computing subscores.	Item-level scores for each student, and item difficulty summaries for school, district, and state are reported. Each multiple-choice item is reported as a "+" if correct or the response letter (A, B, C, or D) if incorrect. Blanks are reported as blanks and a multiple response is reported as "**". For open-response items, the number of points obtained is reported unless the student did not respond (reported as "B"). Writing prompt is reported as blank, or between 2 and 12, the sum of two scores. Writing annotations provided for each student and aggregated at the school level.
	2	Matrix includes multiple-choice and open-response items.	Form ≠ 0 in IREF	Used to compute subscores for school, district, and state reports. Included in the criterion score for item analyses, except for common items. Those items identified as equating items are used to equate scores from year to year.	None	Used in computing subscores.	None.

Issue	Rule #	Description	Pertinent Variable	Impact on Analyses/Aggregation	Impact on Parent Letter	Impact on School/District Reports	Impact on Common Item Report
	3	Embedded FT includes multiple-choice and open-response items.	FT = "1" in IREF	Not used in reporting NH results. Included in the criterion score for item analyses for FT items only.	None	Not included in reporting.	None.
	4	Writing Annotations	For grade 3, TDX1 through MK1 and TDX2 through MK2; for grades 6 and 10, TDX1 through HJ1 and TDX2 through HJ2.	Aggregated on the common item report at the school level only.	For students with writing prompt scores, include at least 2 and not more than 4 unique annotations.	None	For students with writing prompt scores, include at least 2 and not more than 4 annotations per student. Repeats are possible. For the school-level aggregation summary, if an annotation is repeated for a single student, count it twice.
Mathematics Items	5	Common	Form = 0 in IREF	Used to compute proficiency levels and scaled scores for individual students. Also used in computing subscores for school, district, and state reports. Included in the criterion score for the item analyses. Those items identified as equating items are used to equate scores from year to year.	Used in computing proficiency levels, scaled scores, and standard errors.	Used in computing subscores.	Item-level scores for each student, and item difficulty summaries for school, district, and state are reported. Each multiple-choice item is reported as a "+" if correct or the response letter (A, B, C, or D) if incorrect. Blanks are reported as blanks and a multiple response is reported as "**". For open-response items, the number of points obtained is reported unless the student did not respond (reported as "B").

Issue	Rule #	Description	Pertinent Variable	Impact on Analyses/Aggregation	Impact on Parent Letter	Impact on School/District Reports	Impact on Common Item Report
	6	Matrix	Form ≠ 0 in IREF	Used to compute subscores for school, district, and state reports. Included in the criterion score for item analyses, except for common items. Those items identified as equating items are used to equate scores from year to year.	None	Used in computing subscores.	None.
	7	Embedded FT	FT = "1" in IREF	Not used in reporting NH results. Included in the criterion score for item analyses for FT items only.	None	Not included in reporting.	None.
Science Items	8	Common	Form = 0 in IREF	Used to compute proficiency levels and scaled scores for individual students. Also used in computing subscores for school, district, and state reports. Included in the criterion score for the item analyses. Those items identified as equating items are used to equate scores from year to year.	Used in computing proficiency levels, scaled scores, and standard errors.	Used in computing subscores.	Item-level scores for each student, and item difficulty summaries for school, district, and state are reported. Each multiple-choice item is reported as a "+" if correct or the response letter (A, B, C, or D) if incorrect. Blanks are reported as blanks and a multiple response is reported as "**". For open-response items, the number of points obtained is reported unless the student did not respond (reported as "B").

Issue	Rule #	Description	Pertinent Variable	Impact on Analyses/Aggregation	Impact on Parent Letter	Impact on School/District Reports	Impact on Common Item Report
	9	Matrix	Form ≠ 0 in IREF	Used to compute subscores for school, district, and state reports. Included in the criterion score for item analyses, except for common items. Those items identified as equating items are used to equate scores from year to year.	None	Used in computing subscores.	None.
	10	Embedded FT	FT = "1" in IREF	Not used in reporting NH results. Included in the criterion score for item analyses for FT items only.	None	Not included in reporting.	None.
Social Studies Items	11	Common	Form = 0 in IREF	Used to compute proficiency levels and scaled scores for individual students. Also used in computing subscores for school, district, and state reports. Included in the criterion score for the item analyses. Those items identified as equating items are used to equate scores from year to year.	Used in computing proficiency levels, scaled scores, and standard errors.	Used in computing subscores.	Item-level scores for each student, and item difficulty summaries for school, district, and state are reported. Each multiple-choice item is reported as a "+" if correct or the response letter (A, B, C, or D) if incorrect. Blanks are reported as blanks and a multiple response is reported as "**". For open-response items, the number of points obtained is reported unless the student did not respond (reported as "B").

Issue	Rule #	Description	Pertinent Variable	Impact on Analyses/Aggregation	Impact on Parent Letter	Impact on School/District Reports	Impact on Common Item Report
	12	Matrix	Form ≠ 0 in IREF	Used to compute subscores for school, district, and state reports. Included in the criterion score for item analyses, except for common items. Those items identified as equating items are used to equate scores from year to year.	None	Used in computing subscores.	None.
	13	Embedded FT	FT = "1" in IREF	Not used in reporting NH results. Included in the criterion score for item analyses for FT items only.	None	Not included in reporting.	None.
SCHOOL TYPE							
Public School	14	All public schools are not private schools and not out-of-district private providers.		Students from public schools are included in all state aggregations pertaining to the respective districts to which they belong unless otherwise dictated in this document.	Students in these schools will receive all information called for in the report unless otherwise dictated by other rules in this document.	Schools receive school reports unless otherwise dictated by other rules in this document. Data from these schools are used to compute district-level data.	All pieces of information are provided.
Private Schools	15	Private schools elect to participate.	SAU code = 9X and district code = 9XX	Students from these schools will not be included in any district or state level aggregation.	All district-level information will be blank (i.e. district proficiency levels and district names).	Schools receive school reports unless otherwise dictated by other rules in this document.	Fields showing district-level information will be blank.

Issue	Rule #	Description	Pertinent Variable	Impact on Analyses/Aggregation	Impact on Parent Letter	Impact on School/District Reports	Impact on Common Item Report
Out-of-District/Private Providers	16	Participation required of NH SPED students.	School code = 9XXXX	Students from these schools are included in all state aggregations and school-level aggregation. Not included in any district aggregations for May 2002 results.	All school and district-level data will be blank. For State level data is based on OOD students only.	None regardless of size.	No aggregated information.
Home-schoolers	17	Home-schooled students who participated in NHEIAP.	Home = "1"	Home-schooled students are not included in any class, school, district, or state-level aggregations.	Students will receive proficiency levels, scaled scores, writing scores and annotations. School and district data for testing school are included. State level data provided. No home-schooled status indicated on letter.	Students will not be included in any public school, district, or state reports.	Students in each school will be issued a separate report that includes "Home-Schooled" heading. School and district summaries for the "testing" school are included. State summaries are included. Annotations are not aggregated.
STUDENT CATEGORY BY CONTENT AREA							

Issue	Rule #	Description	Pertinent Variable	Impact on Analyses/Aggregation	Impact on Parent Letter	Impact on School/District Reports	Impact on Common Item Report
Students Not Included	18	504 Plan	ALT = blank and NP&sub.504=1	All scaled scores, PLs and validity index (VI) are blank	Insert Footnote C or D. See Footnote information below.	Included in Denominator on page 2 and in Proficiency Levels as NT. Not Included in Denominator in content diagnostic display, mean-scaled score summary, Questionnaire items, and reporting categories.	Listed as NT. All student responses, scaled score, PL, and VI are blank. Not Included in denominator for all aggregations.
	19	LEP with test	ALT=blank and NP & sub LEP=1 and LEPTTEST=1, 2,3,4,5,or 6	All scaled scores, PLs and VI are blank	Insert Footnote C or D. See Footnote information below.	Included in Denominator on page 2 and in Proficiency Levels as NT. Not Included in Denominator in content diagnostic display, mean-scaled score summary, Questionnaire items, and reporting categories.	Listed as NT. All student responses, scaled score, PL, and VI are blank. Not Included in denominator for all aggregations.
Other Students Included	20	Absent	ALT=blank and NP & sub ABS=1 and student is not Not Included	Student scaled scores, PL, and VI are blank. Aggregate scaled score = 200, PL = Novice	Insert Footnote C or D. See Footnote information below.	Included in the denominator for all aggregations unless otherwise dictated in this document.	Listed as O. All student responses are reported. Student scaled score, PL, and VI are blank. Included in the denominator for all aggregations unless otherwise dictated in this document

Issue	Rule #	Description	Pertinent Variable	Impact on Analyses/Aggregation	Impact on Parent Letter	Impact on School/District Reports	Impact on Common Item Report
	21	Invalid Non-Standard accommodation	ALT=blank and &sub.ACCE1=1 and (DOECODE=blank or (DOECODE not blank and &sub.APPE1=blank)	Student scaled scores, PL and VI earned in psychometrics. Aggregate scaled score=200, PL= Novice	Include scores earned. If DOECODE is blank, then superscript note ² , else superscript note ¹ .	Included in the Denominator for all aggregations unless otherwise dictated in this document	If DOECODE is blank, then superscript note ² ; otherwise superscript note ¹ . Listed as O Included in the denominator for all aggregations unless otherwise dictated in this document
	22	LEP no test	ALT=blank and NP & sub LEP=1 and LEPTEST=blank	Student scaled scores, PL, and VI earned in psychometrics are blank. Aggregate scaled score=200, PL= Novice	Insert Footnote C or D. See Footnote information below.	Included in the denominator for all aggregations unless otherwise dictated in this document	Listed as O. Included in the denominator for all aggregations unless otherwise dictated in this document.
Tested Students Included	23	Alt	ALT=1	See Alt Decision Rules Aggregate scaled score= student scaled score Aggregate PL= student PL	Not included; receives Alternate Assessment Student Report.	Not Included in the denominator except for Reporting Categories and specified sections of the State Report.	Not Included
	24	Operational	Not Alt, Not Other, and Not Not Included	Student scaled scores, PL and VI earned in psychometrics. Aggregate scaled score= student scaled score Aggregate PL= student PL	No impact.	Included in the Denominator for all aggregations unless otherwise dictated in this document	Listed as T. All student responses, scaled scores, PL, and VI are reported. Included in the denominator for all aggregations unless otherwise dictated in this document
NUMBER OF STUDENTS BY CONTENT AREA							

Issue	Rule #	Description	Pertinent Variable	Impact on Analyses/Aggregation	Impact on Parent Letter	Impact on School/District Reports	Impact on Common Item Report
No. of Included Students	25	School (district) has at least 11 included students for the current year	NA	No Impact	No Impact	No Impact	No Impact
	26	School (district) has fewer than 11 total included students for three years	NA	No Impact	No school (district) aggregate data reported	No data provided for that content area in the school (district) report produced. School (district) and enrollment only listed on roster pages.	No Impact
	27	School (district) has at least 11 total included students for three years and has fewer than 11 included students for the current year	NA	No Impact	No school (district) aggregate data reported	School (district) report produced. Sections reported are Page 2 and Proficiency Levels-Cumulative Sum instead of average Mean Scaled Score. N & % for RC; % for QI.	No Impact
No. of Students in a Reporting Category (n)	28	General and Alt. included students.	NA	NA	No impact	If n<11, provide n and %, but no mean-scaled score, %B+, nor %P+.	No impact
No. of Students in a Questionnaire Response Category (n)	29	Includes students who received a PL.	NA	NA	No impact	If n<5, provide n and %, but no mean-scaled score, %B+, nor %P+.	No impact

NOTES:

- For grade 10 schools that have “town” fields completed, town level difficulty summaries are also computed.
- Footnotes for Parent Letters:
Footnote A: As specified in the student’s IEP, nonstandard procedure(s) were used to administer this portion of the test. The use of such procedures did not impact individual student results.

Footnote B: Nonstandard procedures were used to administer this portion of the test. The use of such procedures did not impact individual student results.

Use Footnote C if student tested in 1-3 content areas in grades 6 and 10 or one content area in grade 3. Footnote C: Proficiency levels and scores are not shown because this student did not participate in all or part of this test.

Use Footnote D if student did **not test in all** content areas. Footnote D: Proficiency levels and scores are not shown because this student did not participate in all portions of this test.

- **Superscript Notes for Common Item Reports:**

Note 1: ¹As specified in the student's IEP, nonstandard procedure(s) were used to administer this portion of the test. The use of such procedures did not impact individual student results.

Note 2: ¹Nonstandard procedures were used to administer this portion of the test. The use of such procedures did not impact individual student results.

APPENDIX B
IRT PARAMETER FILES

0.00000	0.00000						
0.00000	0.00000						
134415	20026	1.00000	0.00000	-1.16777	0.01500	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
134417	20027	1.00000	0.00000	-1.61940	0.01930	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50382	20028	1.00000	0.00000	0.29728	0.01037	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50379	20029	1.00000	0.00000	0.45846	0.01050	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
134408	20030	1.00000	0.00000	-0.08422	0.01054	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
47485	20031	1.00000	0.00000	-0.51658	0.01155	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50381	20032	1.00000	0.00000	-0.54677	0.01165	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141552	20033	1.00000	0.00000	0.16992	0.01035	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
136485	20034	1.00000	0.00000	-0.13784	0.01062	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
134407	20035	1.00000	0.00000	-0.30614	0.01094	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63567	20036	1.00000	0.00000	-1.28716	0.05369	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63568	20037	1.00000	0.00000	-0.71948	0.04226	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63570	20038	1.00000	0.00000	-0.57179	0.04037	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63571	20039	1.00000	0.00000	-0.13186	0.03691	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79973	20040	1.00000	0.00000	-0.77521	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79975	20041	1.00000	0.00000	-0.39819	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63401	20042	1.00000	0.00000	0.11486	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79976	20043	1.00000	0.00000	-0.34097	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63353	20044	1.00000	0.00000	-0.88755	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63357	20045	1.00000	0.00000	-0.75487	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63358	20046	1.00000	0.00000	-0.97269	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63361	20047	1.00000	0.00000	-1.31327	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
99514	20048	1.00000	0.00000	-1.25353	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63330	20049	1.00000	0.00000	-1.51812	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
99515	20050	1.00000	0.00000	-1.18962	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63344	20051	1.00000	0.00000	-0.46510	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
34024	20052	1.00000	0.00000	-0.63576	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
34035	20053	1.00000	0.00000	-0.09481	0.00000	0.00000	0.00000
0.00000	0.00000						

0.00000	0.00000						
34032	20054	1.00000	0.00000	-0.68596	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
34027	20055	1.00000	0.00000	-0.52995	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63551	20056	1.00000	0.00000	-1.14643	0.05167	0.00000	0.00000
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0.00000	0.00000						
63554	20057	1.00000	0.00000	-0.43269	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63558	20058	1.00000	0.00000	-0.02267	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63561	20059	1.00000	0.00000	-0.05028	0.03640	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63503	20060	1.00000	0.00000	-0.03354	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63507	20061	1.00000	0.00000	-0.10889	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79729	20062	1.00000	0.00000	0.26929	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79754	20063	1.00000	0.00000	0.50620	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63511	20064	1.00000	0.00000	-0.11462	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63516	20065	1.00000	0.00000	-0.16898	0.03663	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79735	20066	1.00000	0.00000	-0.20314	0.00000	0.00000	0.00000
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0.00000	0.00000						
79746	20067	1.00000	0.00000	-0.69898	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50399	20068	1.00000	0.00000	-0.28728	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
99693	20069	1.00000	0.00000	-0.10627	0.00000	0.00000	0.00000
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0.00000	0.00000						
47071	20070	1.00000	0.00000	-0.42039	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50400	20071	1.00000	0.00000	0.23924	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50395	20072	1.00000	0.00000	0.09847	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50394	20073	1.00000	0.00000	-0.58232	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80020	20074	1.00000	0.00000	0.66517	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
47447	20075	1.00000	0.00000	-0.31093	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63481	20076	1.00000	0.00000	-0.26513	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79598	20077	1.00000	0.00000	-0.20585	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63485	20078	1.00000	0.00000	-0.41082	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63486	20079	1.00000	0.00000	-0.45864	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141742	20080	1.00000	0.00000	-0.58884	0.04106	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141744	20081	1.00000	0.00000	0.15965	0.03611	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141745	20082	1.00000	0.00000	-0.41721	0.03911	0.00000	0.00000

0.00000	0.00000						
0.00000	0.00000						
134409	20083	1.00000	0.00000	-0.58026	0.04095	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50391	50084	1.00000	0.00000	-0.06648	0.00666	0.00000	0.00000
0.00000	1.73801	0.58911	-0.71045	-1.61668			
0.00000	0.03391	0.01394	0.01203	0.02189			
141783	50085	1.00000	0.00000	0.12996	0.00707	0.00000	0.00000
0.00000	2.06629	0.50000	-1.00785	-1.55844			
0.00000	0.03275	0.01203	0.01425	0.02946			
141548	50086	1.00000	0.00000	0.16498	0.00674	0.00000	0.00000
0.00000	1.78681	0.57072	-0.70837	-1.64916			
0.00000	0.02772	0.01258	0.01293	0.02819			
50398	50087	1.00000	0.00000	0.36945	0.00649	0.00000	0.00000
0.00000	1.78068	0.37041	-0.54254	-1.60855			
0.00000	0.02202	0.01176	0.01395	0.03291			
50387	50088	1.00000	0.00000	0.25565	0.00540	0.00000	0.00000
0.00000	1.13750	0.07467	-0.16211	-1.05006			
0.00000	0.01726	0.01328	0.01388	0.01944			
63572	50089	1.00000	0.00000	0.19042	0.02234	0.00000	0.00000
0.00000	1.58047	0.53282	-0.61735	-1.49594			
0.00000	0.07837	0.04357	0.04594	0.08984			
79981	50090	1.00000	0.00000	-0.16119	0.00000	0.00000	0.00000
0.00000	1.89329	0.38086	-0.84396	-1.43019			
0.00000	0.00000	0.00000	0.00000	0.00000			
80071	50091	1.00000	0.00000	0.08847	0.00000	0.00000	0.00000
0.00000	1.67404	0.45928	-0.64101	-1.49231			
0.00000	0.00000	0.00000	0.00000	0.00000			
79594	50092	1.00000	0.00000	-0.02324	0.00000	0.00000	0.00000
0.00000	1.56461	0.45302	-0.67068	-1.34694			
0.00000	0.00000	0.00000	0.00000	0.00000			
40698	50093	1.00000	0.00000	0.58643	0.00000	0.00000	0.00000
0.00000	0.94284	0.99430	-0.60831	-1.32883			
0.00000	0.00000	0.00000	0.00000	0.00000			
80069	50094	1.00000	0.00000	-0.23801	0.01799	0.00000	0.00000
0.00000	1.41126	-0.30931	-0.38173	-0.72022			
0.00000	0.09240	0.05014	0.05086	0.04930			
79761	50095	1.00000	0.00000	0.15834	0.00000	0.00000	0.00000
0.00000	0.67063	0.52125	-0.11880	-1.07309			
0.00000	0.00000	0.00000	0.00000	0.00000			
79757	50096	1.00000	0.00000	0.07571	0.00000	0.00000	0.00000
0.00000	1.25140	-0.04127	-0.62634	-0.58378			
0.00000	0.00000	0.00000	0.00000	0.00000			
50401	50097	1.00000	0.00000	0.27505	0.00000	0.00000	0.00000
0.00000	1.21129	0.82491	-1.21331	-0.82289			
0.00000	0.00000	0.00000	0.00000	0.00000			
50396	50098	1.00000	0.00000	0.09255	0.02206	0.00000	0.00000
0.00000	1.72329	0.40765	-0.75409	-1.37686			
0.00000	0.09625	0.04360	0.04501	0.07842			
79604	50099	1.00000	0.00000	-0.00460	0.00000	0.00000	0.00000
0.00000	1.49466	0.18050	-0.59880	-1.07636			
0.00000	0.00000	0.00000	0.00000	0.00000			
134410	50100	1.00000	0.00000	-0.61268	0.01946	0.00000	0.00000
0.00000	1.02456	-0.04208	-0.50942	-0.47306			
0.00000	0.11568	0.06468	0.05519	0.04504			
125268	70101	1.00000	0.00000	-0.03115	0.00518	0.00000	0.00000
0.00000	3.13575	0.64636	0.00427	-0.62378	-1.20873	-1.95387	
0.00000	0.09217	0.01692	0.01333	0.01389	0.01954	0.04091	
125268	70102	1.00000	0.00000	-0.05026	0.00518	0.00000	0.00000
0.00000	3.09969	0.66561	0.00535	-0.65384	-1.20385	-1.91296	
0.00000	0.09232	0.01720	0.01329	0.01388	0.01942	0.03904	

0.00000	0.00000						
0.00000	0.00000						
46589	20026	1.00000	0.00000	-1.56537	0.01828	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65791	20027	1.00000	0.00000	-0.24444	0.01053	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79766	20028	1.00000	0.00000	-0.46715	0.01104	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
10516	20029	1.00000	0.00000	-0.35269	0.01075	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80001	20030	1.00000	0.00000	0.15496	0.01024	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65812	20031	1.00000	0.00000	-1.89045	0.02265	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141578	20032	1.00000	0.00000	0.04884	0.01024	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65821	20033	1.00000	0.00000	-0.94820	0.01310	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79937	20034	1.00000	0.00000	-0.02967	0.01028	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
10500	20035	1.00000	0.00000	-0.52304	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
41379	20036	1.00000	0.00000	-1.16774	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
41401	20037	1.00000	0.00000	-0.96072	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46620	20038	1.00000	0.00000	-0.23861	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65837	20039	1.00000	0.00000	-1.22206	0.05244	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
26142	20040	1.00000	0.00000	-0.25808	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46594	20041	1.00000	0.00000	-0.08277	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
99569	20042	1.00000	0.00000	-1.34994	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
26004	20043	1.00000	0.00000	-1.09446	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50120	20044	1.00000	0.00000	0.03011	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
124654	20045	1.00000	0.00000	-0.12852	0.03561	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
34265	20046	1.00000	0.00000	-0.75268	0.04142	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
41416	20047	1.00000	0.00000	0.10719	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79951	20048	1.00000	0.00000	-0.44036	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65798	20049	1.00000	0.00000	-0.63875	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79961	20050	1.00000	0.00000	-1.21011	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
124649	20051	1.00000	0.00000	0.14164	0.03509	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
79992	20052	1.00000	0.00000	-0.15149	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65811	20053	1.00000	0.00000	-0.78529	0.04245	0.00000	0.00000
0.00000	0.00000						

0.00000	0.00000						
34253	20054	1.00000	0.00000	-1.95559	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
41413	20055	1.00000	0.00000	-0.32632	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65786	20056	1.00000	0.00000	-0.94438	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80022	20057	1.00000	0.00000	-1.46636	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
74450	20058	1.00000	0.00000	-1.11126	0.00000	0.00000	0.00000
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0.00000	0.00000						
46827	20059	1.00000	0.00000	-1.09257	0.00000	0.00000	0.00000
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74449	20060	1.00000	0.00000	-0.18369	0.00000	0.00000	0.00000
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124666	20061	1.00000	0.00000	-0.45933	0.03802	0.00000	0.00000
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34243	20062	1.00000	0.00000	-0.70183	0.04098	0.00000	0.00000
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80073	20063	1.00000	0.00000	-0.83954	0.00000	0.00000	0.00000
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141670	20065	1.00000	0.00000	0.57808	0.03707	0.00000	0.00000
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50370	20066	1.00000	0.00000	-0.90819	0.00000	0.00000	0.00000
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124655	20067	1.00000	0.00000	-1.52710	0.06183	0.00000	0.00000
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26164	20069	1.00000	0.00000	0.36005	0.00000	0.00000	0.00000
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65801	20070	1.00000	0.00000	-1.07427	0.00000	0.00000	0.00000
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26186	50090	1.00000	0.00000	0.31025	0.00000	0.00000	0.00000
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TITLE NH0102 MAT 06

>COMMENT ;

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0.00000      0.00000
100803      20003      1.00000      0.00000      -0.95914      0.01256      0.00000      0.00000
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137281      20005      1.00000      0.00000      -0.83658      0.01192      0.00000      0.00000
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137279      20006      1.00000      0.00000      -0.61542      0.01100      0.00000      0.00000
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67155      20007      1.00000      0.00000      0.09450      0.00975      0.00000      0.00000
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TITLE NH0102 SCI 06

>COMMENT ;

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35644	20045	1.00000	0.00000	-0.52507	0.00000	0.00000	0.00000
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50210	20046	1.00000	0.00000	-0.41209	0.00000	0.00000	0.00000
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124734	20048	1.00000	0.00000	-1.49403	0.05650	0.00000	0.00000
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124733	20049	1.00000	0.00000	-1.18637	0.04753	0.00000	0.00000
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82829	20050	1.00000	0.00000	0.30230	0.00000	0.00000	0.00000
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100820	20051	1.00000	0.00000	-0.58487	0.00000	0.00000	0.00000
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63224	20052	1.00000	0.00000	0.42232	0.00000	0.00000	0.00000
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82842	20053	1.00000	0.00000	-1.70961	0.00000	0.00000	0.00000
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63217	20054	1.00000	0.00000	-0.60820	0.03778	0.00000	0.00000
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124728	20055	1.00000	0.00000	-0.01686	0.03379	0.00000	0.00000
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39776	20056	1.00000	0.00000	0.65855	0.00000	0.00000	0.00000
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49838	20057	1.00000	0.00000	-0.73488	0.00000	0.00000	0.00000
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34822	20058	1.00000	0.00000	-1.40927	0.00000	0.00000	0.00000
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8430	20059	1.00000	0.00000	-0.51645	0.00000	0.00000	0.00000
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124732	20060	1.00000	0.00000	-0.80161	0.04066	0.00000	0.00000
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74378	20061	1.00000	0.00000	-0.77382	0.04022	0.00000	0.00000
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63221	20062	1.00000	0.00000	-0.37991	0.00000	0.00000	0.00000
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34807	20063	1.00000	0.00000	-0.38989	0.00000	0.00000	0.00000
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82765	20064	1.00000	0.00000	0.12985	0.00000	0.00000	0.00000
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29246	20065	1.00000	0.00000	-1.13382	0.00000	0.00000	0.00000
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63216	20066	1.00000	0.00000	-0.47703	0.00000	0.00000	0.00000
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39775	20067	1.00000	0.00000	0.37387	0.00000	0.00000	0.00000
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87334	20068	1.00000	0.00000	-0.18372	0.00000	0.00000	0.00000
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86935	20069	1.00000	0.00000	-0.20834	0.00000	0.00000	0.00000
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74380	20070	1.00000	0.00000	-0.16196	0.00000	0.00000	0.00000
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63218	20071	1.00000	0.00000	-1.00067	0.00000	0.00000	0.00000
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74377	20072	1.00000	0.00000	0.05234	0.00000	0.00000	0.00000
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50214	20073	1.00000	0.00000	-0.52673	0.00000	0.00000	0.00000
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0.00000	0.00000						
86757	20074	1.00000	0.00000	0.67098	0.00000	0.00000	0.00000
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74379	20075	1.00000	0.00000	-1.14802	0.00000	0.00000	0.00000
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74382	20076	1.00000	0.00000	-1.68409	0.00000	0.00000	0.00000
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8404	20077	1.00000	0.00000	-1.18347	0.00000	0.00000	0.00000
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124730	20078	1.00000	0.00000	-0.72658	0.04012	0.00000	0.00000
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73309	50079	1.00000	0.00000	0.45393	0.00479	0.00000	0.00000
0.00000	0.65604	0.21174	-0.06519	-0.80259			
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932	50080	1.00000	0.00000	0.20864	0.00598	0.00000	0.00000
0.00000	1.48024	0.51018	-0.64307	-1.34735			
0.00000	0.02088	0.01140	0.01306	0.02656			
35648	50081	1.00000	0.00000	-0.53942	0.00669	0.00000	0.00000
0.00000	0.43484	0.40875	0.68286	-1.52646			
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50216	50082	1.00000	0.00000	0.97597	0.00594	0.00000	0.00000

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63273	50083	1.00000	0.00000	0.59038	0.00607	0.00000	0.00000
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0.00000	0.01459	0.01083	0.01792	0.03928			
74388	50084	1.00000	0.00000	0.34328	0.00000	0.00000	0.00000
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49841	50085	1.00000	0.00000	0.05604	0.00000	0.00000	0.00000
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47902	50086	1.00000	0.00000	0.49862	0.00000	0.00000	0.00000
0.00000	1.46976	0.72757	-0.74078	-1.45655			
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74387	50087	1.00000	0.00000	0.74694	0.00000	0.00000	0.00000
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124735	50088	1.00000	0.00000	0.67991	0.01865	0.00000	0.00000
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47903	50089	1.00000	0.00000	0.44242	0.00000	0.00000	0.00000
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74386	50090	1.00000	0.00000	0.80798	0.00000	0.00000	0.00000
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70653	50091	1.00000	0.00000	0.58630	0.00000	0.00000	0.00000
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74385	50092	1.00000	0.00000	0.16119	0.00000	0.00000	0.00000
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47901	50093	1.00000	0.00000	-0.42908	0.00000	0.00000	0.00000
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124736	50094	1.00000	0.00000	1.52726	0.02301	0.00000	0.00000
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100626	50095	1.00000	0.00000	0.53090	0.00000	0.00000	0.00000
0.00000	1.17899	0.63422	-0.55580	-1.25741			
0.00000	0.00000	0.00000	0.00000	0.00000			

TITLE NH0102 SOC 06

>COMMENT ;

SOC	95	95	7																		
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
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134575	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.31826	0.00991	0.00000	0.00000										
134578	20001	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.58075	0.01055	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
75595	20002	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.35609	0.00998	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134589	20003	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-1.37351	0.01507	0.00000	0.00000										
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134585	20004	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.30759	0.00989	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
140491	20005	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.09030	0.00961	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
50276	20006	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-1.33910	0.01477	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134590	20007	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.16552	0.00964	0.00000	0.00000										
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134591	20008	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.18814	0.00965	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134593	20009	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.01806	0.00961	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134644	20010	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.83717	0.01154	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134604	20011	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.49756	0.01011	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134600	20012	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.78943	0.01132	0.00000	0.00000										
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134608	20013	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.22501	0.00968	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134611	20014	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.07344	0.00963	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134632	20015	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-1.02051	0.01250	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134634	20016	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.41504	0.01010	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
8510	20017	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.78551	0.01131	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134637	20018	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.11900	0.00966	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134640	20019	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.30693	0.00989	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134594	20020	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.02272	0.00960	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134652	20021	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.26005	0.00982	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134642	20022	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.20512	0.00967	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														
134650	20023	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.51999	0.01037	0.00000	0.00000										
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000														

134646	20025	1.00000	0.00000	-0.01398	0.00961	0.00000	0.00000
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134654	20026	1.00000	0.00000	-0.52475	0.01038	0.00000	0.00000
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134656	20027	1.00000	0.00000	0.14028	0.00963	0.00000	0.00000
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75607	20028	1.00000	0.00000	0.21561	0.00968	0.00000	0.00000
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134657	20029	1.00000	0.00000	0.31465	0.00978	0.00000	0.00000
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134653	20030	1.00000	0.00000	-0.20040	0.00974	0.00000	0.00000
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69445	20031	1.00000	0.00000	-1.12516	0.00000	0.00000	0.00000
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46938	20032	1.00000	0.00000	-0.07448	0.00000	0.00000	0.00000
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100846	20033	1.00000	0.00000	-0.52783	0.00000	0.00000	0.00000
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35418	20034	1.00000	0.00000	-0.70865	0.00000	0.00000	0.00000
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100581	20035	1.00000	0.00000	-0.44331	0.00000	0.00000	0.00000
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46939	20036	1.00000	0.00000	-0.07933	0.00000	0.00000	0.00000
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87345	20037	1.00000	0.00000	-1.09922	0.00000	0.00000	0.00000
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75616	20038	1.00000	0.00000	-0.83582	0.00000	0.00000	0.00000
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0.00000	0.00000						
46920	20039	1.00000	0.00000	-0.96806	0.00000	0.00000	0.00000
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0.00000	0.00000						
75617	20040	1.00000	0.00000	-0.26336	0.00000	0.00000	0.00000
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140496	20041	1.00000	0.00000	-0.30676	0.03436	0.00000	0.00000
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75606	20042	1.00000	0.00000	-0.60599	0.00000	0.00000	0.00000
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26362	20043	1.00000	0.00000	-0.35830	0.00000	0.00000	0.00000
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50278	20044	1.00000	0.00000	-0.90099	0.00000	0.00000	0.00000
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75613	20045	1.00000	0.00000	0.08318	0.00000	0.00000	0.00000
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40580	20046	1.00000	0.00000	-0.88420	0.00000	0.00000	0.00000
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13221	20047	1.00000	0.00000	-0.50240	0.00000	0.00000	0.00000
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75609	20048	1.00000	0.00000	-0.39537	0.00000	0.00000	0.00000
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50281	20049	1.00000	0.00000	-0.73132	0.00000	0.00000	0.00000
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8464	20050	1.00000	0.00000	-0.67815	0.00000	0.00000	0.00000
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69482	20051	1.00000	0.00000	-0.74251	0.00000	0.00000	0.00000
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42084	20052	1.00000	0.00000	-0.35525	0.00000	0.00000	0.00000
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46971	20053	1.00000	0.00000	-0.27161	0.00000	0.00000	0.00000
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0.00000	0.00000						
69478	20054	1.00000	0.00000	-0.38538	0.00000	0.00000	0.00000
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69476	20055	1.00000	0.00000	-0.93013	0.00000	0.00000	0.00000
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75610	20056	1.00000	0.00000	-0.30655	0.00000	0.00000	0.00000
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100642	20057	1.00000	0.00000	-0.34709	0.00000	0.00000	0.00000
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54593	20058	1.00000	0.00000	-0.91525	0.00000	0.00000	0.00000
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46952	20059	1.00000	0.00000	-0.42581	0.00000	0.00000	0.00000
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0.00000	0.00000						
69280	20060	1.00000	0.00000	-0.09164	0.00000	0.00000	0.00000
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0.00000	0.00000						
75612	20061	1.00000	0.00000	-0.00832	0.00000	0.00000	0.00000
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0.00000	0.00000						
35369	20062	1.00000	0.00000	-1.02533	0.00000	0.00000	0.00000
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46946	20063	1.00000	0.00000	-1.47388	0.00000	0.00000	0.00000
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0.00000	0.00000						
69485	20064	1.00000	0.00000	-0.61407	0.00000	0.00000	0.00000
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26309	20065	1.00000	0.00000	-0.25544	0.00000	0.00000	0.00000
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29201	20066	1.00000	0.00000	-1.50869	0.00000	0.00000	0.00000
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50501	20067	1.00000	0.00000	0.06631	0.00000	0.00000	0.00000
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29202	20068	1.00000	0.00000	-1.02215	0.00000	0.00000	0.00000
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35402	20069	1.00000	0.00000	-1.59429	0.00000	0.00000	0.00000
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49894	20070	1.00000	0.00000	-0.70666	0.00000	0.00000	0.00000
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86954	20071	1.00000	0.00000	-1.10376	0.00000	0.00000	0.00000
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69484	20072	1.00000	0.00000	-0.46900	0.03558	0.00000	0.00000
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87137	20073	1.00000	0.00000	-0.22030	0.00000	0.00000	0.00000
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69470	20074	1.00000	0.00000	-0.84641	0.00000	0.00000	0.00000
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0.00000	0.00000						
134701	20075	1.00000	0.00000	-0.64457	0.03778	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75604	20076	1.00000	0.00000	0.12846	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75598	20077	1.00000	0.00000	-0.38794	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
100630	20078	1.00000	0.00000	-0.57235	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
134617	50079	1.00000	0.00000	0.58252	0.00510	0.00000	0.00000
0.00000	0.68648	0.60998	-0.31292	-0.98355			
0.00000	0.01267	0.01236	0.01565	0.03260			
134618	50080	1.00000	0.00000	0.87981	0.00555	0.00000	0.00000
0.00000	0.68497	0.42837	-0.30329	-0.81005			
0.00000	0.01117	0.01359	0.02183	0.04702			
134664	50081	1.00000	0.00000	0.13692	0.00581	0.00000	0.00000
0.00000	1.26572	0.63100	-0.51857	-1.37815			
0.00000	0.02056	0.01195	0.01225	0.02582			
134658	50082	1.00000	0.00000	0.40089	0.00531	0.00000	0.00000

0.00000	1.01778	0.38691	-0.45311	-0.95159			
0.00000	0.01391	0.01144	0.01503	0.02781			
134660	50083	1.00000	0.00000	0.54716	0.00596	0.00000	0.00000
0.00000	1.43877	0.08520	-0.51888	-1.00509			
0.00000	0.01372	0.01132	0.01852	0.03810			
40556	50084	1.00000	0.00000	0.42519	0.00000	0.00000	0.00000
0.00000	1.40023	0.64268	-0.66557	-1.37734			
0.00000	0.00000	0.00000	0.00000	0.00000			
8471	50085	1.00000	0.00000	0.29916	0.00000	0.00000	0.00000
0.00000	1.31936	0.84316	-0.60292	-1.55960			
0.00000	0.00000	0.00000	0.00000	0.00000			
49899	50086	1.00000	0.00000	0.32185	0.00000	0.00000	0.00000
0.00000	0.46463	0.81204	-0.49451	-0.78216			
0.00000	0.00000	0.00000	0.00000	0.00000			
75608	50087	1.00000	0.00000	0.14802	0.00000	0.00000	0.00000
0.00000	1.17605	0.64085	-0.50717	-1.30973			
0.00000	0.00000	0.00000	0.00000	0.00000			
75592	50088	1.00000	0.00000	0.51909	0.00000	0.00000	0.00000
0.00000	1.20710	0.02837	-0.43779	-0.79768			
0.00000	0.00000	0.00000	0.00000	0.00000			
86983	50089	1.00000	0.00000	0.32573	0.00000	0.00000	0.00000
0.00000	0.93949	0.63846	-0.29190	-1.28605			
0.00000	0.00000	0.00000	0.00000	0.00000			
75601	50090	1.00000	0.00000	0.58865	0.00000	0.00000	0.00000
0.00000	1.13256	0.36596	-0.30188	-1.19663			
0.00000	0.00000	0.00000	0.00000	0.00000			
29180	50091	1.00000	0.00000	0.22850	0.00000	0.00000	0.00000
0.00000	1.03571	0.56531	-0.41183	-1.18919			
0.00000	0.00000	0.00000	0.00000	0.00000			
75593	50092	1.00000	0.00000	0.33229	0.00000	0.00000	0.00000
0.00000	1.20967	0.49982	-0.48203	-1.22746			
0.00000	0.00000	0.00000	0.00000	0.00000			
49901	50093	1.00000	0.00000	0.39855	0.00000	0.00000	0.00000
0.00000	1.06680	0.29180	-0.41578	-0.94282			
0.00000	0.00000	0.00000	0.00000	0.00000			
133985	50094	1.00000	0.00000	0.78632	0.01987	0.00000	0.00000
0.00000	1.10463	0.39969	-0.38447	-1.11984			
0.00000	0.04049	0.04140	0.06866	0.18213			
75602	50095	1.00000	0.00000	0.60418	0.00000	0.00000	0.00000
0.00000	0.95759	0.97638	-0.53235	-1.40163			
0.00000	0.00000	0.00000	0.00000	0.00000			

TITLE NH0102 ELA 10

>COMMENT ;

ELA	110	110	7																	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
125675	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.24692	0.01084	0.00000	0.00000									
125677	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.05151	0.01060	0.00000	0.00000									
135076	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-1.24353	0.01519	0.00000	0.00000									
125681	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.88905	0.01298	0.00000	0.00000									
135075	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.25052	0.01085	0.00000	0.00000									
135077	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.28452	0.01091	0.00000	0.00000									
50776	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.51899	0.01149	0.00000	0.00000									
50772	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.05782	0.01060	0.00000	0.00000									
50773	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-1.01692	0.01368	0.00000	0.00000									
49930	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-1.27136	0.01540	0.00000	0.00000									
89559	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.01171	0.01057	0.00000	0.00000									
141807	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.67313	0.01202	0.00000	0.00000									
50775	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.28452	0.01091	0.00000	0.00000									
49931	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-1.06734	0.01399	0.00000	0.00000									
46419	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-1.17084	0.01467	0.00000	0.00000									
54667	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.14781	0.01070	0.00000	0.00000									
50798	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.55248	0.01159	0.00000	0.00000									
50800	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.72380	0.01222	0.00000	0.00000									
135068	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.83545	0.01272	0.00000	0.00000									
141812	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.40648	0.01118	0.00000	0.00000									
135066	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.14451	0.01069	0.00000	0.00000									
46458	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.44309	0.01127	0.00000	0.00000									
141813	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.78420	0.01248	0.00000	0.00000									
46466	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.76892	0.01241	0.00000	0.00000									
141816	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-1.49912	0.01733	0.00000	0.00000									

0.00000	0.00000						
0.00000	0.00000						
54663	20026	1.00000	0.00000	-0.95220	0.01331	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46467	20027	1.00000	0.00000	-0.81147	0.01260	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46475	20028	1.00000	0.00000	-0.34922	0.01104	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141817	20029	1.00000	0.00000	0.09440	0.01053	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50783	20030	1.00000	0.00000	-1.25973	0.01531	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
9182	20031	1.00000	0.00000	-1.04952	0.01388	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
135538	20032	1.00000	0.00000	-0.38513	0.01112	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141819	20033	1.00000	0.00000	0.16136	0.01054	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
9187	20034	1.00000	0.00000	-0.83133	0.01270	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
135074	20035	1.00000	0.00000	-0.86943	0.01288	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65953	20036	1.00000	0.00000	-1.19780	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89185	20037	1.00000	0.00000	-0.99131	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89189	20038	1.00000	0.00000	-1.04351	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65893	20039	1.00000	0.00000	-0.28041	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65896	20040	1.00000	0.00000	-0.50279	0.00000	0.00000	0.00000
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0.00000	0.00000						
89193	20041	1.00000	0.00000	-0.28370	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89256	20042	1.00000	0.00000	-0.05851	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65956	20043	1.00000	0.00000	-0.27804	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89186	20044	1.00000	0.00000	-0.65914	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65894	20045	1.00000	0.00000	-0.15255	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65897	20046	1.00000	0.00000	-0.55170	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65898	20047	1.00000	0.00000	-0.60186	0.04058	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65948	20048	1.00000	0.00000	-0.69612	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89356	20049	1.00000	0.00000	-0.64214	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141941	20050	1.00000	0.00000	0.35278	0.03705	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46429	20051	1.00000	0.00000	-0.79636	0.04367	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
135065	20052	1.00000	0.00000	0.47113	0.03762	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
135062	20053	1.00000	0.00000	0.00676	0.03671	0.00000	0.00000
0.00000	0.00000						

0.00000	0.00000						
65950	20054	1.00000	0.00000	-0.73736	0.00000	0.00000	0.00000
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0.00000	0.00000						
65952	20055	1.00000	0.00000	-0.75572	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
41937	20056	1.00000	0.00000	-0.89640	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
39961	20057	1.00000	0.00000	-0.75700	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50758	20058	1.00000	0.00000	-0.23081	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
41932	20059	1.00000	0.00000	-0.19444	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
49920	20060	1.00000	0.00000	-1.09218	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
54661	20061	1.00000	0.00000	-0.40956	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
41931	20062	1.00000	0.00000	-0.99569	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
39968	20063	1.00000	0.00000	-0.58108	0.00000	0.00000	0.00000
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0.00000	0.00000						
49919	20064	1.00000	0.00000	-0.63975	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50769	20065	1.00000	0.00000	-0.12500	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
49926	20066	1.00000	0.00000	-0.93082	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
49927	20067	1.00000	0.00000	-1.15796	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50795	20068	1.00000	0.00000	-1.25580	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46484	20069	1.00000	0.00000	-0.31249	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
54666	20070	1.00000	0.00000	-0.78178	0.00000	0.00000	0.00000
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0.00000	0.00000						
46481	20071	1.00000	0.00000	0.16921	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89454	20072	1.00000	0.00000	-1.40203	0.00000	0.00000	0.00000
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0.00000	0.00000						
89452	20073	1.00000	0.00000	-0.08332	0.00000	0.00000	0.00000
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89457	20074	1.00000	0.00000	-0.78636	0.00000	0.00000	0.00000
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0.00000	0.00000						
89458	20075	1.00000	0.00000	-1.09898	0.00000	0.00000	0.00000
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89262	20076	1.00000	0.00000	-0.83203	0.00000	0.00000	0.00000
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89278	20077	1.00000	0.00000	-1.45425	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89281	20078	1.00000	0.00000	-1.51668	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89285	20079	1.00000	0.00000	-0.63440	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89267	20080	1.00000	0.00000	-1.26268	0.00000	0.00000	0.00000
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0.00000	0.00000						
89271	20081	1.00000	0.00000	-0.67300	0.00000	0.00000	0.00000
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0.00000	0.00000						
89275	20082	1.00000	0.00000	-0.91782	0.00000	0.00000	0.00000

0.00000	0.00000						
0.00000	0.00000						
65914	20083	1.00000	0.00000	-1.09713	0.04895	0.00000	0.00000
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0.00000	0.00000						
134893	20084	1.00000	0.00000	-0.88068	0.04464	0.00000	0.00000
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0.00000	0.00000						
135060	20085	1.00000	0.00000	-0.46296	0.03901	0.00000	0.00000
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0.00000	0.00000						
134894	20086	1.00000	0.00000	-0.45264	0.03891	0.00000	0.00000
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0.00000	0.00000						
135063	20087	1.00000	0.00000	0.13874	0.03626	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
142787	20088	1.00000	0.00000	-0.78138	0.04344	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89424	20089	1.00000	0.00000	-1.01560	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
98933	20090	1.00000	0.00000	-0.33284	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
65942	20091	1.00000	0.00000	0.29787	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
135078	50092	1.00000	0.00000	-0.07246	0.00634	0.00000	0.00000
0.00000	1.11081	0.80265	-0.62691	-1.28655			
0.00000	0.02553	0.01543	0.01237	0.01971			
50778	50093	1.00000	0.00000	-0.13447	0.00548	0.00000	0.00000
0.00000	0.67169	0.48413	-0.25271	-0.90311			
0.00000	0.02168	0.01637	0.01299	0.01494			
54662	50094	1.00000	0.00000	0.04111	0.00630	0.00000	0.00000
0.00000	1.02184	0.85554	-0.48986	-1.38752			
0.00000	0.02323	0.01530	0.01226	0.02181			
46476	50095	1.00000	0.00000	0.11019	0.00606	0.00000	0.00000
0.00000	0.90824	0.81740	-0.39523	-1.33041			
0.00000	0.02112	0.01506	0.01241	0.02191			
9198	50096	1.00000	0.00000	0.09867	0.00568	0.00000	0.00000
0.00000	1.23156	0.19401	-0.34478	-1.08079			
0.00000	0.01950	0.01316	0.01367	0.01982			
65903	50097	1.00000	0.00000	0.12446	0.00000	0.00000	0.00000
0.00000	0.85152	0.59573	-0.39473	-1.05252			
0.00000	0.00000	0.00000	0.00000	0.00000			
89195	50098	1.00000	0.00000	0.29541	0.00000	0.00000	0.00000
0.00000	0.86101	0.84961	-0.48931	-1.22131			
0.00000	0.00000	0.00000	0.00000	0.00000			
46436	50099	1.00000	0.00000	0.17764	0.01999	0.00000	0.00000
0.00000	0.90458	0.60317	-0.33879	-1.16896			
0.00000	0.06530	0.04893	0.04524	0.07438			
41939	50100	1.00000	0.00000	0.08956	0.00000	0.00000	0.00000
0.00000	0.33760	0.70780	-0.21523	-0.83016			
0.00000	0.00000	0.00000	0.00000	0.00000			
50770	50101	1.00000	0.00000	0.12636	0.00000	0.00000	0.00000
0.00000	1.17721	0.67884	-0.67098	-1.18507			
0.00000	0.00000	0.00000	0.00000	0.00000			
46405	50102	1.00000	0.00000	-0.06085	0.00000	0.00000	0.00000
0.00000	0.71422	0.68087	-0.33162	-1.06347			
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50797	50103	1.00000	0.00000	0.02724	0.00000	0.00000	0.00000
0.00000	0.82610	0.75194	-0.39464	-1.18340			
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89460	50104	1.00000	0.00000	0.09444	0.00000	0.00000	0.00000
0.00000	1.11428	1.06671	-0.69897	-1.48202			
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89288	50105	1.00000	0.00000	0.10068	0.00000	0.00000	0.00000
0.00000	0.94682	0.87923	-0.58776	-1.23829			
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65923	50106	1.00000	0.00000	-0.25128	0.00000	0.00000	0.00000
0.00000	0.43264	0.77898	-0.16517	-1.04646			
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134895	50107	1.00000	0.00000	0.50645	0.02421	0.00000	0.00000
0.00000	1.60523	0.76815	-0.80632	-1.56707			
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89426	50108	1.00000	0.00000	-0.01762	0.00000	0.00000	0.00000
0.00000	0.90837	0.82583	-0.50650	-1.22771			
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125703	70109	1.00000	0.00000	-0.15427	0.00520	0.00000	0.00000
0.00000	1.53429	0.93879	0.43780	-0.23089	-0.98590	-1.69408	
0.00000	0.03984	0.02445	0.01622	0.01303	0.01554	0.02842	
125703	70110	1.00000	0.00000	-0.16165	0.00521	0.00000	0.00000
0.00000	1.51106	0.94651	0.46155	-0.22284	-0.96140	-1.73488	
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TITLE NH0102 MAT 10

>COMMENT ;

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0.00000 0.00000
0.00000 0.00000
45325 20002 1.00000 0.00000 -0.41748 0.01130 0.00000 0.00000
0.00000 0.00000
0.00000 0.00000
142789 20003 1.00000 0.00000 0.09354 0.01067 0.00000 0.00000
0.00000 0.00000

0.00000 0.00000
50144 20004 1.00000 0.00000 0.80715 0.01175 0.00000 0.00000
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0.00000 0.00000
141821 20005 1.00000 0.00000 0.62464 0.01125 0.00000 0.00000
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0.00000 0.00000
41202 20006 1.00000 0.00000 0.76467 0.01162 0.00000 0.00000
0.00000 0.00000
0.00000 0.00000
142791 20007 1.00000 0.00000 0.47399 0.01096 0.00000 0.00000
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141822 20008 1.00000 0.00000 0.21990 0.01070 0.00000 0.00000
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8640 20009 1.00000 0.00000 0.12374 0.01067 0.00000 0.00000
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29057 20010 1.00000 0.00000 -0.14586 0.01082 0.00000 0.00000
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0.00000 0.00000
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0.00000 0.00000
141824 20012 1.00000 0.00000 0.19581 0.01069 0.00000 0.00000
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99116 20013 1.00000 0.00000 -0.70692 0.01223 0.00000 0.00000
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70493 20014 1.00000 0.00000 -0.39759 0.01125 0.00000 0.00000
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41902 20015 1.00000 0.00000 0.27666 0.01073 0.00000 0.00000
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134708 20023 1.00000 0.00000 0.40985 0.01086 0.00000 0.00000
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134709 20024 1.00000 0.00000 0.03116 0.01068 0.00000 0.00000
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29068	20027	1.00000	0.00000	0.31256	0.01076	0.00000	0.00000
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99120	20028	1.00000	0.00000	0.43966	0.01091	0.00000	0.00000
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70502	20029	1.00000	0.00000	1.71177	0.01723	0.00000	0.00000
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29046	20031	1.00000	0.00000	0.49360	0.00000	0.00000	0.00000
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50142	20032	1.00000	0.00000	0.29037	0.00000	0.00000	0.00000
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70524	20033	1.00000	0.00000	0.81996	0.04063	0.00000	0.00000
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76730	20034	1.00000	0.00000	0.07350	0.03679	0.00000	0.00000
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8633	20035	1.00000	0.00000	0.13975	0.03738	0.00000	0.00000
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141902	20036	1.00000	0.00000	0.17779	0.03742	0.00000	0.00000
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29053	20038	1.00000	0.00000	1.45528	0.00000	0.00000	0.00000
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50141	20040	1.00000	0.00000	-0.26910	0.00000	0.00000	0.00000
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35186	20041	1.00000	0.00000	-0.21624	0.00000	0.00000	0.00000
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39924	20042	1.00000	0.00000	0.82558	0.00000	0.00000	0.00000
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70487	20043	1.00000	0.00000	-0.16941	0.03716	0.00000	0.00000
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50462	20044	1.00000	0.00000	-0.49893	0.00000	0.00000	0.00000
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50463	20045	1.00000	0.00000	0.27194	0.00000	0.00000	0.00000
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50464	20046	1.00000	0.00000	0.64446	0.03865	0.00000	0.00000
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50143	20047	1.00000	0.00000	0.07571	0.00000	0.00000	0.00000
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35168	20048	1.00000	0.00000	0.17995	0.00000	0.00000	0.00000
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142975	20049	1.00000	0.00000	0.47203	0.03754	0.00000	0.00000
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29067	20050	1.00000	0.00000	0.94901	0.04222	0.00000	0.00000
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46151	20051	1.00000	0.00000	0.38856	0.00000	0.00000	0.00000
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46220	20052	1.00000	0.00000	0.76343	0.00000	0.00000	0.00000
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46192	20053	1.00000	0.00000	0.81566	0.04059	0.00000	0.00000
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76722	20054	1.00000	0.00000	0.63066	0.03895	0.00000	0.00000
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35153	20055	1.00000	0.00000	0.36009	0.00000	0.00000	0.00000
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41897	20056	1.00000	0.00000	0.01277	0.00000	0.00000	0.00000
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39918	20057	1.00000	0.00000	0.48301	0.00000	0.00000	0.00000
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50149	20058	1.00000	0.00000	-0.11998	0.00000	0.00000	0.00000
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8698	20059	1.00000	0.00000	0.01356	0.00000	0.00000	0.00000
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35152	20060	1.00000	0.00000	0.57528	0.00000	0.00000	0.00000
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35131	20062	1.00000	0.00000	0.05617	0.03693	0.00000	0.00000
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142352	20063	1.00000	0.00000	0.49588	0.03832	0.00000	0.00000
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98817	20064	1.00000	0.00000	-0.12716	0.03749	0.00000	0.00000
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46174	20065	1.00000	0.00000	0.50338	0.03836	0.00000	0.00000
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142990	20066	1.00000	0.00000	-0.09618	0.03739	0.00000	0.00000
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46245	20067	1.00000	0.00000	0.00182	0.03724	0.00000	0.00000
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35154	20068	1.00000	0.00000	0.12875	0.03716	0.00000	0.00000
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46215	20069	1.00000	0.00000	0.39474	0.03776	0.00000	0.00000
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70515	20070	1.00000	0.00000	0.29154	0.03741	0.00000	0.00000
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70522	20071	1.00000	0.00000	0.61554	0.03890	0.00000	0.00000
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41903	20072	1.00000	0.00000	0.35362	0.03720	0.00000	0.00000
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46198	20073	1.00000	0.00000	0.90058	0.04210	0.00000	0.00000
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132636	20074	1.00000	0.00000	0.57474	0.03856	0.00000	0.00000
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50154	20075	1.00000	0.00000	0.63882	0.00000	0.00000	0.00000
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35188	20076	1.00000	0.00000	0.68933	0.03958	0.00000	0.00000
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50150	20077	1.00000	0.00000	-0.01518	0.00000	0.00000	0.00000
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45317	20078	1.00000	0.00000	0.86549	0.00000	0.00000	0.00000
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132616	50079	1.00000	0.00000	0.26504	0.00527	0.00000	0.00000
0.00000	0.13610	1.07377	-0.90362	-0.30625			
0.00000	0.01851	0.01698	0.01703	0.02046			
13257	50080	1.00000	0.00000	0.36334	0.00478	0.00000	0.00000
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0.00000	0.01963	0.02053	0.01679	0.01822			
132612	50081	1.00000	0.00000	0.44274	0.00515	0.00000	0.00000
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132614	50082	1.00000	0.00000	1.21788	0.00692	0.00000	0.00000

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141827	50083	1.00000	0.00000	0.33176	0.00495	0.00000	0.00000
0.00000	0.33558	0.25620	-0.28187	-0.30990			
0.00000	0.01452	0.01556	0.01722	0.01850			
132620	50084	1.00000	0.00000	0.74890	0.02012	0.00000	0.00000
0.00000	0.69949	0.39044	-0.78131	-0.30862			
0.00000	0.04402	0.04812	0.07975	0.10415			
50467	50085	1.00000	0.00000	1.43398	0.00000	0.00000	0.00000
0.00000	0.74605	0.06856	-1.04032	0.22572			
0.00000	0.00000	0.00000	0.00000	0.00000			
132621	50086	1.00000	0.00000	0.82029	0.02167	0.00000	0.00000
0.00000	1.03473	0.75617	-0.70509	-1.08581			
0.00000	0.04878	0.04463	0.06737	0.13679			
76740	50087	1.00000	0.00000	0.75595	0.00000	0.00000	0.00000
0.00000	0.34414	0.70855	-0.86757	-0.18512			
0.00000	0.00000	0.00000	0.00000	0.00000			
132626	50088	1.00000	0.00000	0.51330	0.01845	0.00000	0.00000
0.00000	0.63813	0.33971	-0.25729	-0.72055			
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8623	50089	1.00000	0.00000	0.81691	0.00000	0.00000	0.00000
0.00000	0.72968	-0.18376	-0.34358	-0.20233			
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132624	50090	1.00000	0.00000	0.66460	0.02234	0.00000	0.00000
0.00000	1.45939	0.17051	-0.41783	-1.21206			
0.00000	0.05057	0.04421	0.06349	0.12176			
39979	50091	1.00000	0.00000	0.86376	0.00000	0.00000	0.00000
0.00000	0.57081	0.47219	-0.12347	-0.91953			
0.00000	0.00000	0.00000	0.00000	0.00000			
132622	50092	1.00000	0.00000	0.64061	0.01967	0.00000	0.00000
0.00000	0.63231	0.52761	-0.67340	-0.48653			
0.00000	0.04696	0.04813	0.06926	0.09576			
132623	50093	1.00000	0.00000	0.16808	0.01591	0.00000	0.00000
0.00000	-0.25606	0.37728	-0.25625	0.13504			
0.00000	0.06085	0.06864	0.06688	0.06036			
29015	50094	1.00000	0.00000	0.27974	0.01570	0.00000	0.00000
0.00000	-0.42181	0.62611	-0.13541	-0.06888			
0.00000	0.06414	0.07104	0.06187	0.06019			
39980	50095	1.00000	0.00000	0.43311	0.00000	0.00000	0.00000
0.00000	0.26184	-0.27195	-0.05778	0.06789			
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TITLE NH0102 SCI 10

>COMMENT ;

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74356	1	1	1	1	1															
	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-1.63513	0.01884	0.00000	0.00000								
63453	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.23399	0.01051	0.00000	0.00000								
34611	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.26985	0.01085	0.00000	0.00000								
	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.02853	0.01053	0.00000	0.00000								
70637	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-1.21400	0.01508	0.00000	0.00000								
34620	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.03381	0.01054	0.00000	0.00000								
74358	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.26925	0.01085	0.00000	0.00000								
80638	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.04590	0.01055	0.00000	0.00000								
63441	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-1.17492	0.01480	0.00000	0.00000								
125790	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.07703	0.01048	0.00000	0.00000								
49938	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.82159	0.01172	0.00000	0.00000								
46714	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.22715	0.01077	0.00000	0.00000								
141828	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.50676	0.01144	0.00000	0.00000								
141829	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.46889	0.01133	0.00000	0.00000								
46711	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.13638	0.01048	0.00000	0.00000								
141830	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.70323	0.01215	0.00000	0.00000								
47046	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.13028	0.01063	0.00000	0.00000								
50404	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.21612	0.01075	0.00000	0.00000								
80673	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.28047	0.01087	0.00000	0.00000								
63367	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.97569	0.01351	0.00000	0.00000								
46733	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	0.18437	0.01049	0.00000	0.00000								
26886	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.08192	0.01058	0.00000	0.00000								
46739	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.67834	0.01205	0.00000	0.00000								
141833	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000	-0.87007	0.01293	0.00000	0.00000								
98938	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000												

141834	20025	1.00000	0.00000	0.43523	0.01072	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
74364	20026	1.00000	0.00000	0.00684	0.01051	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
125793	20027	1.00000	0.00000	-0.77004	0.01245	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141835	20028	1.00000	0.00000	0.37004	0.01063	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
125791	20029	1.00000	0.00000	-0.52778	0.01151	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63456	20030	1.00000	0.00000	-0.18287	0.01070	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
70631	20031	1.00000	0.00000	-0.36639	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80633	20032	1.00000	0.00000	-0.37817	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63415	20033	1.00000	0.00000	0.26879	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63397	20034	1.00000	0.00000	0.26726	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63389	20035	1.00000	0.00000	0.56250	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63388	20036	1.00000	0.00000	0.52902	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
74360	20037	1.00000	0.00000	-0.52621	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63411	20038	1.00000	0.00000	0.28677	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
26864	20039	1.00000	0.00000	0.01645	0.03643	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46710	20040	1.00000	0.00000	-0.29779	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
70642	20041	1.00000	0.00000	-0.08763	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
125797	20042	1.00000	0.00000	-0.60219	0.04100	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
70641	20043	1.00000	0.00000	-0.42614	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
74359	20044	1.00000	0.00000	1.18609	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80663	20045	1.00000	0.00000	-0.30003	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80657	20046	1.00000	0.00000	-0.27586	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50407	20047	1.00000	0.00000	0.74789	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80667	20048	1.00000	0.00000	-1.28110	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
70643	20049	1.00000	0.00000	0.46167	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63410	20050	1.00000	0.00000	-0.17519	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80678	20051	1.00000	0.00000	-0.31345	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
70633	20052	1.00000	0.00000	-0.17727	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
70639	20053	1.00000	0.00000	0.50833	0.00000	0.00000	0.00000
0.00000	0.00000						

0.00000	0.00000						
63378	20054	1.00000	0.00000	1.15684	0.00000	0.00000	0.00000
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0.00000	0.00000						
70632	20055	1.00000	0.00000	0.44001	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
74362	20056	1.00000	0.00000	-0.47803	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46716	20057	1.00000	0.00000	-0.59731	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
99201	20058	1.00000	0.00000	0.05559	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80699	20059	1.00000	0.00000	0.79710	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80695	20060	1.00000	0.00000	-0.46729	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
70640	20061	1.00000	0.00000	0.12276	0.00000	0.00000	0.00000
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0.00000	0.00000						
80702	20062	1.00000	0.00000	-0.54575	0.00000	0.00000	0.00000
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0.00000	0.00000						
70646	20063	1.00000	0.00000	0.12692	0.03659	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
54664	20064	1.00000	0.00000	0.49645	0.03778	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
125795	20065	1.00000	0.00000	-0.08833	0.03695	0.00000	0.00000
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0.00000	0.00000						
70638	20066	1.00000	0.00000	0.24092	0.03670	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46726	20067	1.00000	0.00000	0.32120	0.03678	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
80644	20068	1.00000	0.00000	-0.09289	0.03686	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
39809	20069	1.00000	0.00000	0.36969	0.03695	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
46741	20070	1.00000	0.00000	0.06915	0.03650	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
63436	20071	1.00000	0.00000	-0.12532	0.03642	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
125794	20072	1.00000	0.00000	0.09874	0.03599	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
125796	20073	1.00000	0.00000	0.68767	0.03899	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
45319	20074	1.00000	0.00000	0.59685	0.03811	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
49950	20075	1.00000	0.00000	-0.15375	0.03729	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50408	20076	1.00000	0.00000	-0.10208	0.03707	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
47039	20077	1.00000	0.00000	-0.77035	0.04353	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
125799	20078	1.00000	0.00000	0.00891	0.03674	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
47048	50079	1.00000	0.00000	0.31525	0.00572	0.00000	0.00000
0.00000	1.21527	0.17614	-0.33277	-1.05864			
0.00000	0.01675	0.01263	0.01479	0.02452			
39814	50080	1.00000	0.00000	0.78765	0.00636	0.00000	0.00000
0.00000	1.13732	1.03709	-0.58699	-1.58743			
0.00000	0.01537	0.01266	0.01776	0.06455			
70649	50081	1.00000	0.00000	0.39092	0.00559	0.00000	0.00000
0.00000	0.88487	0.51913	-0.17803	-1.22597			
0.00000	0.01607	0.01347	0.01377	0.02641			
141831	50082	1.00000	0.00000	0.83503	0.00619	0.00000	0.00000

0.00000	1.12174	0.51999	-0.45714	-1.18460			
0.00000	0.01314	0.01262	0.01990	0.05221			
47049	50083	1.00000	0.00000	1.02719	0.00635	0.00000	0.00000
0.00000	0.80750	0.19730	-0.24451	-0.76030			
0.00000	0.01168	0.01565	0.02578	0.05268			
26824	50084	1.00000	0.00000	0.52507	0.00000	0.00000	0.00000
0.00000	1.14396	0.37028	-0.33999	-1.17425			
0.00000	0.00000	0.00000	0.00000	0.00000			
125800	50085	1.00000	0.00000	0.76067	0.02212	0.00000	0.00000
0.00000	1.36132	0.40590	-0.44516	-1.32205			
0.00000	0.04885	0.04230	0.06522	0.18052			
49953	50086	1.00000	0.00000	0.82281	0.00000	0.00000	0.00000
0.00000	1.72852	0.34519	-0.69684	-1.37686			
0.00000	0.00000	0.00000	0.00000	0.00000			
135361	50087	1.00000	0.00000	1.10902	0.02200	0.00000	0.00000
0.00000	0.91342	0.07159	0.15102	-1.13604			
0.00000	0.03936	0.05865	0.08532	0.23387			
74365	50088	1.00000	0.00000	0.52243	0.00000	0.00000	0.00000
0.00000	0.50193	0.40117	-0.13939	-0.76370			
0.00000	0.00000	0.00000	0.00000	0.00000			
74366	50089	1.00000	0.00000	0.68477	0.00000	0.00000	0.00000
0.00000	1.32485	0.81124	-0.70341	-1.43268			
0.00000	0.00000	0.00000	0.00000	0.00000			
74368	50090	1.00000	0.00000	0.70094	0.00000	0.00000	0.00000
0.00000	0.36495	0.41509	-0.02882	-0.75121			
0.00000	0.00000	0.00000	0.00000	0.00000			
70648	50091	1.00000	0.00000	0.29300	0.00000	0.00000	0.00000
0.00000	1.26954	0.23688	-0.58683	-0.91958			
0.00000	0.00000	0.00000	0.00000	0.00000			
74367	50092	1.00000	0.00000	1.00256	0.00000	0.00000	0.00000
0.00000	0.50409	0.22678	-0.46973	-0.26114			
0.00000	0.00000	0.00000	0.00000	0.00000			
142786	50093	1.00000	0.00000	1.09532	0.02233	0.00000	0.00000
0.00000	1.13282	0.44327	-0.28144	-1.29465			
0.00000	0.04169	0.04808	0.08072	0.25287			
50409	50094	1.00000	0.00000	0.29563	0.01607	0.00000	0.00000
0.00000	0.14261	0.34009	-0.00569	-0.47701			
0.00000	0.05264	0.05642	0.05411	0.06091			
49952	50095	1.00000	0.00000	0.69482	0.00000	0.00000	0.00000
0.00000	0.64762	0.81249	-0.30512	-1.15499			
0.00000	0.00000	0.00000	0.00000	0.00000			

TITLE NH0102 SOC 10

>COMMENT ;

SOC	95	95	7																	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
134739	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.92770	0.01349	0.00000	0.00000									
134732	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.01231	0.01066	0.00000	0.00000									
134750	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.04211	0.01068	0.00000	0.00000									
41347	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.42281	0.01140	0.00000	0.00000									
134726	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.33288	0.01064	0.00000	0.00000									
134724	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.36699	0.01125	0.00000	0.00000									
134733	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.59031	0.01194	0.00000	0.00000									
134756	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.44146	0.01146	0.00000	0.00000									
134731	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.96128	0.01368	0.00000	0.00000									
134753	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.25760	0.01059	0.00000	0.00000									
134755	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.08987	0.01059	0.00000	0.00000									
134734	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.06849	0.01060	0.00000	0.00000									
134757	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.05147	0.01061	0.00000	0.00000									
134738	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.79343	0.01280	0.00000	0.00000									
134752	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.37130	0.01126	0.00000	0.00000									
134746	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.78510	0.01276	0.00000	0.00000									
134759	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.00286	0.01065	0.00000	0.00000									
136350	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.67505	0.01120	0.00000	0.00000									
134749	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.05104	0.01069	0.00000	0.00000									
134748	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.15689	0.01058	0.00000	0.00000									
134737	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.44189	0.01075	0.00000	0.00000									
134735	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.16621	0.01058	0.00000	0.00000									
134745	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.20216	0.01058	0.00000	0.00000									
134723	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.38168	0.01129	0.00000	0.00000									
134730	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	-0.09163	0.01074	0.00000	0.00000									

0.00000	0.00000						
0.00000	0.00000						
134744	20026	1.00000	0.00000	0.28225	0.01061	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89746	20027	1.00000	0.00000	-0.33111	0.01117	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
134736	20028	1.00000	0.00000	-0.00518	0.01065	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
134727	20029	1.00000	0.00000	0.46239	0.01078	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
134729	20030	1.00000	0.00000	-0.25083	0.01099	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
141880	20031	1.00000	0.00000	-0.05394	0.03675	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
47369	20032	1.00000	0.00000	-0.74690	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
49774	20033	1.00000	0.00000	0.07323	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75669	20034	1.00000	0.00000	-0.35126	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
136354	20035	1.00000	0.00000	-0.02570	0.03711	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
47361	20036	1.00000	0.00000	-0.60475	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
40444	20037	1.00000	0.00000	-0.17284	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
8813	20038	1.00000	0.00000	-0.93923	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
136355	20039	1.00000	0.00000	-0.07671	0.03737	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
69723	20040	1.00000	0.00000	-0.88695	0.04679	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
29628	20041	1.00000	0.00000	-0.44158	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89445	20042	1.00000	0.00000	-0.36847	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
136356	20043	1.00000	0.00000	-1.18340	0.05180	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75675	20044	1.00000	0.00000	-0.06925	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75682	20045	1.00000	0.00000	-0.07706	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50442	20046	1.00000	0.00000	-0.29577	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50441	20047	1.00000	0.00000	-0.14834	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75655	20048	1.00000	0.00000	-0.65605	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
35326	20049	1.00000	0.00000	-0.46190	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75657	20050	1.00000	0.00000	-0.15476	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
9438	20051	1.00000	0.00000	-0.67300	0.04277	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
89622	20052	1.00000	0.00000	-0.23195	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
99180	20053	1.00000	0.00000	-0.61341	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						

75652	20054	1.00000	0.00000	-0.19044	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
54659	20055	1.00000	0.00000	-0.90689	0.04663	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75663	20056	1.00000	0.00000	-0.48302	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75649	20057	1.00000	0.00000	-0.39408	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
47096	20058	1.00000	0.00000	0.03057	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
47381	20059	1.00000	0.00000	-1.03557	0.04941	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
54668	20060	1.00000	0.00000	-0.41241	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
47433	20061	1.00000	0.00000	-0.26011	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
40456	20062	1.00000	0.00000	0.20863	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50959	20063	1.00000	0.00000	-1.24594	0.05383	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
136362	20064	1.00000	0.00000	0.00480	0.03708	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
35319	20065	1.00000	0.00000	-0.40491	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75677	20066	1.00000	0.00000	-0.93223	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
54658	20067	1.00000	0.00000	-0.19886	0.03785	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
40442	20068	1.00000	0.00000	-0.93295	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
8877	20069	1.00000	0.00000	-0.74022	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
8797	20070	1.00000	0.00000	-0.85671	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
50443	20071	1.00000	0.00000	-1.19479	0.05218	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
35249	20072	1.00000	0.00000	-0.29913	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
99131	20073	1.00000	0.00000	0.13596	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75661	20074	1.00000	0.00000	-0.04713	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75660	20075	1.00000	0.00000	-0.56163	0.04140	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75676	20076	1.00000	0.00000	-0.38343	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75685	20077	1.00000	0.00000	-0.16064	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
75658	20078	1.00000	0.00000	-0.12365	0.00000	0.00000	0.00000
0.00000	0.00000						
0.00000	0.00000						
134719	50079	1.00000	0.00000	0.54452	0.00603	0.00000	0.00000
0.00000	0.88944	0.87198	-0.52599	-1.23543			
0.00000	0.01644	0.01348	0.01502	0.03291			
136349	50080	1.00000	0.00000	0.77518	0.00587	0.00000	0.00000
0.00000	0.87265	0.60053	-0.39252	-1.08067			
0.00000	0.01367	0.01319	0.01770	0.03887			
134721	50081	1.00000	0.00000	0.47209	0.00630	0.00000	0.00000
0.00000	1.45859	0.35882	-0.49122	-1.32619			
0.00000	0.01745	0.01211	0.01539	0.03298			
134717	50082	1.00000	0.00000	0.49162	0.00607	0.00000	0.00000
0.00000	1.45776	0.00915	-0.29144	-1.17548			

0.00000	0.01618	0.01269	0.01625	0.02996			
134720	50083	1.00000	0.00000	0.18944	0.00547	0.00000	0.00000
0.00000	0.82050	0.45668	-0.50518	-0.77200			
0.00000	0.01777	0.01382	0.01419	0.01895			
75622	50084	1.00000	0.00000	0.54252	0.00000	0.00000	0.00000
0.00000	0.63684	0.79794	-0.38673	-1.04805			
0.00000	0.00000	0.00000	0.00000	0.00000			
49768	50085	1.00000	0.00000	0.65132	0.00000	0.00000	0.00000
0.00000	0.70686	0.78727	-0.20749	-1.28663			
0.00000	0.00000	0.00000	0.00000	0.00000			
75629	50086	1.00000	0.00000	0.70189	0.00000	0.00000	0.00000
0.00000	1.18899	0.57921	-0.51709	-1.25111			
0.00000	0.00000	0.00000	0.00000	0.00000			
49769	50087	1.00000	0.00000	0.81698	0.00000	0.00000	0.00000
0.00000	0.93396	0.69585	-0.29524	-1.33457			
0.00000	0.00000	0.00000	0.00000	0.00000			
29118	50088	1.00000	0.00000	0.43549	0.00000	0.00000	0.00000
0.00000	0.82115	0.88449	-0.41677	-1.28888			
0.00000	0.00000	0.00000	0.00000	0.00000			
75626	50089	1.00000	0.00000	0.56212	0.00000	0.00000	0.00000
0.00000	0.80844	0.88534	-0.51444	-1.17934			
0.00000	0.00000	0.00000	0.00000	0.00000			
41938	50090	1.00000	0.00000	0.41883	0.00000	0.00000	0.00000
0.00000	1.02021	1.16203	-0.70747	-1.47477			
0.00000	0.00000	0.00000	0.00000	0.00000			
75623	50091	1.00000	0.00000	0.62970	0.00000	0.00000	0.00000
0.00000	1.14746	0.54120	-0.54033	-1.14833			
0.00000	0.00000	0.00000	0.00000	0.00000			
49766	50092	1.00000	0.00000	1.06735	0.00000	0.00000	0.00000
0.00000	1.35774	0.65557	-0.25903	-1.75428			
0.00000	0.00000	0.00000	0.00000	0.00000			
75628	50093	1.00000	0.00000	0.50514	0.00000	0.00000	0.00000
0.00000	0.91854	0.77179	-0.41568	-1.27465			
0.00000	0.00000	0.00000	0.00000	0.00000			
75624	50094	1.00000	0.00000	0.30242	0.00000	0.00000	0.00000
0.00000	0.49456	0.86059	-0.25523	-1.09992			
0.00000	0.00000	0.00000	0.00000	0.00000			
135681	50095	1.00000	0.00000	0.55492	0.02150	0.00000	0.00000
0.00000	1.30614	0.25641	-0.62218	-0.94038			
0.00000	0.05380	0.04220	0.06178	0.11123			

APPENDIX C

ACCURACY AND CONSISTENCY OF CLASSIFICATIONS

Accuracy and Consistency of Classifications

Grade 03 ELA

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.21509	0.04017	0.00024	0.00000		0.25549
Basic	0.06384	0.25623	0.06758	0.00014		0.38776
Proficient	0.00021	0.03809	0.18787	0.02762		0.25378
Advanced	0.00000	0.00001	0.01367	0.08919		0.10286
	=====	=====	=====	=====		=====
	0.27914	0.33450	0.26936	0.11695		0.99989

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.18455	0.04172	0.0003	871E-12		0.22657
Basic	0.05478	0.2661	0.08408	0.00009		0.40506
Proficient	0.00018	0.03957	0.23374	0.01841		0.2919
Advanced	658E-13	0.00001	0.01701	0.05945		0.07647
	=====	=====	=====	=====		=====
Marginal	0.23951	0.34741	0.33513	0.07795		1

Accuracy	Cut #1	Cut #2	Cut #3
0.74384	0.90302	0.87576	0.96447

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.20627	0.06914	0.00371	0.00000		0.2792
Basic	0.06914	0.19519	0.06924	0.00093		0.3345
Proficient	0.00371	0.06924	0.16760	0.02878		0.2694
Advanced	0.00000	0.00093	0.02878	0.08722		0.1170
	=====	=====	=====	=====		=====
	0.27912	0.33450	0.26934	0.11694		1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.17697	0.07179	0.00462	0.000003		0.25343
Basic	0.05932	0.20270	0.08615	0.000621		0.34881
Proficient	0.00319	0.07191	0.20853	0.019180		0.30284
Advanced	0.00000	0.00097	0.03580	0.058136		0.09492
	=====	=====	=====	=====		=====
	0.23948	0.34737	0.33510	0.077940		1.00000

Consistency	Cut #1	Cut #2	Cut #3		kappa
0.64641	0.86106	0.83253	0.94341		0.50144

Accuracy and Consistency of Classifications

Grade 03 Mathematics

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.13052	0.04124	0.00026	0.00000		0.17203
Basic	0.05201	0.29034	0.07706	0.00027		0.41968
Proficient	0.00022	0.05362	0.22745	0.03602		0.31732
Advanced	0.00000	0.00003	0.01557	0.07529		0.09088
	=====	=====	=====	=====		=====
	0.18276	0.38523	0.32033	0.11157		0.99991

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.13902	0.04398	0.00023	4.12E-9		0.18324
Basic	0.05539	0.30965	0.07007	0.00025		0.43536
Proficient	0.00024	0.05718	0.20681	0.03333		0.29756
Advanced	161E-12	0.00003	0.01415	0.06966		0.08385
	=====	=====	=====	=====		=====
Marginal	0.19465	0.41084	0.29127	0.10324		1

Accuracy	Cut #1	Cut #2	Cut #3
0.72515	0.90016	0.87200	0.95225

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.11723	0.06219	0.00334	0.00001		0.1828
Basic	0.06219	0.23508	0.08626	0.00174		0.3853
Proficient	0.00334	0.08626	0.19513	0.03558		0.3203
Advanced	0.00001	0.00174	0.03558	0.07425		0.1116
	=====	=====	=====	=====		=====
	0.18277	0.38527	0.32031	0.11158		1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.12485	0.06631	0.00303	0.00001		0.19422
Basic	0.06622	0.25067	0.07843	0.00161		0.39696
Proficient	0.00355	0.09198	0.17743	0.03292		0.30591
Advanced	0.00001	0.00185	0.03236	0.06870		0.10292
	=====	=====	=====	=====		=====
	0.19463	0.41082	0.29125	0.10323		1.00000

Consistency	Cut #1	Cut #2	Cut #3		kappa
0.62167	0.86084	0.81952	0.93124		0.45905

Accuracy and Consistency of Classifications

Grade 06 ELA

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.25562	0.04301	0.00005	0.000000		0.29865
Basic	0.05701	0.31097	0.05450	0.000032		0.42255
Proficient	0.00004	0.03960	0.17270	0.018192		0.23053
Advanced	0.00000	0.00000	0.00788	0.040283		0.04816
	=====	=====	=====	=====		=====
	0.31267	0.39359	0.23512	0.058508		0.99989

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.25547	0.04475	0.00005	128E-13		0.30026
Basic	0.05698	0.32354	0.05262	0.00003		0.43317
Proficient	0.00004	0.04119	0.16675	0.01586		0.22384
Advanced	197E-15	2.3E-6	0.00761	0.03511		0.04272
	=====	=====	=====	=====		=====
Marginal	0.3125	0.40949	0.22702	0.051		1

Accuracy	Cut #1	Cut #2	Cut #3
0.78088	0.89818	0.90607	0.97651

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.24246	0.06891	0.00131	0.000000		0.3127
Basic	0.06891	0.25977	0.06450	0.000413		0.3936
Proficient	0.00131	0.06450	0.15082	0.018475		0.2351
Advanced	0.00000	0.00041	0.01847	0.039619		0.0585
	=====	=====	=====	=====		=====
	0.31268	0.39359	0.23510	0.058507		1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.24231	0.07169	0.00126	0.000000		0.31527
Basic	0.06886	0.27020	0.06228	0.000360		0.40177
Proficient	0.00131	0.06711	0.14563	0.016102		0.23015
Advanced	0.00000	0.00043	0.01784	0.034531		0.05280
	=====	=====	=====	=====		=====
	0.31248	0.40943	0.22701	0.050993		1.00000

Consistency	Cut #1	Cut #2	Cut #3		kappa
0.69274	0.85687	0.86725	0.96527		0.54949

Accuracy and Consistency of Classifications

Grade 06 Mathematics

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.22546	0.04283	0.00026	0.000000	0.26855
Basic	0.07030	0.28442	0.07521	0.000154	0.43011
Proficient	0.00023	0.04065	0.18777	0.024685	0.25330
Advanced	0.00000	0.00001	0.00949	0.038460	0.04795
	=====	=====	=====	=====	=====
	0.29599	0.36791	0.27273	0.063299	0.99992

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.21115	0.05216	0.00021	1.27E-9	0.26351
Basic	0.06583	0.34636	0.06	0.00014	0.47233
Proficient	0.00021	0.0495	0.14979	0.02231	0.22181
Advanced	541E-13	9.9E-6	0.00757	0.03476	0.04234
	=====	=====	=====	=====	=====
Marginal	0.2772	0.44803	0.21757	0.05721	1

Accuracy	Cut #1	Cut #2	Cut #3
0.74206	0.88159	0.88993	0.96997

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.21674	0.07513	0.00412	0.000004	0.2960
Basic	0.07513	0.21606	0.07576	0.000945	0.3679
Proficient	0.00412	0.07576	0.16888	0.023964	0.2727
Advanced	0.00000	0.00095	0.02396	0.038383	0.0633
	=====	=====	=====	=====	=====
	0.29599	0.36790	0.27273	0.063297	1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.20294	0.09149	0.00329	0.000004	0.29776
Basic	0.07036	0.26306	0.06043	0.000854	0.39478
Proficient	0.00386	0.09225	0.13470	0.021656	0.25250
Advanced	0.00000	0.00115	0.01912	0.034691	0.05497
	=====	=====	=====	=====	=====
	0.27716	0.44796	0.21754	0.057205	1.00000

Consistency	Cut #1	Cut #2	Cut #3	kappa
0.63551	0.83099	0.83814	0.95721	0.46596

Accuracy and Consistency of Classifications

Grade 06 Science

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.37653	0.07721	0.00123	0.000000	0.45496
Basic	0.06157	0.23761	0.06642	0.000665	0.36627
Proficient	0.00040	0.03171	0.10237	0.018341	0.15283
Advanced	0.00000	0.00003	0.00547	0.020370	0.02588
	=====	=====	=====	=====	=====
	0.43849	0.34656	0.17549	0.039377	0.99994

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.40273	0.075	0.00119	1.72E-7	0.47891
Basic	0.06585	0.23077	0.06449	0.00041	0.36152
Proficient	0.00043	0.03079	0.0994	0.01118	0.1418
Advanced	3.47E-9	0.00003	0.00531	0.01242	0.01777
	=====	=====	=====	=====	=====
Marginal	0.469	0.3366	0.1704	0.02401	1

Accuracy	Cut #1	Cut #2	Cut #3
0.74532	0.85754	0.90266	0.98307

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.34198	0.09033	0.00613	0.000035	0.4385
Basic	0.09033	0.19196	0.06228	0.001997	0.3466
Proficient	0.00613	0.06228	0.09097	0.016109	0.1755
Advanced	0.00004	0.00200	0.01611	0.021236	0.0394
	=====	=====	=====	=====	=====
	0.43848	0.34656	0.17549	0.039378	1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.36578	0.08772	0.00595	0.000021	0.45950
Basic	0.09660	0.18643	0.06046	0.001217	0.34473
Proficient	0.00656	0.06049	0.08833	0.009819	0.16520
Advanced	0.00004	0.00194	0.01564	0.012945	0.03056
	=====	=====	=====	=====	=====
	0.46898	0.33658	0.17039	0.024003	1.00000

Consistency	Cut #1	Cut #2	Cut #3	kappa
0.65351	0.80308	0.86331	0.97132	0.45825

Accuracy and Consistency of Classifications

Grade 06 Social Studies

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.31836	0.05184	0.00036	0.000000	0.37054
Basic	0.08937	0.28064	0.05903	0.000293	0.42932
Proficient	0.00044	0.04173	0.12120	0.017143	0.18051
Advanced	0.00000	0.00002	0.00470	0.014803	0.01952
	=====	=====	=====	=====	=====
	0.40817	0.37422	0.18529	0.032240	0.99990

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.291	0.06082	0.00031	1.41E-8	0.35213
Basic	0.08169	0.32922	0.05197	0.00023	0.46311
Proficient	0.0004	0.04895	0.10672	0.01316	0.16924
Advanced	501E-12	0.00002	0.00414	0.01137	0.01553
	=====	=====	=====	=====	=====
Marginal	0.37309	0.43901	0.16315	0.02475	1

Accuracy	Cut #1	Cut #2	Cut #3
0.73831	0.85678	0.89811	0.98245

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.31061	0.09251	0.00504	0.000016	0.4082
Basic	0.09251	0.21515	0.06505	0.001493	0.3743
Proficient	0.00504	0.06505	0.10025	0.014944	0.1853
Advanced	0.00002	0.00149	0.01494	0.015785	0.0322
	=====	=====	=====	=====	=====
	0.40818	0.37420	0.18528	0.032238	1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.28387	0.10852	0.00444	0.000012	0.39689
Basic	0.08455	0.25238	0.05728	0.001146	0.39540
Proficient	0.00461	0.07631	0.08826	0.011473	0.18067
Advanced	0.00001	0.00175	0.01316	0.012119	0.02705
	=====	=====	=====	=====	=====
	0.37305	0.43896	0.16313	0.024751	1.00000

Consistency	Cut #1	Cut #2	Cut #3	kappa
0.63671	0.79784	0.85442	0.97244	0.43953

Accuracy and Consistency of Classifications

Grade 10 ELA

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.24600	0.03741	0.00001	0.000000		0.28345
Basic	0.05845	0.30029	0.04281	0.000009		0.40155
Proficient	0.00002	0.03639	0.17227	0.017841		0.22653
Advanced	0.00000	0.00000	0.00983	0.078583		0.08841
	=====	=====	=====	=====		=====
	0.30447	0.37409	0.22493	0.096433		0.99994

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.19646	0.03858	0.00002	235E-15		0.23506
Basic	0.04667	0.30969	0.05932	5.76E-6		0.41569
Proficient	0.00002	0.03753	0.23871	0.01099		0.28725
Advanced	633E-17	1E-6	0.01362	0.04838		0.06201
	=====	=====	=====	=====		=====
Marginal	0.24315	0.3858	0.31168	0.05937		1

Accuracy	Cut #1	Cut #2	Cut #3
0.79324	0.91471	0.90310	0.97538

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.23770	0.06604	0.00074	0.000000		0.3045
Basic	0.06604	0.25287	0.05492	0.000222		0.3741
Proficient	0.00074	0.05492	0.14966	0.019600		0.2250
Advanced	0.00000	0.00022	0.01960	0.076614		0.0964
	=====	=====	=====	=====		=====
	0.30448	0.37405	0.22492	0.096436		1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.18979	0.06810	0.00102	0.000000		0.25895
Basic	0.05273	0.26080	0.07610	0.000137		0.38980
Proficient	0.00059	0.05664	0.20737	0.012066		0.27669
Advanced	0.00000	0.00023	0.02716	0.047165		0.07456
	=====	=====	=====	=====		=====
	0.24311	0.38577	0.31164	0.059368		1.00000

Consistency	Cut #1	Cut #2	Cut #3		kappa
0.70519	0.87753	0.86527	0.96041		0.57641

Accuracy and Consistency of Classifications

Grade 10 Mathematics

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.31390	0.05357	0.00018	0.000000		0.36768
Basic	0.04876	0.26007	0.05638	0.000106		0.36536
Proficient	0.00009	0.03505	0.15265	0.020832		0.20862
Advanced	0.00000	0.00001	0.00923	0.049042		0.05827
	=====	=====	=====	=====		=====
	0.36275	0.34869	0.21844	0.069980		0.99992

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.34209	0.05249	0.00016	795E-12		0.39474
Basic	0.05313	0.25486	0.05047	0.0001		0.35857
Proficient	0.0001	0.03435	0.13665	0.02008		0.19117
Advanced	129E-13	8.21E-6	0.00826	0.04725		0.05552
	=====	=====	=====	=====		=====
Marginal	0.39531	0.34171	0.19555	0.06743		1

Accuracy	Cut #1	Cut #2	Cut #3
0.78086	0.89412	0.91481	0.97155

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.29138	0.06931	0.00210	0.000002		0.3628
Basic	0.06931	0.21719	0.06146	0.000781		0.3488
Proficient	0.00210	0.06146	0.13388	0.020981		0.2184
Advanced	0.00000	0.00078	0.02098	0.048218		0.0700
	=====	=====	=====	=====		=====
	0.36279	0.34874	0.21843	0.069981		1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.31744	0.06790	0.00188	0.000002		0.38729
Basic	0.07552	0.21280	0.05502	0.000752		0.34411
Proficient	0.00229	0.06022	0.11984	0.020214		0.20259
Advanced	0.00000	0.00076	0.01878	0.046455		0.06601
	=====	=====	=====	=====		=====
	0.39525	0.34168	0.19553	0.067423		1.00000

Consistency	Cut #1	Cut #2	Cut #3		kappa
0.69662	0.85239	0.87905	0.95948		0.55727

Accuracy and Consistency of Classifications

Grade 10 Science

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.43219	0.04873	0.00046	0.000000	0.48138
Basic	0.06137	0.20364	0.05511	0.000188	0.32031
Proficient	0.00025	0.02655	0.11649	0.017490	0.16077
Advanced	0.00000	0.00001	0.00702	0.030441	0.03747
	=====	=====	=====	=====	=====
	0.49381	0.27893	0.17908	0.048120	0.99993

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.41696	0.05421	0.00049	4.18E-9	0.47166
Basic	0.05921	0.22655	0.05867	0.00009	0.34452
Proficient	0.00024	0.02954	0.124	0.00823	0.16201
Advanced	295E-12	0.00001	0.00747	0.01433	0.02181
	=====	=====	=====	=====	=====
Marginal	0.47641	0.31031	0.19063	0.02265	1

Accuracy	Cut #1	Cut #2	Cut #3
0.78184	0.88585	0.91096	0.98420

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.41656	0.07288	0.00436	0.000008	0.4938
Basic	0.07288	0.15277	0.05237	0.000880	0.2789
Proficient	0.00436	0.05237	0.10535	0.017010	0.1791
Advanced	0.00001	0.00088	0.01701	0.030224	0.0481
	=====	=====	=====	=====	=====
	0.49381	0.27889	0.17908	0.048121	1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced	Marginal
Novice	0.40186	0.08109	0.00464	0.000004	0.48761
Basic	0.07031	0.16998	0.05574	0.000414	0.29646
Proficient	0.00420	0.05826	0.11214	0.008007	0.18261
Advanced	0.00001	0.00098	0.01810	0.014225	0.03332
	=====	=====	=====	=====	=====
	0.47638	0.31030	0.19062	0.022650	1.00000

Consistency	Cut #1	Cut #2	Cut #3	kappa
0.69823	0.83975	0.87575	0.97248	0.52859

Accuracy and Consistency of Classifications

Grade 10 Social Studies

Step 4

Predicted Classification X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.46033	0.05916	0.00019	0.000000		0.51965
Basic	0.04478	0.22073	0.04421	0.000080		0.30981
Proficient	0.00006	0.02503	0.10464	0.013462		0.14319
Advanced	0.00000	0.00000	0.00532	0.021931		0.02726
	=====	=====	=====	=====		=====
	0.50517	0.30493	0.15437	0.035473		0.99992

Step 5

Actual Classification X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.4374	0.07028	0.00017	381E-12		0.50785
Basic	0.04255	0.26224	0.0406	0.00004		0.34543
Proficient	0.00006	0.02973	0.0961	0.00606		0.13195
Advanced	676E-14	5.92E-6	0.00489	0.00987		0.01477
	=====	=====	=====	=====		=====
Marginal	0.48001	0.36226	0.14176	0.01597		1

Accuracy	Cut #1	Cut #2	Cut #3
0.80560	0.88693	0.92938	0.98901

Step 6

X(1)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.43262	0.07072	0.00180	0.000001		0.5052
Basic	0.07072	0.18701	0.04668	0.000540		0.3050
Proficient	0.00180	0.04668	0.09274	0.013147		0.1544
Advanced	0.00000	0.00054	0.01315	0.021786		0.0355
	=====	=====	=====	=====		=====
	0.50514	0.30495	0.15437	0.035474		1.0000

Step 7

X(0)

tstat	Novice	Basic	Proficient	Advanced		Marginal
Novice	0.41107	0.08401	0.00165	0.000001		0.49676
Basic	0.06720	0.22214	0.04286	0.000243		0.33246
Proficient	0.00171	0.05544	0.08516	0.005918		0.14825
Advanced	0.00000	0.00064	0.01207	0.009806		0.02252
	=====	=====	=====	=====		=====
	0.47998	0.36224	0.14175	0.015967		1.00000

Consistency	Cut #1	Cut #2	Cut #3		kappa
0.72823	0.84542	0.89744	0.98112		0.56147

APPENDIX D

DELTA PLOT ANALYSES RESULTS

Delta Plot Analysis Results - Grade 3 ELA

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
50395	0.5100	0.6200	12.8997	11.7781	12.3682	1	NO
50394	0.6900	0.8100	11.0166	9.4884	10.4632	1	NO
80020	0.3200	0.3600	14.8708	14.4338	14.5777	1	NO
47447	0.6400	0.7400	11.5662	10.4266	11.2438	1	NO
63481	0.6100	0.7000	11.8827	10.9024	11.6396	1	NO
63481	0.5600	0.7000	12.3961	10.9024	11.6396	1	NO
79598	0.6000	0.6800	11.9866	11.1292	11.8283	1	NO
63485	0.6600	0.7100	11.3501	10.7865	11.5432	1	NO
63485	0.6900	0.7100	11.0166	10.7865	11.5432	1	NO
63486	0.6700	0.7100	11.2403	10.7865	11.5432	1	NO
63486	0.7000	0.7100	10.9024	10.7865	11.5432	1	NO
79604	0.4975	0.5375	13.0251	12.6235	13.0715	4	NO
79973	0.7700	0.8100	10.0446	9.4884	10.4632	1	NO
79975	0.6700	0.6900	11.2403	11.0166	11.7346	1	NO
63401	0.5500	0.5900	12.4974	12.0898	12.6275	1	NO
63401	0.5100	0.5900	12.8997	12.0898	12.6275	1	NO
79976	0.6600	0.6700	11.3501	11.2403	11.9208	1	NO
79981	0.5300	0.5600	12.6989	12.3961	12.8824	4	NO
63353	0.7200	0.9000	10.6686	7.8738	9.1199	1	NO
63353	0.8000	0.9000	9.6335	7.8738	9.1199	1	NO
63357	0.6700	0.8100	11.2403	9.4884	10.4632	1	NO
63357	0.7700	0.8100	10.0446	9.4884	10.4632	1	NO
63358	0.7000	0.8600	10.9024	8.6787	9.7896	1	NO
63358	0.8200	0.8600	9.3385	8.6787	9.7896	1	NO
63361	0.7300	0.9100	10.5487	7.6370	8.9229	1	NO
63361	0.8800	0.9100	8.3001	7.6370	8.9229	1	NO
80071	0.4950	0.4825	13.0501	13.1755	13.5308	4	NO
99514	0.8600	0.9000	8.6787	7.8738	9.1199	1	NO
63330	0.8900	0.9200	8.0939	7.3797	8.7088	1	NO
63330	0.7700	0.9200	10.0446	7.3797	8.7088	1	NO
99515	0.8500	0.8700	8.8543	8.4944	9.6362	1	NO
63344	0.6800	0.7000	11.1292	10.9024	11.6396	1	NO
63344	0.5200	0.7000	12.7994	10.9024	11.6396	1	NO
79594	0.5100	0.5325	12.8997	12.6738	13.1134	4	NO
34024	0.7700	0.7800	10.0446	9.9112	10.8150	1	NO
34035	0.6000	0.6300	11.9866	11.6726	12.2804	1	NO
34032	0.7300	0.7900	10.5487	9.7743	10.7011	1	NO
34027	0.6600	0.7600	11.3501	10.1748	11.0343	1	NO
40698	0.3925	0.4325	14.0912	13.6801	13.9506	4	NO
63551	0.8400	0.8600	9.0222	8.6787	9.7896	1	NO
63551	0.6500	0.8600	11.4587	8.6787	9.7896	1	YES
63554	0.6800	0.6600	11.1292	11.3501	12.0121	1	NO
63554	0.4800	0.6600	13.2006	11.3501	12.0121	1	NO
63558	0.5500	0.5500	12.4974	12.4974	12.9666	1	NO
63558	0.4300	0.5500	13.7055	12.4974	12.9666	1	NO
63503	0.5500	0.5800	12.4974	12.1924	12.7129	1	NO
63503	0.5500	0.5800	12.4974	12.1924	12.7129	1	NO
63507	0.5800	0.6100	12.1924	11.8827	12.4552	1	NO
63507	0.5600	0.6100	12.3961	11.8827	12.4552	1	NO
79729	0.4500	0.4700	13.5026	13.3011	13.6353	1	NO
79754	0.3700	0.3800	14.3274	14.2219	14.4014	1	NO
79761	0.5075	0.6000	12.9248	11.9866	12.5417	4	NO
63511	0.5800	0.6500	12.1924	11.4587	12.1025	1	NO
63511	0.6100	0.6500	11.8827	11.4587	12.1025	1	NO
79735	0.6100	0.6100	11.8827	11.8827	12.4552	1	NO
79746	0.7600	0.7900	10.1748	9.7743	10.7011	1	NO
79757	0.4750	0.4725	13.2508	13.2759	13.6144	4	NO
50399	0.6500	0.6400	11.4587	11.5662	12.1919	1	NO
99693	0.5800	0.6100	12.1924	11.8827	12.4552	1	NO
47071	0.7300	0.7700	10.5487	10.0446	10.9260	1	NO
50400	0.4500	0.5000	13.5026	13.0000	13.3848	1	NO
50401	0.4800	0.4675	13.2006	13.3262	13.6562	4	NO

Delta Plot Analysis Results - Grade 3 Mathematics

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
10500	0.6700	0.6500	11.2403	11.4587	11.9407	1	NO
41379	0.8500	0.8700	8.8543	8.4944	9.0895	1	NO
74452	0.5850	0.6250	12.1412	11.7254	12.1973	4	NO
41401	0.7900	0.8300	9.7743	9.1833	9.7522	1	NO
46620	0.5700	0.6200	12.2945	11.7781	12.2479	1	NO
79807	0.7050	0.7200	10.8447	10.6686	11.1808	4	NO
28988	0.7900	0.8400	9.7743	9.0222	9.5971	1	NO
34252	0.8100	0.8400	9.4884	9.0222	9.5971	1	NO
12852	0.4600	0.4575	13.4017	13.4269	13.8338	4	NO
26142	0.6500	0.6900	11.4587	11.0166	11.5155	1	NO
12850	0.5550	0.5625	12.4468	12.3708	12.8180	4	NO
46594	0.5500	0.5900	12.4974	12.0898	12.5477	1	NO
99569	0.8800	0.9300	8.3001	7.0968	7.7453	1	NO
26004	0.8200	0.8300	9.3385	9.1833	9.7522	1	NO
50120	0.5200	0.6000	12.7994	11.9866	12.4485	1	NO
74453	0.6875	0.6850	11.0449	11.0731	11.5698	4	NO
41416	0.5300	0.5400	12.6989	12.5983	13.0368	1	NO
79951	0.6700	0.6800	11.2403	11.1292	11.6238	1	NO
26186	0.3450	0.4150	14.5954	13.8588	14.2492	4	NO
65798	0.7300	0.7400	10.5487	10.4266	10.9480	1	NO
65798	0.6300	0.7400	11.6726	10.4266	10.9480	1	NO
79961	0.8600	0.9200	8.6787	7.3797	8.0174	1	NO
79992	0.5800	0.6000	12.1924	11.9866	12.4485	1	NO
65811	0.4400	0.7900	13.6039	9.7743	10.3206	1	YES
65811	0.7300	0.7900	10.5487	9.7743	10.3206	1	NO
34253	0.9500	0.9500	6.4206	6.4206	7.0948	1	NO
41413	0.6300	0.5300	11.6726	12.6989	13.1336	1	NO
65786	0.7800	0.8600	9.9112	8.6787	9.2668	1	NO
65786	0.8100	0.8600	9.4884	8.6787	9.2668	1	NO
80024	0.3850	0.4025	14.1695	13.9875	14.3730	4	NO
80022	0.9000	0.9100	7.8738	7.6370	8.2648	1	NO
74450	0.8400	0.8600	9.0222	8.6787	9.2668	1	NO
46827	0.8700	0.9000	8.4944	7.8738	8.4926	1	NO
74449	0.6000	0.6000	11.9866	11.9866	12.4485	1	NO
26191	0.3625	0.3575	14.4071	14.4606	14.8281	4	NO
80073	0.7900	0.8100	9.7743	9.4884	10.0456	1	NO
80075	0.6200	0.6800	11.7781	11.1292	11.6238	1	NO
49880	0.4675	0.4675	13.3262	13.3262	13.7370	4	NO
50370	0.8000	0.8500	9.6335	8.8543	9.4356	1	NO
65823	0.3900	0.5600	14.1173	12.3961	12.8424	1	NO
65823	0.5000	0.5600	13.0000	12.3961	12.8424	1	NO
80037	0.5550	0.5725	12.4468	12.2690	12.7201	4	NO
26164	0.4000	0.4600	14.0134	13.4017	13.8096	1	NO
65801	0.7800	0.8500	9.9112	8.8543	9.4356	1	NO
65801	0.8300	0.8500	9.1833	8.8543	9.4356	1	NO

Delta Plot Analysis Results - Grade 6 ELA

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
100874	0.7100	0.6900	10.7865	11.0166	11.3329	1	NO
87363	0.4900	0.4900	13.1003	13.1003	13.1617	1	NO
34865	0.5800	0.6300	12.1924	11.6726	11.9087	1	NO
34866	0.6800	0.7300	11.1292	10.5487	10.9223	1	NO
39941	0.7500	0.8000	10.3020	9.6335	10.1190	1	NO
41918	0.4100	0.4425	13.9102	13.5785	13.5815	4	NO
66084	0.4900	0.5800	13.1003	12.1924	12.3649	1	NO
66084	0.5800	0.5800	12.1924	12.1924	12.3649	1	NO
87370	0.4500	0.5000	13.5026	13.0000	13.0737	1	NO
100880	0.7000	0.7600	10.9024	10.1748	10.5941	1	NO
87373	0.5400	0.5000	12.5983	13.0000	13.0737	1	NO
66104	0.4450	0.4600	13.5532	13.4017	13.4263	4	NO
66104	0.4575	0.4600	13.4269	13.4017	13.4263	4	NO
87366	0.6800	0.7000	11.1292	10.9024	11.2327	1	NO
66090	0.6800	0.7000	11.1292	10.9024	11.2327	1	NO
66090	0.6900	0.7000	11.0166	10.9024	11.2327	1	NO
100878	0.6800	0.7200	11.1292	10.6686	11.0275	1	NO
87374	0.6800	0.7300	11.1292	10.5487	10.9223	1	NO
87376	0.5100	0.5275	12.8997	12.7241	12.8315	4	NO
66187	0.6900	0.8000	11.0166	9.6335	10.1190	1	NO
66187	0.8200	0.8000	9.3385	9.6335	10.1190	1	NO
66191	0.6900	0.6200	11.0166	11.7781	12.0013	1	NO
66191	0.6500	0.6200	11.4587	11.7781	12.0013	1	NO
50481	0.6200	0.6000	11.7781	11.9866	12.1843	1	NO
54554	0.6500	0.6400	11.4587	11.5662	11.8153	1	NO
50482	0.7900	0.8300	9.7743	9.1833	9.7239	1	NO
54553	0.4700	0.4000	13.3011	14.0134	13.9632	1	NO
66193	0.7400	0.7200	10.4266	10.6686	11.0275	1	NO
66193	0.6800	0.7200	11.1292	10.6686	11.0275	1	NO
100813	0.7300	0.7300	10.5487	10.5487	10.9223	1	NO
39931	0.6300	0.6600	11.6726	11.3501	11.6257	1	NO
34991	0.5100	0.4850	12.8997	13.1504	13.2058	4	NO
66194	0.6200	0.5700	11.7781	12.2945	12.4545	1	NO
66194	0.5400	0.5700	12.5983	12.2945	12.4545	1	NO
66142	0.5900	0.6000	12.0898	11.9866	12.1843	1	NO
66142	0.5400	0.6000	12.5983	11.9866	12.1843	1	NO
100814	0.5100	0.5800	12.8997	12.1924	12.3649	1	NO
66143	0.8700	0.9200	8.4944	7.3797	8.1409	1	NO
66143	0.7400	0.9200	10.4266	7.3797	8.1409	1	YES
100815	0.8300	0.8500	9.1833	8.8543	9.4351	1	NO
100812	0.5900	0.6500	12.0898	11.4587	11.7210	4	NO
100787	0.5900	0.6200	12.0898	11.7781	12.0013	1	NO
100799	0.5800	0.6400	12.1924	11.5662	11.8153	1	NO
87002	0.5900	0.6500	12.0898	11.4587	11.7210	1	NO
87026	0.6700	0.7200	11.2403	10.6686	11.0275	1	NO
87029	0.4625	0.4575	13.3765	13.4269	13.4484	4	NO
100797	0.6400	0.7000	11.5662	10.9024	11.2327	1	NO
87013	0.5700	0.6900	12.2945	11.0166	11.3329	1	NO
87019	0.7100	0.7700	10.7865	10.0446	10.4798	1	NO
66174	0.5425	0.5375	12.5731	12.6235	12.7432	4	NO
66174	0.4850	0.5375	13.1504	12.6235	12.7432	4	NO
87316	0.5500	0.5100	12.4974	12.8997	12.9857	1	NO
87318	0.7300	0.6400	10.5487	11.5662	11.8153	1	NO
66200	0.7500	0.8800	10.3020	8.3001	8.9486	1	NO
66200	0.8800	0.8800	8.3001	8.3001	8.9486	1	NO
100833	0.7400	0.7000	10.4266	10.9024	11.2327	1	NO
87321	0.4725	0.4725	13.2759	13.2759	13.3159	4	NO
66195	0.5600	0.7300	12.3961	10.5487	10.9223	1	NO
66195	0.7500	0.7300	10.3020	10.5487	10.9223	1	NO
66196	0.6900	0.7700	11.0166	10.0446	10.4798	1	NO
66196	0.8000	0.7700	9.6335	10.0446	10.4798	1	NO
100827	0.8000	0.7400	9.6335	10.4266	10.8151	1	NO
100831	0.8800	0.8900	8.3001	8.0939	8.7677	1	NO
87320	0.5025	0.4800	12.9749	13.2006	13.2498	4	NO

Delta Plot Analysis Results - Grade 6 Mathematics

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
76559	0.7700	0.8100	10.0446	9.4884	9.9221	1	NO
41815	0.2800	0.2400	15.3314	15.8252	16.1225	1	NO
34288	0.6200	0.6100	11.7781	11.8827	12.2649	1	NO
76553	0.6200	0.6200	11.7781	11.7781	12.1625	1	NO
40490	0.4200	0.4875	13.8076	13.1254	13.4808	4	NO
76556	0.3800	0.4100	14.2219	13.9102	14.2487	1	NO
76560	0.4400	0.4100	13.6039	13.9102	14.2487	1	NO
29086	0.3050	0.3450	15.0403	14.5954	14.9192	4	NO
50260	0.2900	0.3000	15.2135	15.0976	15.4105	1	NO
74445	0.3200	0.3850	14.8708	14.1695	14.5024	4	NO
50261	0.2600	0.2600	15.5734	15.5734	15.8761	1	NO
50256	0.2700	0.3100	15.4513	14.9834	15.2988	1	NO
74441	0.4325	0.4900	13.6801	13.1003	13.4562	4	NO
8275	0.9200	0.9400	7.3797	6.7809	7.2729	1	NO
34293	0.7000	0.6900	10.9024	11.0166	11.4174	1	NO
50249	0.8500	0.8900	8.8543	8.0939	8.5576	1	NO
50250	0.3800	0.4200	14.2219	13.8076	14.1483	1	NO
40488	0.6725	0.7125	11.2127	10.7572	11.1636	4	NO
100773	0.7900	0.8200	9.7743	9.3385	9.7755	1	NO
41819	0.2200	0.2800	16.0888	15.3314	15.6393	1	NO
100782	0.3400	0.3700	14.6499	14.3274	14.6569	1	NO
8294	0.8200	0.8500	9.3385	8.8543	9.3016	1	NO
50471	0.2975	0.3300	15.1264	14.7597	15.0799	4	NO
34298	0.8200	0.8800	9.3385	8.3001	8.7594	1	NO
50247	0.1700	0.2000	16.8167	16.3665	16.6521	1	NO
47013	0.8800	0.9100	8.3001	7.6370	8.1106	1	NO
46884	0.1000	0.1100	18.1262	17.9061	18.1586	1	NO
70677	0.3925	0.4375	14.0912	13.6292	13.9738	4	NO
46888	0.3800	0.4500	14.2219	13.5026	13.8499	1	NO
41817	0.5900	0.6500	12.0898	11.4587	11.8500	1	NO
70664	0.8100	0.8100	9.4884	9.4884	9.9221	1	NO
67136	0.1900	0.2900	16.5116	15.2135	15.5240	1	NO
67136	0.2800	0.2900	15.3314	15.2135	15.5240	1	NO
50266	0.3775	0.4100	14.2482	13.9102	14.2487	4	NO
26206	0.7000	0.7100	10.9024	10.7865	11.1922	1	NO
46879	0.4000	0.4000	14.0134	14.0134	14.3497	1	NO
50253	0.7100	0.6800	10.7865	11.1292	11.5276	1	NO
50248	0.8700	0.8500	8.4944	8.8543	9.3016	1	NO
8332	0.5000	0.5600	13.0000	12.3961	12.7672	4	NO
50257	0.8800	0.9200	8.3001	7.3797	7.8588	1	NO
50246	0.3800	0.4000	14.2219	14.0134	14.3497	1	NO
40484	0.3000	0.2800	15.0976	15.3314	15.6393	1	NO
46890	0.8400	0.8800	9.0222	8.3001	8.7594	1	NO
74442	0.2975	0.3750	15.1264	14.2746	14.6052	4	NO
41803	0.6100	0.6700	11.8827	11.2403	11.6363	1	NO
76548	0.6300	0.6900	11.6726	11.0166	11.4174	1	NO
50252	0.3700	0.3900	14.3274	14.1173	14.4513	1	NO

Delta Plot Analysis Results - Grade 6 Science

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
100576	0.8600	0.8800	8.6787	8.3001	8.4224	1	NO
46796	0.4300	0.4600	13.7055	13.4017	13.5293	1	NO
100571	0.6000	0.6300	11.9866	11.6726	11.7984	1	NO
63213	0.4100	0.3700	13.9102	14.3274	14.4559	1	NO
63213	0.3800	0.3700	14.2219	14.3274	14.4559	1	NO
74388	0.4650	0.4400	13.3514	13.6039	13.7316	4	NO
39775	0.5100	0.5300	12.8997	12.6989	12.8257	1	NO
87334	0.6300	0.6300	11.6726	11.6726	11.7984	1	NO
86935	0.6200	0.6300	11.7781	11.6726	11.7984	1	NO
74380	0.6000	0.5500	11.9866	12.4974	12.6240	1	NO
47901	0.6375	0.6550	11.5929	11.4046	11.5301	4	NO
63218	0.8300	0.8200	9.1833	9.3385	9.4620	1	NO
63218	0.8300	0.8200	9.1833	9.3385	9.4620	1	NO
74377	0.5200	0.5400	12.7994	12.5983	12.7250	1	NO
50214	0.7100	0.6900	10.7865	11.0166	11.1417	1	NO
86757	0.3500	0.3800	14.5413	14.2219	14.3503	1	NO
74379	0.8600	0.8700	8.6787	8.4944	8.6170	1	NO
74382	0.9200	0.9300	7.3797	7.0968	7.2180	1	NO
8404	0.8600	0.8700	8.6787	8.4944	8.6170	1	NO
100626	0.4025	0.4375	13.9875	13.6292	13.7570	4	NO
54580	0.7300	0.7600	10.5487	10.1748	10.2991	1	NO
42195	0.4200	0.4200	13.8076	13.8076	13.9355	1	NO
8362	0.9100	0.9200	7.6370	7.3797	7.5012	1	NO
74381	0.2400	0.2200	15.8252	16.0888	16.2190	1	NO
49841	0.4800	0.5250	13.2006	12.7492	12.8760	4	NO
28575	0.7600	0.7400	10.1748	10.4266	10.5511	1	NO
82799	0.3500	0.3400	14.5413	14.6499	14.7786	1	NO
47902	0.4875	0.4650	13.1254	13.3514	13.4789	4	NO
82816	0.6100	0.6600	11.8827	11.3501	11.4756	1	NO
82812	0.5500	0.5800	12.4974	12.1924	12.3187	1	NO
35644	0.3500	0.3700	14.5413	14.3274	14.4559	1	NO
50210	0.6800	0.7200	11.1292	10.6686	10.7934	1	NO
74387	0.2600	0.2625	15.5734	15.5426	15.6723	4	NO
50206	0.7000	0.7400	10.9024	10.4266	10.5511	1	NO
82829	0.4300	0.4200	13.7055	13.8076	13.9355	1	NO
100820	0.7300	0.7200	10.5487	10.6686	10.7934	1	NO
63224	0.2000	0.3100	16.3665	14.9834	15.1125	1	NO
63224	0.3800	0.3100	14.2219	14.9834	15.1125	1	NO
82842	0.9300	0.9100	7.0968	7.6370	7.7587	1	NO
47903	0.3650	0.4000	14.3805	14.0134	14.1415	4	NO
39776	0.3000	0.3300	15.0976	14.7597	14.8885	1	NO
49838	0.7900	0.7900	9.7743	9.7743	9.8982	1	NO
34822	0.8900	0.8900	8.0939	8.0939	8.2161	1	NO
74386	0.2700	0.2350	15.4513	15.8899	16.0200	4	NO
8430	0.6600	0.6800	11.3501	11.1292	11.2544	1	NO
74378	0.5500	0.7800	12.4974	9.9112	10.0352	1	YES
63221	0.6700	0.6800	11.2403	11.1292	11.2544	1	NO
63221	0.6700	0.6800	11.2403	11.1292	11.2544	1	NO
70653	0.3450	0.3500	14.5954	14.5413	14.6700	4	NO
34807	0.6800	0.6400	11.1292	11.5662	11.6918	1	NO
82765	0.4900	0.5900	13.1003	12.0898	12.2160	1	NO
29246	0.7700	0.7600	10.0446	10.1748	10.2991	1	NO
63216	0.7100	0.7000	10.7865	10.9024	11.0274	1	NO
63216	0.7300	0.7000	10.5487	10.9024	11.0274	1	NO
74385	0.4875	0.5175	13.1254	12.8245	12.9514	4	NO

Delta Plot Analysis Results - Grade 6 Social Studies

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
69445	0.8400	0.8700	9.0222	8.4944	8.8043	1	NO
69445	0.8400	0.8700	9.0222	8.4944	8.8043	1	NO
46938	0.5300	0.5300	12.6989	12.6989	12.7172	1	NO
100846	0.7000	0.6700	10.9024	11.2403	11.3598	1	NO
35418	0.7000	0.6600	10.9024	11.3501	11.4620	1	NO
40556	0.3825	0.3550	14.1957	14.4874	14.3817	4	NO
50501	0.5200	0.5000	12.7994	13.0000	12.9974	1	NO
29202	0.7300	0.7500	10.5487	10.3020	10.4866	1	NO
35402	0.8800	0.8900	8.3001	8.0939	8.4315	1	NO
49894	0.7700	0.7700	10.0446	10.0446	10.2470	1	NO
49901	0.4100	0.4625	13.9102	13.3765	13.3479	4	NO
86954	0.8300	0.8800	9.1833	8.3001	8.6234	1	NO
87137	0.5800	0.6400	12.1924	11.5662	11.6630	1	NO
69470	0.7900	0.7600	9.7743	10.1748	10.3681	1	NO
69470	0.7800	0.7600	9.9112	10.1748	10.3681	1	NO
75604	0.4600	0.4600	13.4017	13.4017	13.3713	1	NO
75598	0.6400	0.6400	11.5662	11.5662	11.6630	1	NO
100630	0.7000	0.7400	10.9024	10.4266	10.6025	1	NO
75602	0.3750	0.3875	14.2746	14.1434	14.0615	4	NO
100581	0.6400	0.6500	11.5662	11.4587	11.5630	1	NO
46939	0.5500	0.5600	12.4974	12.3961	12.4354	1	NO
87345	0.8400	0.8500	9.0222	8.8543	9.1392	1	NO
75616	0.7700	0.7400	10.0446	10.4266	10.6025	1	NO
8471	0.4825	0.5050	13.1755	12.9499	12.9508	4	NO
46920	0.7800	0.8200	9.9112	9.3385	9.5899	1	NO
75617	0.6100	0.6300	11.8827	11.6726	11.7621	1	NO
75606	0.7000	0.7300	10.9024	10.5487	10.7162	1	NO
49899	0.4750	0.4100	13.2508	13.9102	13.8445	4	NO
26362	0.5500	0.6600	12.4974	11.3501	11.4620	1	NO
50278	0.7900	0.7700	9.7743	10.0446	10.2470	1	NO
75613	0.4800	0.5300	13.2006	12.6989	12.7172	1	NO
40580	0.7100	0.7700	10.7865	10.0446	10.2470	1	NO
75608	0.4700	0.4600	13.3011	13.4017	13.3713	4	NO
13221	0.6600	0.6900	11.3501	11.0166	11.1516	1	NO
75609	0.6500	0.6900	11.4587	11.0166	11.1516	1	NO
50281	0.7300	0.7600	10.5487	10.1748	10.3681	1	NO
8464	0.6500	0.7000	11.4587	10.9024	11.0453	1	NO
75592	0.3225	0.3075	14.8429	15.0118	14.8697	4	NO
69482	0.7400	0.7600	10.4266	10.1748	10.3681	1	NO
69482	0.7400	0.7600	10.4266	10.1748	10.3681	1	NO
42084	0.5800	0.6100	12.1924	11.8827	11.9576	1	NO
46971	0.6100	0.5900	11.8827	12.0898	12.1504	1	NO
69478	0.6300	0.6800	11.6726	11.1292	11.2564	1	NO
69478	0.7500	0.6800	10.3020	11.1292	11.2564	1	NO
86983	0.4275	0.4300	13.7310	13.7055	13.6540	4	NO
69476	0.7800	0.8500	9.9112	8.8543	9.1392	1	NO
69476	0.8700	0.8500	8.4944	8.8543	9.1392	1	NO
75610	0.6200	0.6400	11.7781	11.5662	11.6630	1	NO
100642	0.6300	0.5800	11.6726	12.1924	12.2459	1	NO
54593	0.8200	0.7700	9.3385	10.0446	10.2470	1	NO
75601	0.3400	0.3125	14.6499	14.9551	14.8170	4	NO
46952	0.6900	0.7200	11.0166	10.6686	10.8277	1	NO
69280	0.6100	0.5100	11.8827	12.8997	12.9041	1	NO
69280	0.5400	0.5100	12.5983	12.8997	12.9041	1	NO
75612	0.5200	0.5100	12.7994	12.8997	12.9041	1	NO
35369	0.8000	0.8200	9.6335	9.3385	9.5899	1	NO
29180	0.4775	0.5000	13.2257	13.0000	12.9974	4	NO
46946	0.9200	0.9300	7.3797	7.0968	7.5036	1	NO
69485	0.6100	0.7000	11.8827	10.9024	11.0453	1	NO
69485	0.7100	0.7000	10.7865	10.9024	11.0453	1	NO
26309	0.6300	0.6400	11.6726	11.5662	11.6630	1	NO
29201	0.8700	0.9100	8.4944	7.6370	8.0063	1	NO
75593	0.4150	0.3850	13.8588	14.1695	14.0859	4	NO

Delta Plot Analysis Results - Grade 10 ELA

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
65953	0.8000	0.7900	9.6335	9.7743	10.1686	1	NO
65953	0.8200	0.7900	9.3385	9.7743	10.1686	1	NO
89185	0.7800	0.7100	9.9112	10.7865	11.2196	1	NO
89189	0.7900	0.8200	9.7743	9.3385	9.7160	1	NO
65893	0.5900	0.6000	12.0898	11.9866	12.4659	1	NO
65893	0.4200	0.6000	13.8076	11.9866	12.4659	1	NO
65896	0.6600	0.6400	11.3501	11.5662	12.0293	1	NO
65896	0.5300	0.6400	12.6989	11.5662	12.0293	1	NO
89193	0.5900	0.5500	12.0898	12.4974	12.9963	1	NO
65903	0.4675	0.4800	13.3262	13.2006	13.7266	4	NO
65903	0.2800	0.4800	15.3314	13.2006	13.7266	4	NO
89267	0.8300	0.8100	9.1833	9.4884	9.8717	1	NO
89271	0.6900	0.7500	11.0166	10.3020	10.7166	1	NO
89275	0.7500	0.8000	10.3020	9.6335	10.0224	1	NO
65914	0.6000	0.8300	11.9866	9.1833	9.5549	1	YES
65914	0.7600	0.8300	10.1748	9.1833	9.5549	1	NO
65923	0.4575	0.6050	13.4269	11.9348	12.4121	4	NO
65923	0.5875	0.6050	12.1155	11.9348	12.4121	4	NO
89424	0.8000	0.8100	9.6335	9.4884	9.8717	1	NO
98933	0.6200	0.6200	11.7781	11.7781	12.2494	1	NO
65942	0.4100	0.4000	13.9102	14.0134	14.5706	1	NO
65942	0.3500	0.4000	14.5413	14.0134	14.5706	1	NO
89426	0.5250	0.5050	12.7492	12.9499	13.4662	4	NO
89256	0.5100	0.5100	12.8997	12.8997	13.4141	1	NO
65956	0.6000	0.5800	11.9866	12.1924	12.6796	1	NO
65956	0.5800	0.5800	12.1924	12.1924	12.6796	1	NO
89186	0.7000	0.7300	10.9024	10.5487	10.9728	1	NO
65894	0.5500	0.6000	12.4974	11.9866	12.4659	1	NO
65894	0.4700	0.6000	13.3011	11.9866	12.4659	1	NO
65897	0.6700	0.6900	11.2403	11.0166	11.4586	1	NO
65897	0.6500	0.6900	11.4587	11.0166	11.4586	1	NO
65898	0.6800	0.7100	11.1292	10.7865	11.2196	1	NO
65898	0.4200	0.7100	13.8076	10.7865	11.2196	1	YES
89195	0.4300	0.4150	13.7055	13.8588	14.4101	4	NO
65948	0.7100	0.7600	10.7865	10.1748	10.5844	1	NO
65948	0.7200	0.7600	10.6686	10.1748	10.5844	1	NO
89356	0.7100	0.7400	10.7865	10.4266	10.8459	1	NO
65950	0.6200	0.7200	11.7781	10.6686	11.0973	1	NO
65950	0.7300	0.7200	10.5487	10.6686	11.0973	1	NO
65952	0.7200	0.7400	10.6686	10.4266	10.8459	1	NO
65952	0.6500	0.7400	11.4587	10.4266	10.8459	1	NO
41937	0.8000	0.8500	9.6335	8.8543	9.2132	1	NO
39961	0.7500	0.7900	10.3020	9.7743	10.1686	1	NO
50758	0.5800	0.6100	12.1924	11.8827	12.3580	1	NO
41932	0.5800	0.6600	12.1924	11.3501	11.8050	1	NO
41939	0.5450	0.5675	12.5478	12.3199	12.8121	4	NO
49920	0.8000	0.8200	9.6335	9.3385	9.7160	1	NO
54661	0.6300	0.6500	11.6726	11.4587	11.9177	1	NO
41931	0.7900	0.8300	9.7743	9.1833	9.5549	1	NO
39968	0.6800	0.7200	11.1292	10.6686	11.0973	1	NO
50770	0.4750	0.4900	13.2508	13.1003	13.6224	4	NO
49919	0.6900	0.6400	11.0166	11.5662	12.0293	1	NO
50769	0.5300	0.5700	12.6989	12.2945	12.7856	1	NO
49926	0.7700	0.7600	10.0446	10.1748	10.5844	1	NO
49927	0.8100	0.8300	9.4884	9.1833	9.5549	1	NO
46405	0.4925	0.5700	13.0752	12.2945	12.7856	4	NO
50795	0.8200	0.8500	9.3385	8.8543	9.2132	1	NO
46484	0.6300	0.6200	11.6726	11.7781	12.2494	1	NO
54666	0.7300	0.7600	10.5487	10.1748	10.5844	1	NO
46481	0.4100	0.4300	13.9102	13.7055	14.2509	1	NO
50797	0.5150	0.5450	12.8496	12.5478	13.0487	4	NO
89454	0.8500	0.8800	8.8543	8.3001	8.6376	1	NO
89452	0.5200	0.6000	12.7994	11.9866	12.4659	1	NO
89457	0.7300	0.7900	10.5487	9.7743	10.1686	1	NO
89458	0.8000	0.7900	9.6335	9.7743	10.1686	1	NO
89460	0.4850	0.5175	13.1504	12.8245	13.3360	4	NO
89262	0.7300	0.7600	10.5487	10.1748	10.5844	1	NO
89278	0.8500	0.9100	8.8543	7.6370	7.9491	1	NO
89281	0.8600	0.8800	8.6787	8.3001	8.6376	1	NO
89285	0.6800	0.6600	11.1292	11.3501	11.8050	1	NO
89288	0.4725	0.5500	13.2759	12.4974	12.9963	4	NO

Delta Plot Analysis Results - Grade 10 Mathematics

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
29046	0.3600	0.3800	14.4338	14.2219	14.3967	1	NO
50142	0.4100	0.4500	13.9102	13.5026	13.7204	1	NO
50154	0.3500	0.3700	14.5413	14.3274	14.4959	1	NO
50150	0.5300	0.5500	12.6989	12.4974	12.7753	1	NO
45317	0.3100	0.2600	14.9834	15.5734	15.6673	1	NO
39980	0.3100	0.3500	14.9834	14.5413	14.6969	4	NO
50157	0.2500	0.2700	15.6980	15.4513	15.5525	1	NO
29053	0.1700	0.1400	16.8167	17.3213	17.3107	1	NO
50467	0.1425	0.1450	17.2766	17.2325	17.2272	4	NO
50141	0.6300	0.6700	11.6726	11.2403	11.5934	1	NO
35186	0.5900	0.6200	12.0898	11.7781	12.0990	1	NO
39924	0.2800	0.3100	15.3314	14.9834	15.1126	1	NO
50462	0.6600	0.6600	11.3501	11.3501	11.6967	1	NO
50463	0.4300	0.4500	13.7055	13.5026	13.7204	1	NO
76740	0.2675	0.2850	15.4816	15.2722	15.3841	4	NO
50143	0.4700	0.5800	13.3011	12.1924	12.4886	1	NO
35168	0.4500	0.5100	13.5026	12.8997	13.1536	1	NO
46151	0.3800	0.4300	14.2219	13.7055	13.9111	1	NO
46220	0.2900	0.3000	15.2135	15.0976	15.2200	1	NO
8623	0.2400	0.2675	15.8252	15.4816	15.5810	4	NO
35153	0.4300	0.4200	13.7055	13.8076	14.0071	1	NO
41897	0.4900	0.5200	13.1003	12.7994	13.0592	1	NO
39918	0.4000	0.3800	14.0134	14.2219	14.3967	1	NO
50149	0.5700	0.5900	12.2945	12.0898	12.3921	1	NO
8698	0.5300	0.5400	12.6989	12.5983	12.8701	1	NO
35152	0.3400	0.3600	14.6499	14.4338	14.5959	1	NO
39917	0.5500	0.5200	12.4974	12.7994	13.0592	1	NO
39979	0.2625	0.2875	15.5426	15.2428	15.3565	4	NO

Delta Plot Analysis Results - Grade 10 Science

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
70631	0.6300	0.6300	11.6726	11.6726	11.7171	1	NO
80633	0.6400	0.6100	11.5662	11.8827	11.9362	1	NO
63415	0.4200	0.5100	13.8076	12.8997	12.9966	1	NO
63415	0.4800	0.5100	13.2006	12.8997	12.9966	1	NO
63397	0.4200	0.4100	13.8076	13.9102	14.0502	1	NO
63397	0.3800	0.4100	14.2219	13.9102	14.0502	1	NO
26824	0.3825	0.3975	14.1957	14.0393	14.1848	4	NO
63436	0.7600	0.5600	10.1748	12.3961	12.4715	1	YES
63436	0.6000	0.5600	11.9866	12.3961	12.4715	1	NO
50409	0.2150	0.4125	16.1568	13.8845	14.0234	4	YES
49952	0.3325	0.3300	14.7321	14.7597	14.9359	4	NO
63389	0.3800	0.3100	14.2219	14.9834	15.1692	1	NO
63389	0.3200	0.3100	14.8708	14.9834	15.1692	1	NO
63388	0.2600	0.4200	15.5734	13.8076	13.9432	1	NO
63388	0.3400	0.4200	14.6499	13.8076	13.9432	1	NO
74360	0.6700	0.6700	11.2403	11.2403	11.2664	1	NO
63411	0.4100	0.4100	13.9102	13.9102	14.0502	1	NO
63411	0.4500	0.4100	13.5026	13.9102	14.0502	1	NO
46710	0.6000	0.6600	11.9866	11.3501	11.3809	1	NO
70642	0.5500	0.5700	12.4974	12.2945	12.3656	1	NO
49953	0.3000	0.3175	15.0976	14.8988	15.0810	4	NO
70641	0.6500	0.6700	11.4587	11.2403	11.2664	1	NO
74359	0.1600	0.1500	16.9778	17.1457	17.4239	1	NO
80663	0.6100	0.6300	11.8827	11.6726	11.7171	1	NO
80657	0.6000	0.6100	11.9866	11.8827	11.9362	1	NO
50407	0.2700	0.2500	15.4513	15.6980	15.9143	1	NO
80667	0.8500	0.8700	8.8543	8.4944	8.4033	1	NO
70643	0.3600	0.3700	14.4338	14.3274	14.4852	1	NO
63410	0.4800	0.5600	13.2006	12.3961	12.4715	1	NO
63410	0.5800	0.5600	12.1924	12.3961	12.4715	1	NO
74365	0.3450	0.3500	14.5954	14.5413	14.7082	4	NO
80678	0.6200	0.6200	11.7781	11.7781	11.8271	1	NO
70633	0.5800	0.5500	12.1924	12.4974	12.5771	1	NO
70639	0.3500	0.3700	14.5413	14.3274	14.4852	1	NO
63378	0.1800	0.2100	16.6615	16.2257	16.4645	1	NO
63378	0.1700	0.2100	16.8167	16.2257	16.4645	1	NO
74366	0.3600	0.3400	14.4338	14.6499	14.8214	4	NO
70632	0.3600	0.3100	14.4338	14.9834	15.1692	1	NO
74362	0.6700	0.7300	11.2403	10.5487	10.5453	1	NO
46716	0.7300	0.7100	10.5487	10.7865	10.7931	1	NO
99201	0.4900	0.4800	13.1003	13.2006	13.3103	1	NO
74368	0.2700	0.2925	15.4513	15.1844	15.3788	4	NO
80699	0.2600	0.2400	15.5734	15.8252	16.0470	1	NO
80695	0.6700	0.7100	11.2403	10.7865	10.7931	1	NO
70640	0.4700	0.4700	13.3011	13.3011	13.4151	1	NO
80702	0.6900	0.7000	11.0166	10.9024	10.9140	1	NO
70648	0.4050	0.3925	13.9617	14.0912	14.2390	4	NO
74367	0.1675	0.1775	16.8564	16.6997	16.9588	4	NO

Delta Plot Analysis Results - Grade 10 Social Studies

IREF	OLDP	NEWP	OLDDDELTA	NEWDELTA	LINE	MAX	DISCARD
47369	0.7600	0.7600	10.1748	10.1748	10.4470	1	NO
49774	0.5100	0.3900	12.8997	14.1173	14.1206	1	NO
75669	0.6300	0.6200	11.6726	11.7781	11.9409	1	NO
75622	0.3725	0.3750	14.3010	14.2746	14.2672	4	NO
40442	0.7600	0.8000	10.1748	9.6335	9.9426	1	NO
8877	0.7900	0.7800	9.7743	9.9112	10.2014	1	NO
8797	0.7600	0.7700	10.1748	10.0446	10.3257	1	NO
75628	0.4025	0.3575	13.9875	14.4606	14.4405	4	NO
35249	0.6300	0.6800	11.6726	11.1292	11.3363	1	NO
99131	0.4800	0.4600	13.2006	13.4017	13.4539	1	NO
75661	0.5400	0.5400	12.5983	12.5983	12.7052	1	NO
75624	0.4500	0.4700	13.5026	13.3011	13.3601	4	NO
75676	0.6400	0.7200	11.5662	10.6686	10.9071	1	NO
75685	0.5800	0.6000	12.1924	11.9866	12.1352	1	NO
75658	0.5700	0.6100	12.2945	11.8827	12.0384	1	NO
47361	0.6400	0.7700	11.5662	10.0446	10.3257	1	NO
40444	0.5600	0.6400	12.3961	11.5662	11.7435	1	NO
8813	0.7700	0.7800	10.0446	9.9112	10.2014	1	NO
49768	0.3500	0.3650	14.5413	14.3805	14.3659	4	NO
29628	0.6800	0.6900	11.1292	11.0166	11.2314	1	NO
89445	0.6400	0.6100	11.5662	11.8827	12.0384	1	NO
75629	0.3325	0.3200	14.7321	14.8708	14.8228	4	NO
75675	0.5400	0.6200	12.5983	11.7781	11.9409	1	NO
75682	0.5500	0.5900	12.4974	12.0898	12.2314	1	NO
50442	0.6300	0.6500	11.6726	11.4587	11.6433	1	NO
49769	0.3500	0.3000	14.5413	15.0976	15.0341	4	NO
50441	0.5700	0.5400	12.2945	12.5983	12.7052	1	NO
75655	0.7200	0.7100	10.6686	10.7865	11.0169	1	NO
35326	0.6600	0.6300	11.3501	11.6726	11.8426	1	NO
75657	0.5800	0.5600	12.1924	12.3961	12.5168	1	NO
29118	0.4100	0.4600	13.9102	13.4017	13.4539	4	NO
89622	0.6100	0.6000	11.8827	11.9866	12.1352	1	NO
99180	0.7200	0.7000	10.6686	10.9024	11.1250	1	NO
75652	0.5900	0.6200	12.0898	11.7781	11.9409	1	NO
75626	0.3875	0.3600	14.1434	14.4338	14.4156	4	NO
75663	0.6700	0.7300	11.2403	10.5487	10.7954	1	NO
75649	0.6400	0.6700	11.5662	11.2403	11.4399	1	NO
47096	0.5300	0.5600	12.6989	12.3961	12.5168	1	NO
41938	0.4250	0.4525	13.7565	13.4774	13.5244	4	NO
54668	0.6200	0.7300	11.7781	10.5487	10.7954	1	NO
47433	0.6300	0.6500	11.6726	11.4587	11.6433	1	NO
40456	0.5200	0.5400	12.7994	12.5983	12.7052	1	NO
75623	0.3500	0.4100	14.5413	13.9102	13.9277	4	NO
35319	0.6600	0.6700	11.3501	11.2403	11.4399	1	NO
75677	0.7900	0.7200	9.7743	10.6686	10.9071	1	NO
49766	0.3250	0.3400	14.8150	14.6499	14.6169	4	NO

APPENDIX E
SAMPLE REPORTS

