



Spring 2016

Nebraska State Accountability (NeSA)

Reading, Mathematics and Science

Alternate Assessment

Technical Report Appendices

October 2016

Prepared by Data Recognition Corporation





Appendix A: NeSA-AAR Test Blueprint

Nebraska State Accountability - Alternate Assessment of Reading (NeSA-AAR)						
Table of Specifications						
Grade 3						
Gr3 Vocabulary	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 3.1.5 Vocabulary: Students will build literary, general academic, and content specific grade level vocabulary.						
LA 3.1.5.a <u>General</u> Apply word structure elements, known words, and word patterns to determine meanings <u>Extended</u> <i>Identify plural words and illustrations that show more than one</i>	4	0-1	1-2	1-2	1-2	3-7
LA 3.1.5.c <u>General</u> Apply context clues and text features to help infer meaning of unknown words <u>Extended</u> <i>Use context clues and text features to determine meaning of unknown words</i>	4	0	1-2	1-2	1-2	3-6
LA 3.1.5.d <u>General</u> Identify semantic relationships <u>Extended</u> <i>Categorize words or illustrations</i>	3	0	0-1	0-2	0	0-3
Gr3 Comprehension	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 3.1.6 Students will extract and construct meaning using prior knowledge, applying text information, and monitoring comprehension while reading grade level text.						
LA 3.1.6.a <u>General</u> Identify author's purpose(s) to support text comprehension <u>Extended</u> <i>Recognize that authors communicate their thoughts through writing</i>	4	0	0-1	1-2	0-1	1-4
LA 3.1.6.b <u>General</u> Identify elements of narrative text <u>Extended</u> <i>Identify elements of narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 3.1.6.c <u>General</u> Retell and summarize narrative text including characters, setting, and plot with supporting details <u>Extended</u> <i>Recall basic facts from narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 3.1.6.d <u>General</u> Identify literary devices and explain the ways in which language is used <u>Extended</u> <i>Identify the literary device, onomatopoeia</i>	4	0	0-1	1-2	0-1	1-4

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LA 3.1.6.e <u>General</u> Retell and summarize the main idea from informational text using supporting details <u>Extended</u> <i>Identify the main idea from an informational text</i>	4	0	0-1	1-2	0-1	1-4
LA 3.1.6.f <u>General</u> Recognize and apply knowledge of organizational patterns found in informational text <u>Extended</u> <i>Identify the first event in a three-step organizational pattern in informational text using illustrations</i>	4	0	0-1	1-2	0-1	1-4
LA 3.1.6.g <u>General</u> Apply knowledge of text features to locate information and gain meaning from a text <u>Extended</u> <i>Apply knowledge of text features to gain meaning</i>	4	0-1	0-1	1-2	0-1	1-5
LA 3.1.6.h <u>General</u> Describe the defining characteristics of narrative and informational genres <u>Extended</u> <i>Recognize informational (nonfiction) genres</i>	4	0	0-1	0-1	0-1	1-4
LA 3.1.6.j <u>General</u> Generate and/or answer literal, inferential, and critical questions, supporting answers using prior knowledge and literal and inferential information from the text <u>Extended</u> <i>Answer literal questions using information from the text</i>	4	0	0-1	0-1	0-1	1-4

Nebraska State Accountability - Alternate Assessment of Reading (NeSA-AAR)						
Table of Specifications						
Grade 4						
Gr4 Vocabulary	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 4.1.5 Vocabulary: Students will build literary, general academic, and content specific grade level vocabulary.						
LA 4.1.5.a <u>General</u> Apply knowledge of word structure elements, known words, and word patterns to determine meanings <u>Extended</u> <i>Identify singular and plural illustrations and words representing nouns</i>	4	0-1	1-2	1-2	1-2	3-7
LA 4.1.5.c <u>General</u> Apply context clues and text features to infer meaning of unknown words <u>Extended</u> <i>Use context clues and text features to determine meaning of unknown words</i>	4	0	1-2	1-2	1-2	3-6
LA 4.1.5.d <u>General</u> Identify semantic relationships <u>Extended</u> <i>Identify word patterns/families</i>	3	0	0-1	0-2	0	0-3
Gr4 Comprehension	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 4.1.6 Students will extract and construct meaning using prior knowledge, applying text information, and monitoring comprehension while reading grade level text.						
LA 4.1.6.a <u>General</u> Identify author's purpose(s) and recognize how author perspective influences text <u>Extended</u> <i>Identify author's purpose through the feelings of the reader</i>	4	0	0-1	1-2	0-1	1-4
LA 4.1.6.b <u>General</u> Identify and analyze elements of narrative text <u>Extended</u> <i>Identify elements of narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 4.1.6.c <u>General</u> Summarize narrative text including characters, setting, and plot with supporting details <u>Extended</u> <i>Recall basic facts from narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 4.1.6.d <u>General</u> Identify literary devices and explain the ways in which language is used <u>Extended</u> <i>Identify the literary device of imagery by matching descriptions to illustrations</i>	4	0	0-1	1-2	0-1	1-4
LA 4.1.6.e <u>General</u> Retell and summarize the main idea from informational text using supporting details <u>Extended</u> <i>Identify the main idea from an informational text</i>	4	0	0-1	1-2	0-1	1-4

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LA 4.1.6.f <u>General</u> Recognize and apply knowledge of organizational patterns found in informational text <u>Extended</u> <i>Identify the first and last event in a three-step organizational pattern in informational text using illustrations</i>	4	0	0-1	1-2	0-1	1-4
LA 4.1.6.g <u>General</u> Apply knowledge of text features to locate information and gain meaning from a text <u>Extended</u> <i>Apply knowledge of text features to locate information on simple maps</i>	4	0-1	0-1	1-2	0-1	1-5
LA 4.1.6.h <u>General</u> Describe the defining characteristics of narrative and informational genres <u>Extended</u> <i>Recognize narrative (fiction) genres</i>	4	0	0-1	0-1	0-1	0-3
LA 4.1.6.j <u>General</u> Generate and/or answer literal, inferential, and critical questions, supporting answers using prior knowledge and literal and inferential information from the text <u>Extended</u> <i>Answer literal questions using information from the text</i>	4	0	1-2	1-2	0-1	2-5

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Table of Specifications						
Grade 5						
Gr5 Vocabulary	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 5.1.5 Vocabulary: Students will build literary, general academic, and content specific grade level vocabulary.						
LA 5.1.5.a General Apply knowledge of word structure elements, known words, and word patterns to determine meanings Extended <i>Identify the illustration or word representing parts of speech and word structure</i>	4	0-1	1-2	1-2	1-2	3-7
LA 5.1.5.c General Select and apply context clues and text features to determine meaning of unknown words in a variety of text structures Extended <i>Use context clues and text features to determine meaning of unknown words in a variety of text structures</i>	4	0	1-2	1-2	1-2	3-6
LA 5.1.5.d General Identify semantic relationships Extended <i>Identify synonyms and antonyms using illustrations or words</i>	3	0	0-1	0-2	0	0-3
Gr5 Comprehension	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 5.1.6 Students will extract and construct meaning using prior knowledge, applying text information, and monitoring comprehension while reading grade level text.						
LA 5.1.6.a General Identify author's purpose(s) and recognize how author perspective influences text Extended <i>Determine if the author's purpose is to entertain</i>	4	0	0-1	1-2	0-1	1-4
LA 5.1.6.b General Identify and analyze elements of narrative text Extended <i>Identify elements of narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 5.1.6.c General Summarize narrative text including characters, setting, plot, and theme with supporting details Extended <i>Recall basic facts from narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 5.1.6.d General Identify literary devices and explain the ways in which language is used Extended <i>Identify the literary device of alliteration</i>	4	0	0-1	1-2	0-1	1-4

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LA 5.1.6.e <u>General</u> Summarize and analyze the main idea from informational text using supporting details <u>Extended</u> <i>Identify the main idea from an informational text using supporting details</i>	4	0	0-1	1-2	0-1	1-4
LA 5.1.6.f <u>General</u> Understand and apply knowledge of organizational patterns found in informational text <u>Extended</u> <i>Sequence three events in informational text using illustrations</i>	4	0	0-1	1-2	0-1	1-4
LA 5.1.6.g <u>General</u> Apply knowledge of text features to locate information and gain meaning from a text <u>Extended</u> <i>Apply knowledge of text features to locate information on schedule or chart</i>	4	0-1	0-1	1-2	0-1	1-5
LA 5.1.6.h <u>General</u> Describe the defining characteristics of narrative and informational genres <u>Extended</u> <i>Discriminate between informational and narrative (fiction and nonfiction) genres</i>	4	0	0-1	0-1	0-1	0-3
LA 5.1.6.k <u>General</u> Generate and/or answer literal, inferential, and critical questions, supporting answers using prior knowledge and literal and inferential information from the text and additional sources <u>Extended</u> <i>Answer literal questions using information from the text to support answers</i>	4	0	1-2	1-2	0-1	2-5

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Table of Specifications						
Grade 6						
Gr6 Vocabulary	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 6.1.5 Vocabulary: Students will build literary, general academic, and content specific grade level vocabulary.						
LA 6.1.5.a <u>General</u> Determine the meaning of words through structural analysis, using knowledge of Greek, Latin, and Anglo Saxon roots, prefixes, and suffixes to understand complex words, including words in science, mathematics, and social studies <u>Extended</u> <i>Determine the meaning of words using roots, prefixes, and suffixes, including words in science, mathematics, and social studies</i>	4	0-1	1-2	1-2	1-2	3-7
LA 6.1.5.c <u>General</u> Select and apply knowledge of context clues and text features to determine meaning of unknown words in a variety of text structures <u>Extended</u> <i>Use context clues and text features to determine meaning of unknown words in a variety of text structures</i>	4	0	1-2	1-2	1-2	3-6
LA 6.1.5.d <u>General</u> Identify semantic relationships <u>Extended</u> <i>Identify semantic relationships</i>	3	0	0-1	0-2	0	0-3
Gr6 Comprehension	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 6.1.6 Students will extract and construct meaning using prior knowledge, applying text information, and monitoring comprehension while reading grade level text.						
LA 6.1.6.a <u>General</u> Explain how author's purpose and perspective affect the meaning and reliability of the text <u>Extended</u> <i>Determine if the author's purpose is to inform</i>	4	0	0-1	1-2	0-1	1-4
LA 6.1.6.b <u>General</u> Identify and analyze elements of narrative text <u>Extended</u> <i>Identify elements of narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 6.1.6.c <u>General</u> Summarize narrative text using understanding of characters, setting, sequence of events, plot, and theme <u>Extended</u> <i>Recall basic facts from narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 6.1.6.d <u>General</u> Interpret and explain the author's use of literary devices <u>Extended</u> <i>Identify the use of literary devices in a narrative passage</i>	4	0	0-1	1-2	0-1	1-4

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LA 6.1.6.e <u>General</u> Summarize, analyze, and synthesize informational text using main idea and supporting details <u>Extended</u> <i>Identify and retell the main idea from informational text</i>	4	0	0-1	1-2	0-1	1-4
LA 6.1.6.f <u>General</u> Apply knowledge of organizational patterns found in informational text <u>Extended</u> <i>Identify organizational patterns found in informational text</i>	4	0	0-1	1-2	0-1	1-4
LA 6.1.6.g <u>General</u> Apply knowledge of text features to locate information and gain meaning from a text <u>Extended</u> <i>Use text features to locate information</i>	4	0-1	0-1	1-2	0-1	1-5
LA 6.1.6.h <u>General</u> Distinguish between the defining characteristics of different narrative and informational genres <u>Extended</u> <i>Identify a story book, text book, and magazine</i>	4	0	0-1	0-1	0-1	0-3
LA 6.1.6.k <u>General</u> Generate and/or answer literal, inferential, critical, and interpretive questions, supporting answers using prior knowledge and information from the text and additional sources <u>Extended</u> <i>Answer literal questions using prior knowledge and supporting information from the text</i>	4	0	1-2	1-2	0-1	2-5

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Table of Specifications						
Grade 7						
Gr7 Vocabulary	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 7.1.5 Vocabulary: Students will build literary, general academic, and content specific grade level vocabulary.						
LA 7.1.5.a <u>General</u> Determine the meaning of words through structural analysis, using knowledge of Greek, Latin, and Anglo Saxon roots, prefixes, and suffixes to understand complex words, including words in science, mathematics, and social studies <u>Extended</u> <i>Determine the meaning of words using roots, prefixes, and suffixes, including words in science, mathematics, and social studies</i>	4	0-1	1-2	1-2	1-2	3-7
LA 7.1.5.c <u>General</u> Select and apply knowledge of context clues and text features appropriate to a particular text to determine meaning of unknown words <u>Extended</u> <i>Use context clues and text features to determine meaning of unknown words</i>	4	0	1-2	1-2	1-2	3-6
LA 7.1.5.d <u>General</u> Analyze semantic relationships <u>Extended</u> <i>Identify semantic relationships</i>	3	0	0-1	0-2	0	0-3
Gr7 Comprehension	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 7.1.6 Students will extract and construct meaning using prior knowledge, applying text information, and monitoring comprehension while reading grade level text.						
LA 7.1.6.a <u>General</u> Analyze the meaning, reliability, and validity of the text considering author's purpose and perspective <u>Extended</u> <i>Determine if the author's purpose is to entertain or inform the reader</i>	4	0	0-1	1-2	0-1	1-4
LA 7.1.6.b <u>General</u> Identify and analyze elements of narrative text <u>Extended</u> <i>Identify elements of narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 7.1.6.c <u>General</u> Analyze author's use of literary devices <u>Extended</u> <i>Identify the use of literary devices in a narrative passage</i>	4	0	0-1	1-2	0-1	1-4
LA 7.1.6.d <u>General</u> Summarize, analyze, and synthesize informational text using main idea and supporting details <u>Extended</u> <i>Identify the main idea from informational text</i>	4	0	0-1	1-2	0-1	1-4

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LA 7.1.6.e <u>General</u> Apply knowledge of organizational patterns found in informational text <u>Extended</u> <i>Identify organizational patterns found in informational text</i>	4	0	0-1	1-2	0-1	1-4
LA 7.1.6.f <u>General</u> Apply knowledge of text features to locate information and gain meaning from a text <u>Extended</u> <i>Use text features to locate information</i>	4	0-1	0-1	1-2	0-1	1-5
LA 7.1.6.g <u>General</u> Explain and make inferences based on the characteristics of narrative and informational genres <u>Extended</u> <i>Identify narrative and informational genres</i>	4	0	0-1	0-1	0-1	0-3
LA 7.1.6.j <u>General</u> Generate and/or answer literal, inferential, critical, and interpretive questions, analyzing prior knowledge, information from the text and additional sources, to support answers <u>Extended</u> <i>Answer literal questions using prior knowledge and supporting information from the text</i>	4	0	1-2	1-2	0-1	2-5

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Table of Specifications						
Grade 8						
Gr8 Vocabulary	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 8.1.5 Vocabulary: Students will build literary, general academic, and content specific grade level vocabulary.						
LA 8.1.5.a <u>General</u> Determine the meaning of words through structural analysis, using knowledge of Greek, Latin, and Anglo Saxon roots, prefixes, and suffixes to understand complex words, including words in science, mathematics, and social studies <u>Extended</u> <i>Determine the meaning of words using roots, prefixes, and suffixes, including words in science, mathematics, and social studies</i>	4	0-1	1-2	1-2	1-2	3-7
LA 8.1.5.c <u>General</u> Select a context clue strategy to determine meaning of unknown words appropriate to text <u>Extended</u> <i>Use context clues and text features to determine meaning of unknown words appropriate to text</i>	4	0	1-2	1-2	1-2	3-6
LA 8.1.5.d <u>General</u> Analyze semantic relationships <u>Extended</u> <i>Identify semantic relationships</i>	3	0	0-1	0-2	0	0-3
Gr8 Comprehension	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 8.1.6 Students will extract and construct meaning using prior knowledge, applying text information, and monitoring comprehension while reading grade level text.						
LA 8.1.6.a <u>General</u> Analyze the meaning, reliability, and validity of the text considering author's purpose and perspective, and information from additional sources <u>Extended</u> <i>Determine if the author's purpose is to persuade the reader</i>	4	0	0-1	1-2	0-1	1-4
LA 8.1.6.b <u>General</u> Identify and analyze elements of narrative text <u>Extended</u> <i>Identify elements of narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 8.1.6.c <u>General</u> Analyze author's use of literary devices <u>Extended</u> <i>Identify the use of literary devices in a narrative passage</i>	4	0	0-1	1-2	0-1	1-4
LA 8.1.6.d <u>General</u> Summarize, analyze, and synthesize informational text using main idea and supporting details <u>Extended</u> <i>Identify and retell the main idea and supporting details from informational text</i>	4	0	0-1	1-2	0-1	1-4
LA 8.1.6.e <u>General</u> Apply knowledge of organizational patterns found in informational text <u>Extended</u> <i>Identify organizational patterns found in informational text</i>	4	0	0-1	1-2	0-1	1-4

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LA 8.1.6.f <u>General</u> Analyze and evaluate information from text features <u>Extended</u> <i>Use text features to locate information</i>	4	0-1	0-1	1-2	0-1	1-5
LA 8.1.6.g <u>General</u> Analyze and make inferences based on the characteristics of narrative and informational genres <u>Extended</u> <i>Identify narrative and informational genres</i>	4	0	0-1	0-1	0-1	0-3
LA 8.1.6.j <u>General</u> Generate and/or answer literal, inferential, critical, and interpretive questions, analyzing and synthesizing prior knowledge, information from the text and additional sources, to support answers <u>Extended</u> <i>Answer literal and inferential questions using prior knowledge and supporting information from the text</i>	4	0	1-2	1-2	0-1	2-5

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Table of Specifications						
High School						
Gr12 Vocabulary	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 12.1.5 Vocabulary: Students will build literary, general academic, and content specific grade level vocabulary.						
LA 12.1.5.a <u>General</u> Determine the meaning of words through structural analysis, using knowledge of Greek, Latin, and Anglo Saxon roots, prefixes, and suffixes to understand complex words, including words in science, mathematics, and social studies <u>Extended</u> <i>Determine the meaning of words using roots, prefixes, and suffixes, including words in science, mathematics, and social studies</i>	4	0-1	1-2	1-2	1-2	3-7
LA 12.1.5.c <u>General</u> Independently apply a context clue strategy to determine meaning of unknown words in text <u>Extended</u> <i>Use context clues and text features to determine meaning of unknown words in text</i>	4	0	1-2	1-2	1-2	3-6
LA 12.1.5.d <u>General</u> Use semantic relationships to evaluate, defend, and make judgments <u>Extended</u> <i>Identify semantic relationships</i>	3	0	0-1	0-2	0	0-3
Gr12 Comprehension	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
LA 12.1.6 Students will extract and construct meaning using prior knowledge, applying text information, and monitoring comprehension while reading grade level text.						
LA 12.1.6.a <u>General</u> Evaluate the meaning, reliability, and validity of the text considering author's purpose, perspective, and information from additional sources <u>Extended</u> <i>Determine if the author's purpose is to entertain, inform, or persuade</i>	4	0	0-1	1-2	0-1	1-4
LA 12.1.6.b <u>General</u> Analyze and evaluate elements of narrative text <u>Extended</u> <i>Identify elements of narrative text</i>	4	0	0-1	1-2	0-1	1-4
LA 12.1.6.c <u>General</u> Analyze the function and critique the effects of the author's use of stylistic and literary devices <u>Extended</u> <i>Identify the use of literary devices in a narrative passage</i>	4	0	0-1	1-2	0-1	1-4
LA 12.1.6.d <u>General</u> Summarize, analyze, synthesize, and evaluate informational text <u>Extended</u> <i>Identify and retell the main idea and supporting details from informational text</i>	4	0	0-1	1-2	0-1	1-4

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LA 12.1.6.e <u>General</u> Apply knowledge of organizational patterns found in informational text <u>Extended</u> <i>Identify organizational patterns found in informational text</i>	4	0	0-1	1-2	0-1	1-4
LA 12.1.6.f <u>General</u> Analyze and evaluate information from text features <u>Extended</u> <i>Use text features to locate information</i>	4	0-1	0-1	1-2	0-1	1-5
LA 12.1.6.g <u>General</u> Analyze and evaluate inferences based on the characteristics of narrative and informational genres and provide evidence from the text to support understanding <u>Extended</u> <i>Identify narrative and informational genres</i>	4	0	0-1	0-1	0-1	0-3
LA 12.1.6.j <u>General</u> Generate and/or answer literal, inferential, critical, and interpretive questions, analyzing, synthesizing, and evaluating prior knowledge, information from the text and additional sources, to support answers <u>Extended</u> <i>Generate/answer literal and inferential questions using prior knowledge and supporting information from the text</i>	4	0	1-2	1-2	0-1	2-5

Appendix B: NeSA-AAM Test Blueprint

Nebraska State Accountability - Alternate Assessment of Mathematics (NeSA-AAM) Tables of Specification						
Grade 3						
NUMBER SENSE						
Gr3 Number System	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 3.1.1 Students will represent and show relationships among positive rational numbers within the base-ten number system.						
MA 3.1.1.e <u>General</u> Demonstrate multiple equivalent representations for numbers up to 10,000 <u>Extended</u> <i>Identify representations of whole numbers 0-10</i>	3	0-1	0-1	0-2	0	1-3
MA 3.1.1.g <u>General</u> Compare and order whole numbers through the thousands <u>Extended</u> <i>Compare and order whole numbers 0-10</i>	4	0	0-2	0-2	0-2	1-4
MA 3.1.1.h <u>General</u> Use visual models to represent fractions of halves, thirds, and fourths as parts of a whole and parts of a set <u>Extended</u> <i>Use models to represent halves as parts of a whole and parts of a set</i>	3	0-1	1-2	0-1	0	1-4
MA 3.1.1.i <u>General</u> Round a given number to tens or hundreds <u>Extended</u> <i>Recognize basic numerical concepts of closer and farther</i>	4	0	0-1	0-1	0-1	1-2
Gr3 Operations	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 3.1.2 Students will demonstrate the meaning of multiplication and division with whole numbers.						
MA 3.1.2.a <u>General</u> Represent multiplication as repeated addition using objects, drawings, words, and symbols <u>Extended</u> <i>Represent a number up to 10 in equal sized groups</i>	4	0	0-1	0-2	0-1	1-3
MA 3.1.2.d <u>General</u> Use drawings, words, and symbols to explain the meaning of multiplication using an array <u>Extended</u> <i>Use drawings, words, and symbols to explain the meaning of multiplication</i>	4	0-1	0-1	0-1	0-2	1-3
GEOMETRIC/MEASUREMENT CONCEPTS						
Gr3 Characteristics	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 3.2.1 Students will identify characteristics and describe properties of two dimensional shapes and three-dimensional objects.						

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MA 3.2.1.a <u>General</u> Identify the number of sides, angles, and vertices of two-dimensional shapes <u>Extended</u> <i>Identify two dimensional shapes (circle, square)</i>	3	0-1	0-1	0-2	0	1-2
Gr3 Coordinate Geometry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 3.2.2 Students will identify distances on a number line.						
MA 3.2.2.b <u>General</u> Determine the distance between two whole number points on a number line <u>Extended</u> <i>Identify a point on a number line</i>	3	0-1	0-1	0-2	0	1-2
Gr3 Measurement	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 3.2.5 Students will apply appropriate procedures and tools to determine measurements using customary and metric units.						
MA 3.2.5.e <u>General</u> Identify the appropriate customary unit for measuring length, weight, and capacity/volume <u>Extended</u> <i>Identify the purpose of basic tools for measuring time</i>	3	0-1	0-1	0-1	0	1-2
MA 3.2.5.g <u>General</u> Compare and order objects according to length using centimeters and meters <u>Extended</u> <i>Compare and order objects by length</i>	4	0	0	0-2	0-2	1-3
ALGEBRAIC CONCEPTS						
Gr3 Relationships	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 3.3.1 Students will represent relationships.						
MA 3.3.1.a <u>General</u> Identify, describe, and extend numeric and non-numeric patterns <u>Extended</u> <i>Extend non-numeric AB patterns</i>	4	0	0-1	0-2	0-2	1-2
Gr3 Modeling in Context	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 3.3.2 Students will create and use models to represent mathematical situations.						
MA 3.3.2.a <u>General</u> Model situations that involve the addition and subtraction of whole numbers using objects, number lines, and symbols <u>Extended</u> <i>Model situations that involve addition and subtraction of whole numbers 0-10 using objects and symbols</i>	4	0	0-2	0-3	0-2	1-3

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Gr3 Procedures	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 3.3.3 Students will identify and apply properties of whole numbers to solve equations involving addition and subtraction.						
MA 3.3.3.b <u>General</u> Solve simple one-step whole number equations involving addition and subtraction <u>Extended</u> <i>Solve simple one-step single digit equations involving addition and subtraction with sums and differences 0-9</i>	4	0	0	0-2	0-2	1-2
DATA ANALYSIS/PROBABILITY CONCEPTS						
Gr3 Display and Analysis	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 3.4.1 Students will organize, display, compare, and interpret data.						
MA 3.4.1.a <u>General</u> Represent data using horizontal and vertical bar graphs <u>Extended</u> <i>Represent data using vertical bar graphs</i>	4	0	0-1	0-3	0-2	1-3
MA 3.4.1.c <u>General</u> Interpret data using horizontal and vertical bar graphs <u>Extended</u> <i>Interpret data on vertical bar graphs</i>	4	0	0	0-2	0-2	1-3

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Grade 4						
NUMBER SENSE						
Gr4 Number System	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 4.1.1 Students will represent and show relationships among positive rational numbers within the base-ten number system.						
MA 4.1.1.b <u>General</u> Demonstrate multiple equivalent representations for decimal numbers through the hundredths place <u>Extended</u> <i>Identify representations of whole numbers from 0-20</i>	3	0-1	0-1	0-2	0	1-3
MA 4.1.1.c <u>General</u> Compare and order whole numbers and decimals through the hundredths place <u>Extended</u> <i>Compare and order whole numbers 0-20</i>	4	0	0-2	0-2	0-2	1-4
MA 4.1.1.e <u>General</u> Represent a fraction as parts of a whole and/or parts of a set <u>Extended</u> <i>Use models to represent halves and fourths as parts of a whole and parts of a set</i>	3	0-1	1-2	0-1	0	1-3
MA 4.1.1.f <u>General</u> Use visual models to find equivalent fractions <u>Extended</u> <i>Use models to identify equivalent fractions 1/2 and whole</i>	3	0-1	0-1	0-1	0	1-2
Gr4 Operations	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 4.1.2 Students will demonstrate the meaning of division with whole numbers.						
MA 4.1.2.a <u>General</u> Use drawings, words, and symbols to explain the meaning of division <u>Extended</u> <i>Represent a number up to 20 in equal sized groups</i>	4	0	0-1	0-2	0-2	1-2
Gr4 Computation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 4.1.2 Students will compute fluently and accurately using appropriate strategies and tools.						
MA 4.1.3.b <u>General</u> Add and subtract decimals to the hundredths place <u>Extended</u> <i>Add and subtract single digit numbers</i>	4	0	0	0-2	0-2	1-2

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MA 4.1.3.c <u>General</u> Multiply two-digit whole numbers <u>Extended</u> <i>Add equal groups with sums up to 20</i>	4	0	0-1	0-2	0-1	1-2
MA 4.1.3.e <u>General</u> Mentally compute multiplication and division involving powers of 10 <u>Extended</u> <i>Use groups of 10 for computation up to 50</i>	4	0	0-1	0-2	0-1	1-2
MA 4.1.3.f <u>General</u> Select and apply the appropriate method of computation when problem solving <u>Extended</u> <i>Select the appropriate method of computation (addition and subtraction) when problem solving</i>	4	0	0	0-2	0-2	1-3
GEOMETRIC/MEASUREMENT CONCEPTS						
Gr4 Characteristics	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 4.2.1 Students will classify two-dimensional shapes and three-dimensional objects.						
MA 4.2.1.a <u>General</u> Identify two- and three-dimensional shapes according to their sides and angle properties <u>Extended</u> <i>Identify two dimensional shapes (triangle, rectangle)</i>	3	0-1	0-1	0-2	0	1-2
MA 4.2.1.b <u>General</u> Classify an angle as acute, obtuse, or right <u>Extended</u> <i>Identify the number of angles/corners of a given shape</i>	3	0	0-1	0-2	0	1-2
MA 4.2.1.c <u>General</u> Identify parallel, perpendicular, and intersecting lines <u>Extended</u> <i>Recognize parallel and intersecting lines</i>	3	0-1	0-1	0-2	0	1-2
Gr4 Coordinate Geometry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 4.2.2 Students will describe locations using coordinate geometry.						
MA 4.2.2.a <u>General</u> Identify the ordered pair of a plotted point in the first quadrant by its location <u>Extended</u> <i>Determine the distance between two points on a number line</i>	3	0	0-1	0-2	0	1-2
Gr4 Measurement	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 4.2.5 Students will apply appropriate procedures and tools to estimate and determine measurements using customary and metric units.						
MA 4.2.5.b <u>General</u> Identify time to the minute on an analog clock <u>Extended</u> <i>Identify time to the hour on an analog clock</i>	3	0	0-2	0-1	0	1-2

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MA 4.2.5.c <u>General</u> Solve problems involving elapsed time <u>Extended</u> <i>Solve problems involving elapsed time to the hour</i>	3	0	0-1	0-3	0	1-3
MA 4.2.5.d <u>General</u> Identify the appropriate metric unit for measuring length, weight, and capacity/volume <u>Extended</u> <i>Determine the appropriate tool for measuring length, capacity/volume, and weight</i>	3	0-1	0-2	0-2	0	1-3
MA 4.2.5.g <u>General</u> Compute simple unit conversions for length within a system of measurement <u>Extended</u> <i>Identify the length of an object using non-standard units</i>	3	0	0-2	0-2	0	1-2
ALGEBRAIC CONCEPTS						
Gr4 Relationships	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 4.3.1 Students will represent and analyze relationships.						
MA 4.3.1.c <u>General</u> Use symbols to compare quantities <u>Extended</u> <i>Use objects and symbols (<, >, =) to compare quantities</i>	3	0-1	0-2	0-3	0	1-3
MA 4.3.1.d <u>General</u> Select appropriate operational and relational symbols to make a number sentence true <u>Extended</u> <i>Select appropriate operational symbols (addition and subtraction) to make a number sentence true</i>	3	0-1	0-2	0-3	0	1-3
Gr4 Procedures	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 4.3.3 Students will identify and apply properties of whole numbers to solve equations involving multiplication and division.						
MA 4.3.3.c <u>General</u> Use symbolic representations of the commutative property of multiplication <u>Extended</u> <i>Identify the commutative property of addition using pictures and models</i>	4	0	0-1	0-2	0-2	1-2
MA 4.3.3.d <u>General</u> Solve simple one-step whole number equations <u>Extended</u> <i>Solve simple one-step single digit equations involving addition and subtraction with sums and differences 0-20</i>	4	0	0	0-2	0-2	1-2
DATA ANALYSIS/PROBABILITY CONCEPTS						
Gr4 Display and Analysis	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 4.4.1 Students will organize, display, compare, and interpret data.						

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MA 4.4.1.b <u>General</u> Compare different representations of the same data <u>Extended</u> <i>Compare different representations of the same data</i>	4	0	0-1	0-3	0-2	1-3
MA 4.4.1.c <u>General</u> Interpret data and draw conclusions using dot/line plots <u>Extended</u> <i>Interpret data on vertical and horizontal bar graphs</i>	4	0	0	0-2	0-2	1-3

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Nebraska State Accountability - Alternate Assessment of Mathematics (NeSA-AAM) Tables of Specification						
Grade 5						
NUMBER SENSE						
Gr5 Number System	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 5.1.1 Students will represent and show relationships among positive rational numbers.						
MA 5.1.1.a <u>General</u> Demonstrate multiple equivalent representations for whole numbers and decimal numbers through the thousandths place <u>Extended</u> <i>Identify equivalent representations of whole numbers from 0-50</i>	3	0-1	0-1	0-2	0	1-3
MA 5.1.1.b <u>General</u> Compare and order whole numbers, fractions, and decimals through the thousandths place <u>Extended</u> <i>Compare and order whole numbers 0-30</i>	4	0	0-2	0-2	0-2	1-4
MA 5.1.1.c <u>General</u> Identify and name fractions in their simplest form and find common denominators for fractions <u>Extended</u> <i>Use models to represent halves, fourths, and thirds as parts of a whole and parts of a set</i>	3	0-1	1-2	0-2	0	1-3
MA 5.1.1.d <u>General</u> Recognize and generate equivalent forms of commonly used fractions, decimals, and percents <u>Extended</u> <i>Use models to identify equivalent fractions 1/4, 1/2, and whole</i>	3	0-1	0-2	0-2	0	1-3
MA 5.1.1.e <u>General</u> Classify a number as prime or composite <u>Extended</u> <i>Classify a number as even or odd</i>	3	0-1	0-2	0-2	0	1-3
MA 5.1.1.f <u>General</u> Identify factors and multiples of any whole number <u>Extended</u> <i>Identify groups of 2, 5s, and 10s</i>	3	0-1	0-2	0-2	0	1-3
Gr5 Computation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 5.1.3 Students will compute fluently and accurately using appropriate strategies and tools.						
MA 5.1.3.a <u>General</u> Add and subtract positive rational numbers <u>Extended</u> <i>Add and subtract 2-digit by 2-digit whole numbers without regrouping</i>	4	0	0	0-3	0-2	1-3
MA 5.1.3.b <u>General</u> Select, apply, and explain the appropriate method of computation when problem solving <u>Extended</u> <i>Select the appropriate method of computation (addition, subtraction, and multiplication) when problem solving</i>	4	0	0	0-2	0-2	1-3

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MA 5.1.3.c <u>General</u> Multiply decimals <u>Extended</u> <i>Multiply single-digit numbers (0 to 5)</i>	4	0	0	0-3	0-2	1-3
MA 5.1.3.d <u>General</u> Divide a decimal by a whole number <u>Extended</u> <i>Divide single digit numbers by single digit numbers resulting in a quotient that is a whole number</i>	4	0	0	0-3	0-2	1-3
Gr5 Estimation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 5.1.4 Students will estimate and check reasonableness of answers using appropriate strategies and tools.						
MA 5.1.4.a <u>General</u> Estimate the sums and differences of positive rational numbers to check the reasonableness of such results <u>Extended</u> <i>Apply estimation to the nearest 10 on addition results</i>	4	0	0	0-3	0-2	1-3
GEOMETRIC/MEASUREMENT CONCEPTS						
Gr5 Characteristics	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 5.2.1 Students will describe relationships among two-dimensional shapes and three-dimensional objects.						
MA 5.2.1.a <u>General</u> Identify the number of edges, faces, and vertices of triangular and rectangular prisms <u>Extended</u> <i>Identify the number of sides of a given polygon</i>	3	0	0-2	0-3	0	1-3
MA 5.2.1.d <u>General</u> Identify degrees on a circle <u>Extended</u> <i>Identify the radius and diameter of a circle</i>	3	0-1	0-3	0-2	0	1-3
Gr5 Coordinate Geometry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 5.2.2 Students will identify locations using coordinate geometry.						
MA 5.2.2.a <u>General</u> Plot the location of an ordered pair in the first quadrant <u>Extended</u> <i>Determine the location of a number on a number line</i>	3	0	0-1	0-3	0	1-3
Gr5 Measurement	Highest DOK Stage Tested	DOK 1 Stage 1	DOK 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Stage
MA 5.2.5 Students will apply appropriate procedures, tools and formulas to determine measurements using customary and metric units.						

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MA 5.2.5.b <u>General</u> Identify correct unit (customary or metric) to the measurement situation <u>Extended</u> <i>Identify the customary units for measuring length</i>	3	0	0-1	0-3	0	1-3
MA 5.2.5.f <u>General</u> Determine the area of rectangles and squares <u>Extended</u> <i>Identify the perimeter of an object</i>	3	0	0-1	0-3	0	1-3
ALGEBRAIC CONCEPTS						
Gr5 Modeling in Context	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 5.3.2 Students will create, use, and compare models representing mathematical situations.						
MA 5.3.2.a <u>General</u> Model situations that involve the addition, subtraction, and multiplication of positive rational numbers using words, graphs, and tables <u>Extended</u> <i>Model situations that involve addition and subtraction of numbers up to 50</i>	4	0	0	0-2	0-2	1-3
Gr5 Procedures	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 5.3.3 Students will apply properties of simple positive rational numbers to solve one-step equations.						
MA 5.3.3.b <u>General</u> Use symbolic representations of the associative property <u>Extended</u> <i>Identify the associative property of addition using pictures and models</i>	4	0	0-1	0-3	0-2	1-3
MA 5.3.3.c <u>General</u> Evaluate numerical expressions by using parentheses with respect to order of operations <u>Extended</u> <i>Demonstrate understanding of order of operations involving one- digit addition with parentheses</i>	4	0	0	0-2	0-3	1-3
MA 5.3.3.d <u>General</u> Evaluate simple algebraic expressions involving addition and subtraction <u>Extended</u> <i>Evaluate simple algebraic expressions involving addition</i>	4	0	0	0-2	0-2	1-3
MA 5.3.3.e <u>General</u> Solve one-step addition and subtraction equations involving common positive rational numbers <u>Extended</u> <i>Solve simple one-step equations involving addition</i>	4	0	0	0-1	1-3	1-3
DATA ANALYSIS/PROBABILITY CONCEPTS						
Gr5 Display and Analysis	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 5.4.1 Students will organize, display, compare, and interpret data.						
MA 5.4.1.a <u>General</u> Represent data using line graphs <u>Extended</u> <i>Identify data on a line graph</i>	3	0-1	0-2	0-3	0	1-3

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MA 5.4.1.b <u>General</u> Represent the same set of data in different formats <u>Extended</u> <i>Identify the same data in different formats</i>	4	0	0	0	0-3	1-3
MA 5.4.1.c <u>General</u> Draw conclusions based on a set of data <u>Extended</u> <i>Interpret data on a line graph</i>	4	0	0	0-2	0-3	1-3
GrS Probability	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 5.4.3 Students will organize, display, compare, and interpret data.						
MA5.4.3.b <u>General</u> Generate a list of possible outcomes for a simple event <u>Extended</u> <i>Identify a possible outcome</i>	4	0	0-2	0-2	0-1	1-3

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Grade 6						
NUMBER SENSE						
Gr6 Number System	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.1.1 Students will represent and show relationships among positive rational numbers and integers.						
MA 6.1.1.b <u>General</u> Compare and order positive and negative integers <u>Extended</u> <i>Compare and order whole numbers up to 40</i>	4	0	0-2	0-2	0-2	1-4
MA 6.1.1.e <u>General</u> Identify the prime factorization of numbers <u>Extended</u> <i>Identify factorization of a number up to 20</i>	4	0	0-2	0-2	0-2	1-3
Gr6 Operations	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.1.2 Students will demonstrate the meaning of arithmetic operations with positive fractions and decimals.						
MA 6.1.2.a <u>General</u> Use drawings, words, and symbols to explain the meaning of addition and subtraction of fractions <u>Extended</u> <i>Use drawings to subtract halves, thirds, and fourths from a whole</i>	3	0	0-2	0-3	0	1-3
MA 6.1.2.b <u>General</u> Use drawings, words, and symbols to explain the meaning of addition and subtraction of decimals <u>Extended</u> <i>Recognize decimal representation of money</i>	4	0-1	0-1	0-2	0-2	1-3
Gr6 Computation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.1.3 Students will compute fluently and accurately using appropriate strategies and tools.						
MA 6.1.3.a <u>General</u> Multiply and divide positive rational numbers <u>Extended</u> <i>Multiply positive single digit numbers</i>	4	0	0	0-3	0-2	1-3
MA 6.1.3.b <u>General</u> Select and apply the appropriate method of computation when problem solving <u>Extended</u> <i>Select the appropriate method of computation (addition, subtraction, multiplication, and division) when problem solving</i>	4	0	0	0-2	0-2	1-3

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Gr6 Estimation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.1.4 Students will estimate and check reasonableness of answers using appropriate strategies and tools.						
MA 6.1.4.a <u>General</u> Use appropriate estimate methods to check the reasonableness of solutions for problems involving positive rational numbers <u>Extended</u> <i>Apply estimation to the nearest 10 on addition and subtraction results</i>	4	0	0	0-3	0-2	1-3
GEOMETRIC/MEASUREMENT CONCEPTS						
Gr6 Coordinate Geometry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.2.2 Students will identify locations using coordinate geometry.						
MA 6.2.2.a <u>General</u> Identify the ordered pair of a plotted point in the coordinate plane <u>Extended</u> <i>Identify the plotted point on a 4 x 4 grid</i>	3	0	0-2	0-3	0	1-3
Gr6 Spatial Modeling	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.2.4 Students will use visualization of geometric models to solve problems.						
MA 6.2.4.a <u>General</u> Identify two-dimensional drawings of three-dimensional objects <u>Extended</u> <i>Identify a two-dimensional shape and match it to a three-dimensional object</i>	3	0-1	0-1	0-3	0	1-3
Gr6 Measurement	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.2.5 Students will apply appropriate procedures, tools, and formulas to determine measurements.						
MA 6.2.5.d <u>General</u> Determine the perimeter of polygons <u>Extended</u> <i>Determine the perimeter of polygons (triangle, rectangle, square)</i>	4	0	0	0-3	0-2	1-3
MA 6.2.5.e <u>General</u> Determine the area of parallelograms and triangles <u>Extended</u> <i>Determine the area of a square</i>	4	0	0	0-3	0-2	1-3
ALGEBRAIC CONCEPTS						
Gr6 Relationships	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals

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MA 6.3.1 Students will represent, analyze, and use relationships to make generalizations.						
MA 6.3.1.a General Describe and create simple algebraic expressions from words and tables Extended <i>Match a simple algebraic expression involving addition to given tables</i>	4	0	0-1	0-2	0-3	1-3
MA 6.3.1.b General Use a variable to describe a situation with an equation Extended <i>Use a symbol to represent a numeric value in a simple equation</i>	3	0	0-2	0-3	0	1-3
Gr6 Modeling in Context	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.3.2 Students will create, use, and interpret models of quantitative relationships.						
MA 6.3.2.a General Model contextualized problems using various representations Extended <i>Model representations of coin combinations up to \$1.00</i>	4	0	0-2	0-2	0-3	1-3
Gr6 Procedures	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.3.3 Students will apply properties to solve equations.						
MA 6.3.3.b General Evaluate numerical expressions containing multiple operations with respect to order of operations Extended <i>Demonstrate understanding of order of operations involving one-digit addition, subtraction, and multiplication with parentheses with parentheses</i>	4	0	0	0-2	0-3	1-3
MA 6.3.3.c General Evaluate simple algebraic expressions involving multiplication and division Extended <i>Evaluate simple algebraic expressions involving addition and subtraction</i>	4	0	0	0-2	0-2	1-3
MA 6.3.3.d General Solve one-step equations involving positive rational numbers Extended <i>Solve simple one-step equations involving addition and subtraction</i>	4	0	0	0-2	0-2	1-3
MA 6.3.3.e General Identify and explain the properties of equality used in solving equations Extended <i>Solve an addition problem demonstrating the commutative property of equality</i>	4	0	0-2	0-2	0-2	1-3
DATA ANALYSIS/PROBABILITY CONCEPTS						
Gr6 Display and Analysis	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.4.1 Students will organize, display, compare, and interpret data.						

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MA 6.4.1.b <u>General</u> Compare and interpret data sets and their graphical representations <u>Extended</u> <i>Interpret data on a circle graph</i>	4	0	0	0-2	0-3	1-3
MA 6.4.1.c <u>General</u> Find the mean, median, mode, and range for a set of data <u>Extended</u> <i>Find the mode for a set of data</i>	4	0	0-1	0-2	0-2	1-3
Gr6 Probability	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 6.4.3 Students will apply basic concepts of probability.						
MA 6.4.3.b <u>General</u> Compute theoretical probabilities for independent events <u>Extended</u> <i>Determine the theoretical probability of an event using given data</i>	4	0	0-2	0-2	0-2	1-3

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Grade 7						
NUMBER SENSE						
Gr7 Number System	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.1.1 Students will represent and show relationships among rational numbers.						
MA 7.1.1.a <u>General</u> Show equivalence among fractions, decimals, and percents <u>Extended</u> <i>Use models to identify equivalents between fractions and percents (1 and 100%, 1/2 and 50%, 1/4 and 25%)</i>	4	0-1	0-3	0-2	0-1	1-3
MA 7.1.1.b <u>General</u> Compare and order rational numbers (fractions, decimals, percents) <u>Extended</u> <i>Compare and order numbers up to 50</i>	4	0	0-2	0-2	0-2	1-4
Gr7 Computation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.1.3 Students will compute fluently and accurately using appropriate strategies and tools.						
MA 7.1.3.a <u>General</u> Compute accurately with integers <u>Extended</u> <i>Divide a positive two digit number by a single digit number</i>	4	0	0-1	0-3	0-2	1-3
MA 7.1.3.b <u>General</u> Select, apply, and explain the method of computation when problem solving using integers and positive rational numbers <u>Extended</u> <i>Select and apply the appropriate method of computation (addition, subtraction, and multiplication) when problem solving</i>	4	0	0	0-2	0-2	1-3
MA 7.1.3.c <u>General</u> Solve problems involving percent of numbers <u>Extended</u> <i>Compare given percents (greater than, less than, equal to)</i>	4	0	0-1	0-3	0-2	1-3
Gr7 Estimation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.1.4 Students will estimate and check reasonableness of answers using appropriate strategies and tools.						
MA 7.1.4.a <u>General</u> Use estimation methods to check the reasonableness of solutions for problems involving integers and positive rational numbers <u>Extended</u> <i>Apply estimation to the nearest 10 on addition and subtraction results</i>	4	0	0	0-3	0-2	1-3
GEOMETRIC/MEASUREMENT CONCEPTS						

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Gr7 Coordinate Geometry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.2.2 Students will identify locations using coordinate geometry.						
MA 7.2.2.a <u>General</u> Plot the location of an ordered pair in the coordinate plane <u>Extended</u> <i>Plot the location of an ordered pair on a 4 x 4 grid</i>	3	0	0-1	0-3	0	1-3
MA 7.2.2.c <u>General</u> Find the distance between points along horizontal and vertical lines of a coordinate plane <u>Extended</u> <i>Identify the distance between two given points along horizontal and vertical lines of a grid</i>	3	0	0-1	0-3	0	1-3
Gr7 Transformations	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.2.3 Students will use transformations and symmetry to analyze geometric shapes.						
MA 7.2.3.b <u>General</u> Perform and describe positions and orientation of shapes under a single transformation on an coordinate plane <u>Extended</u> <i>Identify congruent shapes</i>	3	0	0-2	0-2	0	1-3
Gr7 Measurement	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.2.5 Students will apply appropriate procedures, tools, and formulas to determine measurements.						
MA 7.2.5.b <u>General</u> Determine the area of trapezoids and circles, and the circumference of circles <u>Extended</u> <i>Determine the area of a rectangle (not a square)</i>	4	0	0	0-3	0-2	1-3
ALGEBRAIC CONCEPTS						
Gr7 Relationships	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.3.1 Students will represent and analyze relationships using algebraic symbols.						
MA 7.3.1.a <u>General</u> Describe and create algebraic expressions from words, tables, and graphs <u>Extended</u> <i>Match a simple algebraic expression involving addition and subtraction to a given table, chart, or illustration</i>	4	0	0-1	0-2	0-3	1-3
MA 7.3.1.b <u>General</u> Use a variable to describe a situation with an inequality <u>Extended</u> <i>Identify a correct inequality</i>	4	0	0-1	0-2	0-3	1-3
Gr7 Modeling in Context	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals

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MA 7.3.2 Students will create, use, and interpret models of quantitative relationships.						
MA 7.3.2.a <u>General</u> Model contextualized problems using various representations <u>Extended</u> <i>Recognize addition number sentences using various representations</i>	3	0-1	0-1	0-3	0	1-3
Gr7 Procedures	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.3.3 Students will apply properties to solve equations and inequalities.						
MA 7.3.3.c <u>General</u> Given the value of the variable(s), evaluate algebraic expressions with respect to order of operations <u>Extended</u> <i>Evaluate variable expressions with respect to order of operations in addition, subtraction, and multiplication with parentheses</i>	4	0	0	0-2	0-2	1-3
MA 7.3.3.d <u>General</u> Solve two-step equations involving integers and positive numbers <u>Extended</u> <i>Solve one-step equations involving addition or subtraction</i>	4	0	0-1	0-3	0-1	1-3
DATA ANALYSIS/PROBABILITY CONCEPTS						
Gr7 Display and Analysis	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.4.1 Students will formulate questions that can be addressed with data, and then organize, display, and analyze the relevant data to answer their questions.						
MA 7.4.1.a <u>General</u> Analyze data sets and interest their graphical representations <u>Extended</u> <i>Identify and interpret a data set</i>	4	0	0-2	0-3	0-2	1-3
MA 7.4.1.b <u>General</u> Find and interpret mean, median, mode, and range for a set of data <u>Extended</u> <i>Find the median for a set of data</i>	4	0	0-1	0-2	0-2	1-3
Gr7 Probability	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 7.4.3 Students will apply and interpret basic concepts of probability.						
MA 7.4.3.a <u>General</u> Find the probability of independent compound events <u>Extended</u> <i>Determine the probability of a given event (always, sometimes, never)</i>	3	0	0-1	0-3	0	1-3
MA 7.4.3.b <u>General</u> Compare and contracts theoretical and experimental probabilities <u>Extended</u> <i>Compare theoretical probabilities</i>	4	0	0-1	0-2	0-2	1-3

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Nebraska State Accountability - Alternate Assessment of Mathematics (NeSA-AAM) Tables of Specification						
Grade 8						
NUMBER SENSE						
Gr8 Number System	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.1.1 Students will represent and show relationships among real numbers.						
MA 8.1.1.a General Compare and order real numbers Extended <i>Compare and order positive and negative integers (-50 to 50)</i>	4	0	0-2	0-3	0-2	1-4
MA 8.1.1.d General Classify numbers as natural, whole, integer, rational, irrational, or real Extended <i>Classify numbers as natural or whole</i>	3	0-1	0-2	0-2	0	1-3
Gr8 Computation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.1.3 Students will compute fluently and accurately using appropriate strategies and tools.						
MA 8.1.3.a General Compute accurately with rational numbers Extended <i>Add and subtract decimals without regrouping</i>	4	0	0-1	0-2	0-2	1-3
MA 8.1.3.b General Evaluate expressions involving absolute value of integers Extended <i>Determine the absolute value of a given situation</i>	4	0	0-1	0-2	0-2	1-3
MA 8.1.3.d General Select, apply, and explain the method of computation when problem solving using rational numbers Extended <i>Select and apply method of computation (addition, subtraction, multiplication, division) when problem solving</i>	4	0	0	0-2	0-2	1-3
MA 8.1.3.e General Solve problems involving ratios and proportions Extended <i>Solve problems involving ratios</i>	4	0	0	0-3	0-2	1-3
Gr8 Estimation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.1.4 Students will estimate and check reasonableness of answers using appropriate strategies and tools.						
MA 8.1.4.a General Use estimation methods to check the reasonableness of solutions for problems involving rational numbers Extended <i>Apply estimation to the nearest 10 on situations (story problems) involving addition and subtraction</i>	4	0	0	0-2	0-3	1-3

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GEOMETRIC/MEASUREMENT CONCEPTS						
Gr8 Characteristics	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.2.1 Students will describe, compare, and contrast characteristics, properties, and relationships of geometric shapes and objects.						
MA 8.2.1.c <u>General</u> Identify geometric properties of parallel lines cut by a transversal and related angles <u>Extended</u> <i>Identify geometric properties of parallel lines cut by a perpendicular transversal that creates right angles</i>	4	0-1	0-2	0-3	0-1	1-3
MA 8.2.1.d <u>General</u> Identify pairs of angles <u>Extended</u> <i>Identify pairs of right angles</i>	4	0-1	0-2	0-3	0-1	1-3
MA 8.2.1.e <u>General</u> Examine the relationships of the interior angles to a triangle <u>Extended</u> <i>Match congruent triangles based on interior angles</i>	3	0	0-2	0-2	0	1-3
Gr8 Coordinate Geometry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.2.2 Students will specify locations and describe relationships using coordinate geometry.						
MA 8.2.2.a <u>General</u> Use coordinate geometry to represent and examine the properties of rectangles and squares using horizontal and vertical segments <u>Extended</u> <i>Use coordinate geometry to determine the measurement of a side (rectangle, square)</i>	4	0	0-1	0-3	0-2	1-3
Gr8 Measurement	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.2.5 Students will apply appropriate procedures, tools, and formulas to determine measurements.						
MA 8.2.5.c <u>General</u> Apply the Pythagorean theorem to find missing lengths in right triangles and to solve problems <u>Extended</u> <i>Find the missing length and/or height in a right triangle</i>	4	0	0-1	0-2	0-2	1-3
MA 8.2.5.d <u>General</u> Use scale factors to find missing lengths in similar shapes <u>Extended</u> <i>Match similar geometric shapes represented in different scales</i>	3	0	0-3	0-3	0	1-3
ALGEBRAIC CONCEPTS						
Gr8 Relationships	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals

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MA 8.3.1 Students will represent and analyze relationships using algebraic symbols.						
MA 8.3.1.b <u>General</u> Describe relationships using algebraic expressions, equations, and inequalities <u>Extended</u> <i>Identify relationships using algebraic expressions</i>	3	0	0-2	0-3	0	1-3
Gr8 Modeling in Context	Highest Level DOK Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.3.2 Students will create, use, and interpret models of quantitative relationships.						
MA 8.3.2.a <u>General</u> Model contextualized problems using various representations <u>Extended</u> <i>Recognize addition and subtraction number sentences using various representations</i>	3	0-1	0-1	0-3	0	1-3
Gr8 Procedures	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.3.3 Students will apply properties to solve equations and inequalities.						
MA 8.3.3.b <u>General</u> Evaluate numerical expressions containing whole number exponents <u>Extended</u> <i>Identify representations of numbers squared</i>	3	0	0-2	0-2	0	1-3
MA 8.3.3.c <u>General</u> Solve multi-step equations involving rational numbers <u>Extended</u> <i>Solve one-step equations involving addition, subtraction, and multiplication</i>	4	0	0-1	0-3	0-1	1-3
MA 8.3.3.d <u>General</u> Solve two-step inequalities involving rational numbers <u>Extended</u> <i>Identify values that make inequalities true</i>	4	0	0-1	0-3	0-2	1-3
DATA ANALYSIS/PROBABILITY CONCEPTS						
Gr8 Display and Analysis	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.4.1 Students will formulate questions that can be addressed with data, and then organize, display, and analyze the relevant data to answer their questions.						
MA 8.4.1.b <u>General</u> Compare characteristics between sets of data or within a given set of data <u>Extended</u> <i>Compare characteristics in a set of data</i>	4	0	0-2	0-3	0-2	1-3
MA 8.4.1.d <u>General</u> Select the most appropriate unit of central tendency for sets of data <u>Extended</u> <i>Find the median for a set of data</i>	4	0	0-1	0-2	0-2	1-3

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MA 8.4.1.e <u>General</u> Identify misrepresentation and misinterpretation of data represented in circle graphs and box plots <u>Extended</u> <i>Recognize accurate representation of data in a circle graph</i>	4	0	0	0-3	0-2	1-3
Gr8 Probability	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 8.4.3 Students will apply and interpret basic concepts of probability.						
MA 8.4.3.a <u>General</u> Identify complementary events and calculate their probabilities <u>Extended</u> <i>Determine complementary events</i>	3	0	0-1	0-3	0	1-3
MA 8.4.3.b <u>General</u> Compute probabilities for independent compound events <u>Extended</u> <i>Determine the probability for an independent event</i>	4	0	0-1	0-2	0-2	1-3

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Nebraska State Accountability - Alternate Assessment of Mathematics (NeSA-AAM) Tables of Specification						
Grade 11						
NUMBER SENSE						
Gr11 Computation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 12.1.3 Students will compute fluently and accurately using appropriate strategies and tools.						
MA 12.1.3.a General Compute accurately with real numbers Extended <i>Add and subtract two-digit by two-digit numbers with regrouping</i>	4	0	0-1	0-2	0-2	1-3
MA 12.1.3.b General Simplify exponential expressions Extended <i>Recognize expanded forms of exponents (powers)</i>	3	0-1	0-2	0-3	0	1-3
Gr11 Estimation	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 12.1.4 Students will estimate and check reasonableness of answers using appropriate strategies and tools.						
MA 12.1.4.a General Use estimation methods to check the reasonableness of real number computations and decide if the problem calls for an approximation or an exact number Extended <i>Apply estimation to the nearest 10 on situations (story problems) involving addition, subtraction, and multiplication</i>	4	0	0	0-2	0-2	1-3
GEOMETRIC/MEASUREMENT CONCEPTS						
Gr11 Characteristics	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 12.2.1 Students will analyze characteristics, properties, and relationships among geometric shapes and objects.						
MA 12.2.1.d General Apply geometric properties to solve problems Extended <i>Apply the geometric property, length times width, to find the area of a rectangle</i>	4	0	0-1	0-2	0-2	1-3
MA 12.2.1.e General Identify and apply right triangle relationships Extended <i>Identify a right triangle</i>	3	0-1	0-1	0-3	0	1-3
Gr11 Coordinate Geometry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals

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MA 12.2.2 Students will use coordinate geometry to analyze and describe relationships in the coordinate plane.						
MA 12.2.2.a <u>General</u> Use coordinate geometry to analyze geometric situations <u>Extended</u> <i>Determine the coordinates for a point on a 7 x 7 or larger grid</i>	3	0	0-1	0-3	0	1-3
MA 12.2.2.d <u>General</u> Prove special types of triangles and quadrilaterals <u>Extended</u> <i>Identify the properties of equilateral triangles</i>	4	0-1	0-2	0-3	0-1	1-3
Gr11 Spatial Modeling	Highest Stage DOK Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 12.2.4 Students will use visualization, spatial reasoning, and geometric modeling to solve problems.						
MA 12.2.4.b <u>General</u> Use geometric models to visualize, describe, and solve problems <u>Extended</u> <i>Use geometric models to solve problems</i>	4	0	0-1	0-3	0-1	1-3
Gr11 Measurement	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 12.2.5 Students will apply the units, systems, and formulas to solve problems.						
MA 12.2.5.c <u>General</u> Convert between various units of area and volume, such as square feet to square yards <u>Extended</u> <i>Find the missing length and/or height in a right triangle</i>	4	0	0-1	0-2	0-2	1-3
MA 12.2.5.d <u>General</u> Convert equivalent rates <u>Extended</u> <i>Convert equivalent rates using money</i>	4	0	0-1	0-3	0-2	1-3
ALGEBRAIC CONCEPTS						
Gr11 Relationships	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 12.3.1 Students will generalize, represent, and analyze relationships using algebraic symbols.						
MA 12.3.1.a <u>General</u> Represent, interpret, and analyze functions with graphs, tables, and algebraic notation, and convert among these representations <u>Extended</u> <i>Interpret values of a function in a table</i>	4	0	0-1	0-2	0-2	1-3
MA 12.3.1.c <u>General</u> Identify the slope and intercepts of a linear relationship from an equation or graph <u>Extended</u> <i>Identify a linear relationship from a graph</i>	4	0	0-1	0-3	0-2	1-3
MA 12.3.1.d <u>General</u> Identify characteristics of linear and non-linear functions <u>Extended</u> <i>Compare linear and non-linear segments and graphs</i>	4	0-1	0-1	0-3	0-2	1-3

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MA 12.3.1.f <u>General</u> Compare and analyze the rate of change by using ordered pairs, tables, graphs, and equations <u>Extended</u> <i>Analyze the effect of the rate of change in a table or graph</i>	4	0	0-1	0-3	0-2	1-3
Gr11 Modeling in Context	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 12.3.2 Students will model and analyze quantitative relationships.						
MA 12.3.2.b <u>General</u> Represent a variety of quantitative relationships using linear equations and one variable inequalities <u>Extended</u> <i>Solve the quantitative relationship of one variable inequalities using addition and subtraction</i>	4	0	0	0-3	0-3	1-3
DATA ANALYSIS/PROBABILITY CONCEPTS						
Gr11 Display and Analysis	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 12.4.1 Students will formulate a question and design a survey or an experiment in which data is collected and displayed in a variety of formats, then select and use appropriate statistical methods to analyze the data.						
MA 12.4.1.d <u>General</u> Describe the shape and determine the center, spread, and outliers of a data set <u>Extended</u> <i>Determine the range of a data set</i>	4	0	0	0-3	0-3	1-3
Gr11 Probability	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Totals
MA 12.4.3 Students will apply and interpret concepts of probability.						
MA 12.4.3.b <u>General</u> Identify dependent and independent events and calculate their probabilities <u>Extended</u> <i>Differentiate between a dependent and independent event</i>	4	0	0-1	0-3	0-3	1-3
MA 12.4.3.c <u>General</u> Use the appropriate counting techniques to determine the probability of an event <u>Extended</u> <i>Use the appropriate counting principle to determine the combinations for an event</i>	4	0	0-1	0-3	0-3	1-3
MA 12.4.3.d <u>General</u> Analyze events to determine if they are mutually exclusive <u>Extended</u> <i>Determine if two events are mutually exclusive</i>	4	0	0-1	0-3	0-3	1-3

Appendix C: NeSA-AAS Test Blueprint

Nebraska State Accountability - Alternate Assessment of Science (NeSA-AAS)						
Tables of Specification						
Grade 5						
Inquiry, The Nature of Science, and Technology						
Grade 5 Abilities to do Scientific Inquiry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.1.1 <u>General</u> Students will plan and conduct investigations that lead to the development of explanations. <u>Extended</u> <i>Students will conduct investigations that lead to a final product.</i>	4	0-1	0-1	2-5	1-4	4-7
SC 5.1.1.a Ask testable scientific questions	4					
SC 5.1.1.b Plan and conduct investigations and identify factors that have the potential to impact an investigation	4					
SC 5.1.1.c Select and use equipment correctly and accurately	4					
SC 5.1.1.d Make relevant observations and measurements	4					
SC 5.1.1.e Collect and organize data	4					
SC 5.1.1.f Develop a reasonable explanation based on collected data	4					
SC 5.1.1.g Share information, procedures, and results with peers and/or adults	4					
SC 5.1.1.h Provide feedback on scientific investigations	4					
SC 5.1.1.i Use appropriate mathematics in all aspects of scientific inquiry	4					
Grade 5 Nature of Science	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.1.2 <u>General</u> Students will describe how scientists go about their work. <u>Extended</u> <i>Students will observe how scientists go about their work.</i>	Assessed at the local level					
SC 5.1.2.a Recognize that scientific explanations are based on evidence and scientific knowledge						
SC 5.1.2.b Recognize that new discoveries are always being made which impact scientific knowledge						
SC 5.1.2.c Recognize many different people study science						

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Grade 5 Technology	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SC 5.1.3 <u>General</u> Students will solve a simple design problem. <u>Extended</u> Students will solve a simple problem.	Assessed at the local level					
SC 5.1.3.a <i>Identify a simple problem</i>						
SC 5.1.3.b <i>Propose a solution to a simple problem</i>						
SC 5.1.3.c <i>Implement the proposed solution</i>						
SC 5.1.3.d <i>Evaluate the implementation</i>						
SC 5.1.3.e <i>Communicate the problem, design, and solution</i>						
PHYSICAL SCIENCE						
Grade 5 Matter	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.2.1 <u>General</u> Students will explore and describe the physical properties of matter and its changes. <u>Extended</u> Students will explore and recognize the physical properties of matter and its changes.	4	0-1	0-1	1-4	0-3	2-4
SC 5.2.1.a <i>Identify mixtures and pure substances</i>	4					
SC 5.2.1.b <i>Identify physical properties of matter (color, odor, elasticity, weight, volume)</i>	4					
SC 5.2.1.c <i>Use appropriate metric measurements to describe physical properties</i>	4					
SC 5.2.1.d <i>Identify state change caused by heating and cooling solids, liquids, and gasses</i>	4					
Grade 5 Force and Motion	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.2.2 <u>General</u> Students will identify the influence of forces on motion. <u>Extended</u> Students will identify the influence of forces on motion.	4	0-1	0-1	1-3	0-2	2-3
SC 5.2.2.a <i>Describe motion by tracing and measuring an object's position over a period of time (speed)</i>	4					
SC 5.2.2.b <i>Describe changes in motion due to outside forces (push, pull, gravity)</i>	4					
SC 5.2.2.c <i>Describe magnetic behavior in terms of attraction and repulsion</i>	4					

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Grade 5 Energy	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.2.3 <u>General</u> Students will observe and identify signs of energy transfer. Extended <i>Students will observe and identify signs of energy transfer.</i>	4	0-1	0-1	1-3	0-2	2-3
SC 5.2.3.a Recognize that sound is produced from vibrating objects; the sound can be changed by changing the vibration	4					
SC 5.2.3.b Recognize that light travels in a straight line and can be reflected by an object (mirror)	4					
SC 5.2.3.c Recognize that light can travel through certain materials and not others (transparent, translucent, opaque)	4					
SC 5.2.3.d Identify ways to generate heat (friction, burning, incandescent light bulb)	4					
SC 5.2.3.e Identify materials that act as thermal conductors or insulators	4					
SC 5.2.3.f Recognize that the transfer of electricity in an electrical circuit requires a closed loop	4					
LIFE SCIENCE						
Grade 5 Life Science	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.3.1 <u>General</u> Students will investigate and compare the characteristics of living things. Extended <i>Students will recognize that living things grow.</i>	4	0-1	0-1	1-3	0-2	2-3
SC 5.3.1.a Compare and contrast characteristics of living and nonliving things	4					
SC 5.3.1.b Identify how parts of plants and animals function to meet basic needs (e.g., leg of an insect helps an insect move, root of a plant helps the plant obtain water)	4					
Grade 5 Heredity	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.3.2 <u>General</u> Students will identify variations of inherited characteristics and life cycles. Extended <i>Students will observe inherited characteristics and life cycles.</i>	4	0-1	0-2	1-3	0-2	1-3
SC 5.3.2.a Identify inherited characteristics of plants and animals	4					
SC 5.3.2.b Identify the life cycle of an organism	4					

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SCE 5.3.3 <u>General</u> Students will describe relationships within an ecosystem. Extended <i>Students will recognize relationships within an ecosystem.</i>	4	0-1	0-2	0-3	0-2	2-3
SC 5.3.3.a Diagram and explain a simple food chain beginning with the Sun	4					
SC 5.3.3.b Identify the role of producers, consumers, and decomposers in an ecosystem	4					
SC 5.3.3.c Recognize the living and nonliving factors that impact the survival of organisms in an ecosystem	4					
SC 5.3.3.d Recognize all organisms cause changes, some beneficial and some detrimental, in the environment where they live	4					
SCE 5.3.4 <u>General</u> Students will describe changes in organisms over time. Extended <i>Students will identify changes in organisms over time.</i>	4	0-1	0-1	1-2	0-1	1-2
SC 5.3.4.a Describe adaptations made by plants or animals to survive environmental changes	4					
EARTH AND SPACE SCIENCE						
Grade 5 Earth in Space	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.4.1 <u>General</u> Students will observe and describe characteristics, patterns, and changes in the sky. Extended <i>Students will observe and recognize changes in the sky.</i>		0-1	0-1	1-3	0-2	1-3
SC 5.4.1.a Recognize that the observed shape of the Moon changes from day to day during a one month period	4					
SC 5.4.1.b Recognize the motion of objects in the sky (the Sun, the Moon, stars) change over time in recognizable patterns	4					

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Grade 5 Earth Structures and Processes	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.4.2 <u>General</u> Students will observe and describe Earth's materials, structure, and processes. Extended <i>Students will observe and recognize Earth's materials and processes.</i>	4	0-1	0-2	1-4	0-2	2-4
SC 5.4.2.a Describe the characteristics of rocks, minerals, soil, water, and the atmosphere	4					
SC 5.4.2.b Identify weathering, erosion, and deposition as processes that build up or break down Earth's surface	4					
SC 5.4.2.c Identify how Earth materials are used (fuels, building materials, sustaining plant life)	4					
Grade 5 Energy in Earth's Systems	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.4.3 <u>General</u> Students will observe and describe the effects of energy changes on Earth. Extended <i>Students will observe and recognize the effects of energy changes on Earth.</i>	4	0-1	0-1	1-3	0-2	2-3
SC 5.4.3.a Describe the Sun's warming effect on the land and water	4					
SC 5.4.3.b Observe, measure, and record changes in weather (temperature, wind direction and speed, precipitation)	4					
SC 5.4.3.c Recognize the difference between weather, climate, and seasons	4					
Grade 5 Earth's History	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.4.4 <u>General</u> Students will describe changes in Earth. Extended <i>Students will recognize changes occur on Earth.</i>	4	0-1	0-1	1-3	0-2	1-3
SC 5.4.4.a Describe how slow processes (erosion, weathering, deposition) and rapid processes (landslides, volcanic eruptions, earthquakes) change Earth's surface	4					

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Tables of Specification						
Grade 8						
Inquiry, The Nature of Science, and Technology						
Grade 8 Abilities to do Scientific Inquiry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.1.1 <u>General</u> Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations. Extended <i>Students will conduct investigations that lead to a final product.</i>		0-1	0-1	2-5	1-4	4-7
SC 8.1.1.a Formulate testable questions that lead to predictions and scientific investigations	4					
SC 8.1.1.b Design and conduct logical and sequential investigations including repeated trials	4					
SC 8.1.1.c Determine controls and use dependent (responding) and independent (manipulated) variables	4					
SC 8.1.1.d Select and use equipment appropriate to the investigation, demonstrate correct techniques	4					
SC 8.1.1.e Make qualitative and quantitative observations	4					
SC 8.1.1.f Record and represent data appropriately and review for quality, accuracy, and relevancy	4					
SC 8.1.1.g Evaluate predictions, draw logical inferences based on observed patterns/relationships, and account for non-relevant information	4					
SC 8.1.1.h Share information, procedures, results, and conclusions with appropriate audiences	4					
SC 8.1.1.i Analyze and provide appropriate critique of scientific investigations	4					
SC 8.1.1.j Use appropriate mathematics in all aspects of scientific inquiry	4					
Grade 8 Nature of Science	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.1.2 <u>General</u> Students will apply the nature of science to their own investigations. Extended <i>Students will describe how scientists go about their work.</i>	Assessed at the local level					

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SC 8.1.2.a Recognize science is an ongoing process and the scientific community accepts and uses explanations until they encounter new experimental evidence not matching existing explanations						
SC 8.1.2.b Describe how scientific discoveries influence and change society						
SC 8.1.2.c Recognize scientists from various cultures have made many contributions to explain the natural world						
Grade 8 Technology	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.1.3 <u>General</u> Students will solve a design problem which involves one or two science concepts. Extended Students will solve a problem using simple machines (inclined planes and wheels).	Assessed at the local level					
SC 8.1.3.a Identify problems for technical design						
SC 8.1.3.b Design a solution or product						
SC 8.1.3.c Implement the proposed design						
SC 8.1.3.d Evaluate completed technological designs or products						
SC 8.1.3.e Communicate the process of technical design						
SC 8.1.3.f Distinguish between scientific inquiry (asking questions about the natural world) and technological design (using science to solve practical problems)						
SC 8.1.3.g Describe how science and technology are reciprocal						
SC 8.1.3.h Recognize that solutions have intended and unintended consequences						
SC 8.1.3.i Compare and contrast the reporting of scientific knowledge and the reporting of technological knowledge						
PHYSICAL SCIENCE						
Grade 8 Matter	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.2.1 <u>General</u> Students will identify and describe the particulate nature of matter including physical and chemical interactions. Extended Students will explore and identify the physical properties and the physical changes of matter.		0-1	0-1	2-4	0-3	2-4
SC 8.2.1.a Compare and contrast elements, compounds, and mixtures	4					
SC 8.2.1.b Describe physical and chemical properties of matter	4					

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SC 8.2.1.c Recognize most substances can exist as a solid, liquid, or gas depending on temperature	4					
SC 8.2.1.d Compare and contrast solids, liquids, and gasses based on properties of these states of matter	4					
SC 8.2.1.e Distinguish between physical and chemical changes (phase changes, dissolving, burning, rusting)	4					
SC 8.2.1.f Recognize conservation of matter in physical and chemical changes	4					
SC 8.2.1.g Classify substances into similar groups based on physical properties	4					
Grade 8 Force and Motion	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.2.2 General Students will investigate and describe forces and motion. Extended Students will explore and recognize forces and motion.		0-1	0-1	1-3	0-2	2-3
SC 8.2.2.a Describe motion of an object by its position and velocity	4					
SC 8.2.2.b Recognize an object that is not being subjected to a force will continue to move at a constant speed in a straight line or stay at rest (Newton's 1st law)	4					
SC 8.2.2.c Compare the motion of objects related to the effects of balanced and unbalanced forces	4					
SC 8.2.2.d Recognize that everything on or around Earth is pulled towards Earth's center by gravitational force	4					
Grade 8 Energy	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.2.3 General Students will identify and describe how energy systems and matter interact. Extended Students will identify and describe how energy systems and matter interact.		0-1	0-1	1-3	0-2	2-3
SC 8.2.3.a Recognize that vibrations set up wave-like disturbances that spread away from the source (sound, seismic, water waves)	4					
SC 8.2.3.b Identify that waves move at different speeds in different materials	4					
SC 8.2.3.c Recognize that light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection)	4					
SC 8.2.3.d Recognize that to see an object, light from the surface of the object must enter the eye; the color seen depends on the properties of the surface and the color of the available light sources	4					

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SC 8.2.3.e Recognize that heat moves from warmer objects to cooler objects until both reach the same temperature	4					
SC 8.2.3.f Describe transfer of energy from electrical and magnetic sources to different energy forms (heat, light, sound, chemical)	4					
SC 8.2.3.g Recognize all energy is neither created nor destroyed	4					
LIFE SCIENCE						
Grade 8 Structure and Function of Living Systems	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.3.1 <i>General</i> Students will investigate and describe the structure and function of living organisms. Extended <i>Students will explore and identify the structure and function of living things.</i>		0-1	0-2	1-3	0-2	2-3
SC 8.3.1.a Recognize the levels of organization in living organisms (cells, tissues, organs, organ systems, organisms)	4					
SC 8.3.1.b Recognize that all organisms are composed of one or many cells; that these cells must grow, divide, and use energy; and that all cells function similarly	4					
SC 8.3.1.c Recognize specialized cells perform specialized functions in multicellular organisms	4					
SC 8.3.1.d Identify the organs and functions of the major systems of the human body and describe ways that these systems interact with each other	4					
SC 8.3.1.e Describe how plants and animals respond to environmental stimuli	4					
Grade 8 Heredity	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.3.2 <i>General</i> Students will investigate and describe the relationship between reproduction and heredity. Extended <i>Students will explore and identify the relationship between reproduction and heredity.</i>		0-1	0-1	1-3	0-2	1-3
SC 8.3.2.a Recognize that hereditary information is contained in genes within the chromosomes of each cell	4					
SC 8.3.2.b Compare and contrast sexual and asexual reproduction	4					
Grade 8 Flow of Matter and Energy in Ecosystems	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total

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SCE 8.3.3 General Students will describe populations and ecosystems. Extended Students will recognize relationships within an ecosystem.		0-1	0-1	0-3	0-2	2-3
SC 8.3.3.a Diagram and explain the flow of energy through a simple food web	4					
SC 8.3.3.b Compare the roles of producers, consumers, and decomposers in an ecosystem	4					
SC 8.3.3.c Recognize that producers transform sunlight into chemical energy through photosynthesis	4					
SC 8.3.3.d Determine the biotic and abiotic factors that impact the number of organisms an ecosystem can support	4					
SC 8.3.3.e Recognize a population is all the individuals of a species at a given place and time	4					
SC 8.3.3.f Identify symbiotic relationships among organisms	4					
SC 8.3.3.g Identify positive and negative effects of natural and human activity on an ecosystem	4					
Grade 8 Biodiversity	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.3.4 General Students will identify characteristics of organisms that help them survive. Extended Students will identify survival characteristics or organisms.		0-1	0-1	1-2	0-1	1-2
SC 8.3.4.a Describe how an inherited characteristic enables an organism to improve its survival rate	4					
SC 8.3.4.b Recognize the extinction of a species is caused by the inability to adapt to an environmental change	4					
SC 8.3.4.c Use anatomical features of an organism to infer similarities among other organisms	4					
EARTH AND SPACE SCIENCE						
Grade 8 Earth in Space	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.4.1 General Students will investigate and describe Earth and the solar system. Extended Students will investigate Earth and the solar system.		0-1	0-1	1-2	0-2	1-2
SC 8.4.1.a Describe the components of the solar system (the Sun, planets, moons, asteroids, comets)	4					
SC 8.4.1.b Describe the relationship between motion of objects in the solar system and the phenomena of day, year, eclipses, phases of the Moon and seasons	4					

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SC 8.4.1.c Describe the effects of gravity on Earth (tides) and the effect of gravity on objects in the solar system	4					
Grade 8 Earth Structures and Processes	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.4.2 <u>General</u> Students will investigate and describe Earth's structure, systems, and processes. Extended Students will investigate and identify Earth's structure, systems, and processes.		0-1	0-2	1-4	0-2	2-4
SC 8.4.2.a Describe the layers of Earth (core, mantle, crust, atmosphere)	4					
SC 8.4.2.b Describe the physical composition of soil	4					
SC 8.4.2.c Describe the mixture of gasses in Earth's atmosphere and how the atmosphere's properties change at different elevations	4					
SC 8.4.2.d Describe evidence of Earth's magnetic field	4					
SC 8.4.2.e Compare and contrast constructive and destructive forces (deposition, erosion, weathering, plate motion causing uplift, volcanoes, earthquakes) that impact Earth's surface	4					
SC 8.4.2.f Describe the rock cycle	4					
SC 8.4.2.g Describe the water cycle (evaporation, condensation, precipitation)	4					
SC 8.4.2.h Classify Earth materials as renewable or nonrenewable	4					
Grade 8 Energy in Earth's Systems	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 8.4.3 <u>General</u> Students will investigate and describe energy in Earth's systems. Extended Students will identify energy in Earth's systems.		0-1	0-1	1-3	0-2	2-3
SC 8.4.3.a Describe how energy from the Sun influences the atmosphere and provides energy for plant growth	4					
SC 8.4.3.b Identify factors that influence daily and seasonal changes on Earth (tilt of the Earth, humidity, air pressure, air masses)	4					
SC 8.4.3.c Describe atmospheric movements that influence weather and climate (air masses, jet stream)	4					
Grade 8 Earth's History	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total

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SCE 8.4.4 General Students will use evidence to draw conclusions about changes in Earth. Extended <i>Students will recognize that the surface of Earth changes today, in similar ways as in the past.</i>		0-1	0-1	1-3	0-2	1-3
SC 8.4.4.a Recognize that Earth processes we see today are similar to those that occurred in the past (uniformity of processes)	4					
SC 8.4.4.b Describe how environmental conditions have changed through use of the fossil record	4					

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Nebraska State Accountability - Alternate Assessment of Science (NeSA-AAS) Tables of Specification						
Grade 11						
Inquiry, The Nature of Science, and Technology						
Grade 11 Abilities to do Scientific Inquiry	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.1.1 General Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models. Extended <i>Students will conduct an investigation that leads to an answer.</i>		0-1	0-1	2-5	2-4	4-7
SC 12.1.1.a Formulate a testable hypothesis supported by prior knowledge to guide an investigation	4					
SC 12.1.1.b Design and conduct logical and sequential scientific investigations with repeated trials and apply findings to new investigations	4					
SC 12.1.1.c Identify and manage variables and constraints	4					
SC 12.1.1.d Select and use lab equipment and technology appropriately and accurately	4					
SC 12.1.1.e Use tools and technology to make detailed qualitative and quantitative observations	4					
SC 12.1.1.f Represent and review collected data in a systematic, accurate, and objective manner	4					
SC 12.1.1.g Analyze and interpret data, synthesize ideas, formulate and evaluate models, and clarify concepts and explanations	4					
SC 12.1.1.h Use results to verify or refute a hypothesis	4					
SC 12.1.1.i Propose and/or evaluate possible revisions and alternate explanations	4					
SC 12.1.1.j Share information, procedures, results, conclusions, and defend findings to a scientific community (peers, science fair audience, policy makers)	4					
SC 12.1.1.k Evaluate scientific investigations and offer revisions and new ideas as appropriate	4					
SC 12.1.1.l Use appropriate mathematics in all aspects of scientific inquiry	4					

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Grade 11 Nature of Science	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.1.2 <u>General</u> Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations. <u>Extended</u> Students will apply the nature of science investigations to the world in which they live.	Assessed at the local level					
SC 12.1.2.a Recognize that scientific explanations must be open to questions, possible modifications, and must be based upon historical and current scientific knowledge						
SC 12.1.2.b Describe how society influences the work of scientists and how science, technology, and current scientific discoveries influence and change society						
SC 12.1.2.c Recognize that the work of science results in incremental advances, almost always building on prior knowledge, in our understanding of the world						
SC 12.1.2.d Research and describe the difficulties experienced by scientific innovators who had to overcome commonly held beliefs of their times to reach conclusions that we now take for granted						
Grade 11 Technology	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.1.3 <u>General</u> Students will solve a complex design problem. <u>Extended</u> Students will solve a design problem.	Assessed at the local level					
SC 12.1.3.a Propose designs and choose between alternative solutions of a problem						
SC 12.1.3.b Assess the limits of a technological design						
SC 12.1.3.c Implement the selected solution						
SC 12.1.3.d Evaluate the solution and its consequences						
SC 12.1.3.e Communicate the problem, process, and solution						
SC 12.1.3.f Compare and contrast the reasons for the pursuit of science and the pursuit of technology						
SC 12.1.3.g Explain how science advances with the introduction of new technology						
SC 12.1.3.h Recognize creativity, imagination, and a good knowledge base are all needed to advance the work of science and engineering						

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PHYSICAL SCIENCE						
Grade 11 Matter	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.2.1 <u>General</u> Students will investigate and describe matter in terms of its structure, composition and conservation. Extended Students will identify changes that take place between states of matter.		0-1	0-1	2-4	0-3	2-4
SC 12.2.1.a Recognize bonding occurs when outer electrons are transferred (ionic) or shared (covalent)	4					
SC 12.2.1.b Describe the energy transfer associated with phase changes between solids, liquids, and gasses	4					
SC 12.2.1.c Describe the three normal states of matter (solid, liquid, gas) in terms of energy, particle arrangement, particle motion, and strength of bond between molecules	4					
SC 12.2.1.d Recognize a large number of chemical reactions involve the transfer of either electrons (oxidation/reduction) or hydrogen ions (acid/base) between reacting ions, molecules, or atoms	4					
SC 12.2.1.e Identify factors affecting rates of chemical reactions (temperature, particle size, surface area)	4					
SC 12.2.1.f Recognize the charges and relative locations of subatomic particles (neutrons, protons, electrons)	4					
SC 12.2.1.g Describe properties of atoms, ions, and isotopes	4					
SC 12.2.1.h Describe the organization of the periodic table of elements with respect to patterns of physical and chemical properties	4					
Grade 11 Force and Motion	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.2.2 <u>General</u> Students will investigate and describe the nature of field forces and their interactions with matter. Extended Students will investigate and identify how forces interact with matter.		0-1	0-1	1-3	0-2	2-3
SC 12.2.2.a Describe motion with respect to displacement and acceleration	4					
SC 12.2.2.b Describe how the law of inertia (Newton's 1st law) is evident in a real-world event	4					
SC 12.2.2.c Make predictions based on relationships among net force, mass, and acceleration (Newton's 2nd law)	4					
SC 12.2.2.d Recognize that all forces occur in equal and opposite pairs (Newton's 3rd law)	4					

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SC 12.2.e Describe how Newton's 3rd law of motion is evident in a real-world event	4					
SC 12.2.f Describe gravity as a force that each mass exerts on another mass, which is proportional to the masses and the distance between them	4					
SC 12.2.g Recognize that an attractive or repulsive electric force exists between two charged particles and that this force is proportional to the magnitude of the charges and the distance between them	4					
Grade 11 Energy	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.2.3 <i>General</i> Students will describe and investigate energy systems relating to the conservation and interaction of energy and matter. <i>Extended</i> Students will investigate and recognize the effects of energy transfer.		0-1	0-1	1-3	0-2	2-3
SC 12.2.3.a Describe mechanical wave properties (speed, wavelength, frequency, amplitude) and how waves travel through a medium	4					
SC 12.2.3.b. Recognize that the energy in waves can be changed into other forms of energy	4					
SC 12.2.3.c Recognize that light can behave as a wave (diffraction and interference)	4					
SC 12.2.3.d Distinguish between temperature (a measure of the average kinetic energy of atomic or molecular motion) and heat (the quantity of thermal energy that transfers due to a change in temperature)	4					
SC 12.2.3.e Compare and contrast methods of heat transfer and the interaction of heat with matter via conduction, convection, and radiation	4					
SC 12.2.3.f Recognize that the production of electromagnetic waves is a result of changes in the motion of charges or by a changing magnetic field	4					
SC 12.2.3.g Compare and contrast segments of the electromagnetic spectrum (radio, micro, infrared, visible, ultraviolet, x-rays, gamma) based on frequency and wavelength	4					
SC 12.2.3.h Recognize that nuclear reactions (fission, fusion, radioactive decay) convert a fraction of the mass of interacting particles into energy, and this amount of energy is much greater than the energy in chemical interactions	4					
SC 12.2.3.i Interpret the law of conservation of energy to make predictions for the outcome of an event	4					
SC 12.2.3.j Identify that all energy can be considered to be either kinetic, potential, or energy contained by a field (e.g. electromagnetic waves)	4					
SC 12.2.3.k Identify endothermic and exothermic reactions	4					

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LIFE SCIENCE						
Grade 11 Structure and Function of Living Systems	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.3.1 <u>General</u> Students will investigate and describe the chemical basis of the growth, development, and maintenance of cells. <u>Extended</u> <i>Students will investigate and identify the factors needed for life and growth.</i>		0-1	0-1	1-3	0-2	2-3
SC 12.3.1.a Identify the complex molecules (carbohydrates, lipids, proteins, nucleic acids) that make up living organisms	4					
SC 12.3.1.b Identify the form and function of sub-cellular structures that regulate cellular activities	4					
SC 12.3.1.c Describe the cellular functions of photosynthesis, respiration, cell division, protein synthesis, transport of materials, and energy capture/release	4					
SC 12.3.1.d Describe how an organism senses changes in its internal or external environment and responds to ensure survival	4					
Grade 11 Heredity	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.3.2 <u>General</u> Students will describe the molecular basis of reproduction and heredity. <u>Extended</u> <i>Students will investigate and identify features of living organisms that come from their parents.</i>		0-1	0-1	1-3	0-2	1-3
SC 12.3.2.a Identify that information passed from parents to offspring is coded in DNA molecules	4					
SC 12.3.2.b Describe the basic structure of DNA and its function in genetic inheritance	4					
SC 12.3.2.c Recognize how mutations could help, harm, or have no effect on individual organisms	4					
SC 12.3.2.d Describe that sexual reproduction results in a largely predictable, variety of possible gene combinations in the offspring of any two parents	4					
Grade 11 Flow of Matter and Energy in Ecosystems	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.3.3 <u>General</u> Students will describe, on a molecular level, the cycling of matter and the flow of energy between organisms and their environment. <u>Extended</u> <i>Students will investigate and identify the cycling of matter between organisms and their environment.</i>		0-1	0-1	1-3	0-2	2-3
SC 12.3.3.a Explain how the stability of an ecosystem is increased by biological diversity	4					

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SC 12.3.3.b Recognize that atoms and molecules cycle among living and nonliving components of the biosphere	4					
SC 12.3.3.c Explain how distribution and abundance of different organisms in ecosystems are limited by the availability of matter and energy and the ability of the ecosystem to recycle materials	4					
SC 12.3.3.d Analyze factors which may influence environmental quality	4					
Grade 11 Biodiversity	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.3.4 <u>General</u> Students will describe the theory of biological evolution. Extended <i>Students will explore and identify elements of evolution.</i>		0-1	0-1	0-2	0-2	1-2
SC 12.3.4.a Identify different types of adaptations necessary for survival (morphological, physiological, behavioral)	4					
SC 12.3.4.b Recognize that the concept of biological evolution is a theory which explains the consequence of the interactions of: (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) the ensuing selection by the environment of those offspring better able to survive and leave offspring	4					
SC 12.3.4.c Explain how natural selection provides a scientific explanation of the fossil record and the molecular similarities among the diverse species of living organisms	4					
SC 12.3.4.d Apply the theory of biological evolution to explain diversity of life over time	4					
EARTH AND SPACE SCIENCE						
Grade 11 Earth in Space	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.4.1 <u>General</u> Students will investigate and describe the known universe. Extended <i>Students will identify the difference between man-made and natural objects in space.</i>		0-1	0-1	1-3	0-2	2-3
SC 12.4.1.a Describe the formation of the universe using the Big Bang Theory	4					
SC 12.4.1.b Recognize that stars, like the Sun, transform matter into energy by nuclear reactions which leads to the formation of other elements	4					
SC 12.4.1.c Describe stellar evolution	4					

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Grade 11 Earth Structures and Processes	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.4.2 <u>General</u> Students will investigate the relationships among Earth's structure, systems, and processes. Extended <i>Students will recognize that various processes cause changes on Earth.</i>		0-1	0-1	1-4	0-2	2-4
SC 12.4.2.a Recognize how Earth materials move through geochemical cycles (carbon, nitrogen, oxygen) resulting in chemical and physical changes in matter	4					
SC 12.4.2.b Describe how heat convection in the mantle propels the plates comprising Earth's surface across the face of the globe (plate tectonics)	4					
SC 12.4.2.c Evaluate the impact of human activity and natural causes on Earth's resources (groundwater, rivers, land, fossil fuels)	4					
Grade 11 Energy in Earth's Systems	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.4.3 <u>General</u> Students will investigate and describe the relationships among the sources of energy and their effects on Earth's systems. Extended <i>Students will identify sources of energy in Earth's systems.</i>		0-1	0-1	1-3	0-2	2-3
SC 12.4.3.a Describe how radiation, conduction, and convection transfer heat in Earth's systems	4					
SC 12.4.3.b Identify internal and external sources of heat energy in Earth's systems	4					
SC 12.4.3.c Compare and contrast benefits of renewable and nonrenewable energy sources	4					
SC 12.4.3.d Describe natural influences (Earth's rotation, mountain ranges, oceans, differential heating) on global climate	4					
Grade 11 Earth's History	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.4.4 <u>General</u> Students will explain the history and evolution of Earth. Extended <i>Students will identify changes in Earth over time.</i>		0-1	0-1	1-3	0-2	1-3
SC 12.4.4.a Recognize that in any sequence of sediments or rocks that has not been overturned, the youngest sediments or rocks are at the top of the sequence and the oldest are at the bottom (law of superposition)	4					
SC 12.4.4.b Interpret Earth's history by observing rock sequences, using fossils to correlate the sequences at various locations, and using data from radioactive dating methods	4					
SC 12.4.4.c Compare and contrast the physical and biological differences of the early Earth with the planet we live on today	4					

Appendix D: Confidentiality Agreement

NEBRASKA DEPARTMENT OF EDUCATION



NEBRASKA STATE ACCOUNTABILITY

_____, _____
MONTH YEAR

CONFIDENTIALITY AGREEMENT

TEST SECURITY IS OF THE UTMOST IMPORTANCE TO THE NEBRASKA DEPARTMENT OF EDUCATION. AS A PARTICIPANT IN THIS _____, YOU HAVE ACCESS TO TEST ITEMS THAT MUST BE REGARDED AS CONFIDENTIAL. **DO NOT REPRODUCE ANY MATERIALS, DIRECTLY OR INDIRECTLY, DISCLOSE THE CONTENTS OF THESE MATERIALS, OR DISCUSS THE MATERIALS OR ANY ISSUES THAT ARISE DURING THE MEETINGS WITH INDIVIDUALS OUTSIDE OF THE MEETING ITSELF.**

WE ARE CERTAIN THAT YOU SHARE OUR CONCERN FOR TEST SECURITY AND ASK THAT YOU ACKNOWLEDGE YOUR ADHERENCE TO THIS AGREEMENT BY SIGNING BELOW.

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LEGAL LAST NAME

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SIGNATURE

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Appendix E: Fairness in Testing Manual

FAIRNESS IN TESTING

Guidelines for Training Bias, Fairness, and Sensitivity Issues

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INTRODUCTION

The most important part of the development of any new test is to ensure balanced treatment and control of potential bias, stereotyping, and insensitivity in the items or in the test-related materials. Data Recognition Corporation (DRC) understands that the presence of any type of bias in a test is undesirable not only from a civil rights point of view, but also from a measurement point of view. Issues of bias, fairness, and sensitivity in testing can have a direct impact on test scores. Our test developers are committed to the development of items and tests that are fair for all students. At every stage of the item and test development process, we employ procedures that are designed to ensure that our items and tests meet Standard 7.4 of the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 1999).

Standard 7.4: Test developers should strive to identify and eliminate language, symbols, words, phrases, and content that are generally regarded as offensive by members of racial, ethnic, gender, or other groups, except when judged to be necessary for adequate representation of the domain.

In meeting Standard 7.4, DRC employs a series of internal quality steps that we believe are among some of the best in the industry. We provide specific training for our test developers, item writers, and reviewers on how to write, review, revise, and edit items for issues of bias, fairness, and sensitivity, as well as for technical quality. Our training also includes an awareness of and sensitivity to issues of cultural diversity.

In addition to providing *internal* training in reviewing items in order to eliminate potential bias, we also provide *external* training to our clients, including state departments of education, review panels of minority experts, teachers, and other stakeholders. DRC understands the importance of having external panels with a wide variety of expertise in reviewing items and tests for potential bias. External panels of professionals provide a review of items for subtle forms of bias that often can be perceived only by individuals who possess a wide variety of appropriate expertise and represent specific constituencies.

This manual has been prepared to summarize DRC's guidelines for bias, fairness, and sensitivity, including how to eliminate language, symbols, words, phrases, and content that might be considered offensive by members of racial, ethnic, gender, or other groups. Our guidelines may be modified to meet client's requirements and/or state-specific guidelines.

DEFINITION OF BIAS

While there are many definitions of bias, the following definition is provided on page 76 of the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 1999):

The term *bias* in tests and testing refers to construct-irrelevant components that result in systematically lower or higher scores for identifiable groups of examinees. In other words, **bias is the presence of some characteristic of an item and/or test that results in two individuals of the same ability but from different subgroups performing differently on the item and/or test.** Therefore, it is most important that there are no ambiguities in the test items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries.

TYPES OF BIAS

There are many types of bias. They include stereotyping and discriminating against people because of gender, regional or geographical differences, ethnicity or culture, socioeconomic or class status, religion, or age, as well as bias against other groups of people, including those with disabilities. Another form of bias involves the use of questions and/or activities in the items or on a test as a whole that are not relevant to the life experiences of the students responding to the items or test. A definition of each type of bias, along with samples, is provided below.

STEREOTYPING

“Stereotype is an image formed by ascribing certain characteristics (e.g., physical, cultural, personal, occupational, historical) to all members of a group” (National Evaluation Systems, Inc. page 2). Stereotyping in test items and tests might include physical characteristics, intellectual characteristics, emotions, careers, activities, and domestic or social roles. In writing or reviewing test items, it is very important that all groups are portrayed fairly, without stereotyping. As a result, there should be a range of characteristics, careers, and social roles across all groups, and no one group should be characterized by any one particular attribute or characteristic. Following are examples of stereotyping.

Stereotype

Examples

PHYSICAL CHARACTERISTICS

MALES ARE STRONG AND CAPABLE LEADERS.
Females are weak.

Types of Bias

Stereotyping (continued)

The elderly are feeble and sickly.
Children are healthy and full of energy.
The elderly are dependent upon others.
People with disabilities are dependent upon others.
Females worry about their hair.

Intellectual characteristics

Males do better in mathematics and science.
Females do better in reading and language arts.
Asian Americans excel in academics.

Emotions

Males are aggressive, courageous, and strong.
Females are weak, weepy, tender, and fearful.

Stereotyping

Examples

Careers

Females are nurses, teachers, and secretaries.
Males are doctors, principals, superintendents, lawyers, and skilled laborers (e.g., plumbers, construction workers, painters).
African-Americans are athletes.
Hispanics operate lawn care businesses.
Asian-Americans own dry cleaning businesses.

Activities

Females play with dolls and read books.
Females do domestic chores (e.g., clean house, cook, sew).
Females spend money.
Males play sports and work with tools.
Boys are rowdy.
Girls are quiet.

Domestic and/or Social Roles

Females are responsible for childcare.
Men work outside of the home and are the breadwinners.

Community

Asian-Americans live in ethnic neighborhoods.
African-Americans live in high-rise apartment buildings located in urban areas.
American Indians live on reservations.

Leadership	Men are leaders and rulers. Women are followers. Women are dependent on men. Men are elected to political positions. Females in leadership roles are aggressive and pushy.
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TYPES OF BIAS (CONTINUED)

GENDER BIAS

Gender bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that show members of either sex in stereotypical activities, emotions, occupations, characteristics, and/or situations. Gender bias also involves the use of demeaning labels.

Examples of gender bias

TITLES AND SPECIFIC TERMS REFERRING TO HUMANITY AT LARGE, SUCH AS

- Mankind
- Manhood
- Manpower
- Man of the hour
- Man-hours
- Man-made

Use of gender specific terms for occupations, such as

- Fireman
- Workman
- Chairman
- Policeman
- Mailman
- Salesman
- Insurance man
- Businessman
- Congressman

Use of pronouns that imply a stereotype, such as

- The nurse went to the hospital, and *she* was able to talk with the patient.
- The factory worker needed to earn more money for *his* family.
- When the lawyer delivered *his* closing remarks, the jury listened carefully.
- A politician must give a lot of speeches when *he* runs for office.

TYPES OF BIAS

GENDER BIAS (CONTINUED)

Use of phrases that identify genders in terms of their roles or occupations, such as

- Men and girls were invited to the lecture.
- The travelers took their wives and children with them.
- The happy couple was introduced as man and wife.

Use of phrases or words with an emphasis on marital status, such as

- Abraham Lincoln and Mrs. Lincoln attended the play.
- George Washington and Martha visited the new building.
- Dr. and Mrs. Jones attended the opening of the new warehouse.
- The admirable Dr. George Halstead and his wife, Maria, visited the library.

Use of words that identify genders in the salutation of a business letter, such as

- Dear Sir:
- Dear Madam:
- Dear Gentlemen:

Use of words or phrases that are not parallel, such as

- The girls' restroom is down the hall, and the men's restroom is on the second floor.
- The boys' locker room door is painted green, and the women's locker room door is painted yellow.
- The men's department is on the right; the ladies' department is on the left.

Use of figures of speech, such as

- Old wives' tale
- Right-hand man
- Man versus nature
- The best man for the job
- The better half

Use of gender-specific terms or diminutive words, such as

- Sweet young thing
- Usherette
- Housewife
- Maid
- Cleaning lady
- Little woman
- Career girl
- Houseboy
- Steward

TYPES OF BIAS (CONTINUED)

Regional or Geographical Bias

Regional and/or geographical bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are not commonly used nationwide or within a particular region or state to which the test will be given. It also involves the use of terms that have different connotations in different parts of the country and/or geographical regions. It is important to note that some experiences may not be common to all students. For example, within a given geographic area not all students might be familiar with snow, so questions involving sleds and toboggans, for example, may well reflect a regional or geographical bias.

Examples of regional or geographical bias

- She ordered a new davenport (couch or sofa).
- Go get your toboggan (hat or type of sled).
- The students stood in line at the bubbler (water fountain or drinking fountain).
- Turn left at the berm (curb).
- Take the pike (road).

Ethnic or Cultural Bias

Ethnic bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are demeaning and/or offensive to a particular ethnic group or culture. In addition, no minority group should be portrayed as being uneducated or poor.

Examples of ethnic or cultural bias

- Maria was in the kitchen making tacos.
- The Chinese owned a laundry in our area.
- Native Americans are very close to nature.

Terminology

Terms that have a negative connotation or that reinforce negative judgments should also be avoided. Following is a list of **acceptable** terms.

- African-American
- Asian-American or Pacific Island American
- Latino, Mexican-American, Hispanic
- Tribal name (preferred), Native American, American Indian

- European-American

TYPES OF BIAS (CONTINUED)

Socioeconomic or Class Bias

Socioeconomic or class bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include activities, possessions, or ideas that may not be common to all students within a given area. For example, not all students in a given area own CD players or video games, nor do all students in a given area participate in certain sports activities, such as golf, snow skiing, or sailing. In addition, not all students in a given area take expensive vacations or attend expensive schools.

Examples of socioeconomic or class bias

- They were members of the country club.
- Boarding school.
- How many golf balls landed in the lake?
- The club members plan to go snow skiing over the holidays.
- My great aunt lives in a town house overlooking Lake Michigan.

Religious Bias

Religious bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are demeaning and/or offensive to a particular religious group.

Examples of religious bias

- The house on Smith Street is decorated for Halloween.
- There were several Christmas trees in the window.
- The students in the class will stand and say the *Pledge of Allegiance*.
- The high school students will be attending a rock-and-roll dance at the community center.

It is also important to note that no religious belief or practice should be portrayed as a universal norm or as inferior or superior to any other.

TYPES OF BIAS

Ageism (Bias Against a Particular Age Group)

There are other subtle forms of bias, including bias against the elderly or ageism. Ageism involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are demeaning and/or offensive to the elderly or older persons (65 years or older). Ageism can also involve issues of bias with other age groups, including teenagers and young children.

It is important to note, however, that representing older persons or any age group fairly does not mean that the content of the items has to be revised or rewritten to seem unrealistic. Rather, as a whole, the items and the test should show older people or any age group in a variety of roles and activities whenever they appear naturally in the test content.

Examples of ageism (bias against a particular age group)

- Despite the fact that she was very old, she was able to walk down the stairs.
- The child's grandfather seemed senile.
- They were acting like typical irresponsible teenagers.

Bias Against Persons with Disabilities

Another form of subtle bias involves issues of bias related to persons with disabilities. This type of bias involves items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries that include terms that are demeaning and/or offensive to persons with disabilities. It is important to note, however, that representing persons with disabilities does not mean that the content of the items has to be revised or rewritten to seem unrealistic. Rather, as a whole, the items and the test should show people with disabilities in a variety of roles and activities whenever they appear naturally in the test content.

Examples of bias against persons with disabilities

- After the car accident, the student was confined to a wheelchair.
- He became a successful writer despite his disability.
- She is a blind person.
- The student is handicapped.
- The child made great strides in overcoming her disability.

TYPES OF BIAS

Bias Against Persons with Disabilities (continued)

Terminology

Terms that have a negative connotation or that reinforce negative judgments (crippled, victim, afflicted, confined, etc.) should also be avoided. It is also important that no one with a disability should be pictured as helpless or portrayed as pitiful.

Do not use

Use

Retarded

Developmentally delayed

Hard of hearing

Hearing impaired

Deaf and Dumb or Deaf-mute

Deaf or hard-of-hearing used accurately

Learning-disabled

Person with a learning disability

Handicap

Disability

Visually-impaired or Blind used accurately

EXPERIENTIAL BIAS

The questions and activities reflected in the items or test, as a whole, should also be relevant to the life experiences of the students responding to the items. In other words, for a student to respond sensibly to the test questions, he or she must know what the question is about. In addition, culturally specific knowledge should be avoided, along with the use of difficult words and figures of speech.

Examples of experiential bias

- Pat knew she would win the race as she had an ace up her sleeve.
- Put the pedal to the metal and clean up your room.
- I needed change for the subway turnstile.
- The arroyos filled quickly during the storm.
- The super takes care of cleaning the foyer.

MAINTAINING BALANCE

Bias may also occur as a result of having a lack of balance through underrepresentation of a particular ethnic group and/or gender. Therefore, whenever possible, tests and test-related materials should contain content that is balanced across ethnic groups and across gender. The content of the pool of items and/or test, as a whole, should also reflect cultural diversity. In order to achieve balance, the test developers at DRC review the pool of items or the test, as a whole, to determine whether or not there is an adequate representation of

- Females and males in both traditional and nontraditional roles
- Female and male names
- Minority groups in various environments and occupations
- Minority groups, including the use of names

The issue of fairness also involves content inclusiveness. Subtle forms of bias can result from omitting certain areas of information and/or from omitting certain topics. Wherever possible, the content should show people in everyday situations and groups should be depicted as fully integrated in the society, reflecting the diverse multicultural composition of society as a whole (NES, page 9).

TOPICS TO AVOID

Because issues of bias, fairness, and sensitivity in testing can have a direct impact on the test scores, it is also important that sensitive and offensive topics be avoided. A topic might be considered offensive or controversial if it offends teachers, students, parents, or the community at large. This includes highly charged and controversial topics such as abortion, the death penalty, and evolution. Unacceptable content might also include less controversial topics, such as the use of tobacco or topics that could evoke unpleasant emotions on the part of a given student. In addition, topics that appear to promote or defend a particular set of values should be avoided. It is important to remember that the ability of the student to take the test should never be undermined. Following are examples of topics generally to be avoided.

Examples of topics to be generally avoided

- *ABORTION*
- Alcohol, including beer and wine
- Behaviors that are inappropriate, including stealing, cheating, lying, and other criminal and/or anti-social behaviors and activities
- Biographies of controversial figures whether or not they are still alive
- Birthdays
- Cancer and other diseases that might be considered fatal (HIV, AIDS)
- Criticism of democracy or capitalism
- Dangerous behavior
- Death of animals or animals dying or being mistreated
- Death, murder, and suicide
- Disasters, including tornadoes, hurricanes, etc. (unless treated as scientific subjects)
- Disrespect of any mainstream racial or religious group
- Double meanings of words that have sexually suggestive meanings
- Evolution
- Family experiences that may be upsetting, including divorce or loss of a job
- Feminist or chauvinistic topics
- Gambling
- Guns and gun control
- Holidays of religious origin (e.g., Halloween, Christmas, Easter)
- Junk food, including candy, gum, chips
- Left- or right-wing politics
- Luxuries (homes with swimming pools, expensive clothes, expensive vacations, and sports activities that typically require the purchase of expensive equipment such as snow skiing)
- Parapsychology

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- Physical, emotional, and/or mental abuse, including animal, child, and/or spousal abuse
- Religions, except in appropriate historical context; mythology, folk tales, and fables may contain religious elements as part of appropriately presented literary excerpts.
- Sex, including kissing and dating
- Slavery (unless presented in an historical context and presented appropriately)
- Tobacco
- Violence against a particular group of people or animals
- Rock music, including rap and heavy metal
- Wars
- Witchcraft, sorcery, or magic
- Words that might be problematic to a specific ethnic group

SPECIAL CIRCUMSTANCES

In certain subject areas, a sensitive topic may be acceptable because the topic is a part of the course of study or may be required in order to measure the specific curriculum content standards and/or test objectives. For example, it may be appropriate to have test questions dealing with hurricanes. However, the questions should not focus unduly upon the destruction of property or the deaths of human beings. Other special circumstances include historical and literary contexts. A discussion of these special circumstances is provided below.

Historical Contexts

In order to measure the content curriculum standards, social studies tests often include topics that might otherwise be deemed as controversial. For example, in a history test, the topic of slavery might be used. The student would know that such a controversial topic is used to access knowledge of a particular curriculum content standard and/or set of objectives and, therefore, the topic would not reflect the views of the test developer.

Literary Contexts

Today's tests often require the use of authentic or previously published passages. As a result, sometimes a given passage or prompt might contain controversial material, including sentences, phrases, and/or words. If the overall passage or prompt is acceptable, it may be possible to edit and or delete the objectionable sentences, phrases, words, and/or references in order to eliminate the potential bias. In such cases, DRC test developers request permission from the publisher to make such edits and/or changes, and they would do so only if permission is granted.

POINTS TO REMEMBER

When reviewing items (questions and responses), passages prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries for issues of bias, fairness, and sensitivity, the following questions should be asked.

1. Do the items (questions and responses), passages, prompts, stimulus materials, artwork, graphs, charts, and test-related ancillaries:

Demean any religious, ethnic, cultural, or social group?

Portray anyone or any group in a stereotypical manner?

Contain any other forms of bias, including gender, regional or geographical, ethnic or cultural, socioeconomic or class, religious, age-related bias, or bias against persons with disabilities?

2. Are there any topics that might disadvantage a student for any reason?
3. Are there any culturally specific sets of knowledge, terms, difficult words and/or figures of speech that might disadvantage a group of students?
4. Are the questions and activities reflected in the items or test, as a whole, relevant to the life experiences of the students responding to the items?
5. As a whole, does the test or pool of items have a balance across ethnic groups and across genders, including an adequate representation of:

Females and males in both traditional and nontraditional roles

Female and male names

Minority groups in various environments and occupations

Minority groups, including the use of ethnic names

6. Wherever possible, does the content show minority groups in everyday situations and groups depicted as fully integrated in the society, reflecting the multicultural composition of society as a whole?

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Appendix F: Reading Key Verification and Foil Analysis

Grade 3

Grade 3 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	650565	A	262	.37	.37	.23	.23	.18	.00	.35	.35	.26	.04
OP	650617	C	262	.72	.02	.12	.72	.15	.00	.66	-.06	-.08	.66
OP	650627	B	262	.45	.07	.45	.32	.16	.00	.60	-.05	.60	.01
OP	650631	C	262	.72	.05	.08	.72	.15	.00	.69	-.08	-.10	.69
OP	650716	B	262	.52	.13	.52	.19	.16	.00	.65	.00	.65	-.08
OP	675833	C	262	.61	.07	.15	.61	.16	.00	.55	.00	.04	.55
OP	691040	B	262	.43	.23	.43	.17	.17	.00	.45	.21	.45	-.04
OP	691043	B	262	.56	.12	.56	.16	.16	.00	.65	-.01	.65	-.08
OP	691044	B	262	.58	.10	.58	.18	.15	.00	.60	-.02	.60	-.03
OP	691048	C	262	.71	.03	.09	.71	.17	.00	.69	-.02	-.07	.69
OP	707756	A	262	.53	.53	.11	.22	.14	.00	.57	.57	-.04	-.03
OP	707757	B	262	.56	.13	.56	.17	.13	.00	.55	.04	.55	-.09
OP	707759	A	262	.65	.65	.08	.11	.16	.00	.72	.72	-.13	-.07
OP	707760	B	262	.43	.16	.43	.23	.17	.00	.49	.10	.49	.04
OP	707761	C	262	.52	.19	.14	.52	.15	.00	.55	.09	-.08	.55
OP	707763	A	262	.51	.51	.11	.21	.17	.00	.50	.50	.07	.06
OP	707765	C	262	.45	.20	.18	.45	.17	.00	.42	.14	.07	.42
OP	707766	C	262	.71	.03	.12	.71	.14	.00	.66	-.12	-.08	.66
OP	707767	C	262	.65	.10	.12	.65	.14	.00	.60	-.03	-.05	.60
OP	707768	B	262	.69	.06	.69	.10	.14	.00	.65	-.07	.65	-.09
OP	707769	A	262	.58	.58	.17	.10	.15	.00	.58	.58	.05	-.10
OP	707770	A	262	.66	.66	.05	.15	.13	.00	.68	.68	-.09	-.14
OP	707771	C	262	.55	.12	.19	.55	.14	.00	.43	.01	.09	.43
OP	707772	B	262	.52	.30	.52	.03	.15	.00	.62	-.05	.62	-.05
OP	708015	A	262	.47	.47	.18	.21	.15	.00	.55	.55	.05	-.05
FT	749135	A	119	.37	.37	.08	.32	.23	.00	.53	.53	.07	.16
FT	749136	B	139	.45	.21	.45	.23	.11	.00	.34	.08	.34	.02
FT	749138	A	139	.59	.59	.15	.16	.10	.00	.59	.59	-.10	-.14
FT	749140	C	139	.71	.14	.06	.71	.10	.00	.57	-.16	.01	.57
FT	749141	A	119	.41	.41	.11	.25	.23	.00	.55	.55	.01	.18
FT	749142	C	119	.61	.08	.08	.61	.23	.00	.67	.11	-.02	.67
FT	749143	B	139	.68	.18	.68	.04	.10	.00	.49	.01	.49	-.13
FT	749144	B	139	.51	.09	.51	.30	.09	.00	.53	-.09	.53	-.08
FT	749221	A	119	.28	.28	.13	.37	.23	.00	.46	.46	.06	.26

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Grade 3 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
FT	749223	C	119	.42	.14	.21	.42	.23	.00	.43	.08	.27	.43
FT	749224	C	119	.57	.12	.08	.57	.23	.00	.62	.09	.05	.62
FT	749225	B	139	.42	.20	.42	.27	.10	.00	.52	-.12	.52	.01
FT	750257	C	119	.66	.06	.05	.66	.23	.00	.73	.01	.01	.73
FT	750258	A	139	.27	.27	.18	.44	.11	.00	.28	.28	.17	.06
FT	750259	A	139	.29	.29	.26	.35	.10	.00	.23	.23	.02	.20
FT	750260	B	119	.18	.13	.18	.47	.23	.00	.29	.18	.29	.36

Grade 4

Grade 4 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	650970	A	275	.68	.68	.10	.13	.09	.00	.64	.64	-.11	-.16
OP	650974	A	275	.66	.66	.11	.14	.09	.00	.65	.65	-.07	-.23
OP	650976	A	275	.63	.63	.11	.16	.09	.00	.65	.65	-.09	-.19
OP	650990	B	275	.75	.09	.75	.07	.09	.00	.68	-.16	.68	-.19
OP	675853	B	275	.73	.05	.73	.13	.09	.00	.69	-.10	.69	-.24
OP	691050	C	275	.60	.15	.15	.60	.10	.00	.51	-.06	-.03	.51
OP	691051	A	275	.71	.71	.07	.13	.09	.00	.72	.72	-.15	-.25
OP	691057	B	275	.52	.17	.52	.21	.10	.00	.53	-.01	.53	-.09
OP	691058	C	275	.67	.14	.10	.67	.09	.00	.48	-.03	-.03	.48
OP	691061	C	275	.73	.08	.10	.73	.09	.00	.64	-.15	-.13	.64
OP	691063	B	275	.62	.12	.62	.16	.10	.00	.58	.00	.58	-.19
OP	707773	C	275	.78	.08	.05	.78	.09	.00	.55	-.05	-.06	.55
OP	707774	B	275	.59	.07	.59	.26	.09	.00	.53	-.13	.53	-.07
OP	707775	A	275	.48	.48	.15	.27	.09	.00	.47	.47	.02	-.07
OP	707776	C	275	.65	.13	.12	.65	.09	.00	.49	-.06	-.02	.49
OP	707777	A	275	.75	.75	.06	.10	.09	.00	.71	.71	-.19	-.20
OP	707778	B	275	.48	.13	.48	.30	.09	.00	.40	.10	.40	-.05
OP	707779	C	275	.65	.17	.08	.65	.10	.00	.48	.02	-.06	.48
OP	707780	C	275	.60	.17	.14	.60	.09	.00	.47	.04	-.14	.47
OP	707781	C	275	.59	.16	.16	.59	.09	.00	.50	-.04	-.06	.50
OP	707782	A	275	.45	.45	.41	.05	.09	.00	.34	.34	.14	-.14
OP	707785	B	275	.59	.09	.59	.23	.10	.00	.57	.00	.57	-.14
OP	707786	C	275	.79	.02	.12	.79	.08	.00	.58	-.02	-.19	.58
OP	707787	A	275	.87	.87	.04	.01	.08	.00	.68	.68	-.13	-.17
OP	707789	A	275	.64	.64	.12	.14	.10	.00	.61	.61	-.06	-.15

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Grade 4 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
FT	749148	C	129	.69	.12	.09	.69	.10	.00	.53	-.12	.04	.53
FT	749149	C	144	.74	.07	.10	.74	.08	.00	.55	-.07	-.08	.55
FT	749150	B	144	.63	.14	.63	.15	.08	.00	.56	.04	.56	-.24
FT	749151	A	129	.76	.76	.09	.05	.11	.00	.70	.70	-.08	-.25
FT	749152	C	144	.67	.12	.13	.67	.08	.00	.57	-.06	-.14	.57
FT	749153	B	129	.62	.08	.62	.19	.11	.00	.64	-.11	.64	-.13
FT	749154	A	129	.77	.77	.09	.05	.10	.00	.65	.65	-.03	-.22
FT	749226	A	144	.70	.70	.10	.12	.08	.00	.64	.64	-.11	-.19
FT	749227	B	144	.60	.09	.60	.22	.08	.00	.52	-.04	.52	-.10
FT	749228	B	129	.38	.32	.38	.19	.11	.00	.38	.22	.38	-.14
FT	749229	C	144	.62	.21	.09	.62	.08	.00	.39	.10	-.11	.39
FT	749230	B	144	.44	.24	.44	.24	.08	.00	.39	.18	.39	-.16
FT	749231	B	144	.53	.14	.53	.25	.08	.00	.54	.03	.54	-.19
FT	749719	A	129	.50	.50	.21	.19	.11	.00	.55	.55	-.18	.06
FT	749720	A	129	.69	.69	.04	.17	.10	.00	.66	.66	-.11	-.18
FT	749721	C	129	.62	.12	.16	.62	.10	.00	.45	-.09	.09	.45

Grade 5

Grade 5 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651132	A	314	.57	.57	.15	.19	.09	.00	.59	.59	-.04	-.21
OP	651152	A	314	.65	.65	.12	.15	.09	.00	.64	.64	-.14	-.18
OP	651154	A	314	.70	.70	.07	.14	.09	.00	.60	.60	-.10	-.15
OP	673824	B	314	.53	.17	.53	.23	.08	.00	.39	.02	.39	-.04
OP	691067	B	314	.78	.02	.78	.11	.09	.00	.66	-.03	.66	-.24
OP	691072	C	314	.52	.21	.19	.52	.08	.00	.40	.09	-.12	.40
OP	691073	C	314	.71	.11	.09	.71	.09	.00	.54	-.04	-.13	.54
OP	691075	B	314	.57	.19	.57	.15	.09	.00	.62	-.16	.62	-.11
OP	691077	B	314	.77	.13	.77	.02	.08	.00	.39	.08	.39	-.11
OP	691078	C	314	.75	.08	.10	.75	.08	.00	.53	-.02	-.15	.53
OP	691079	B	314	.58	.10	.58	.23	.09	.00	.58	-.06	.58	-.17
OP	707790	A	314	.57	.57	.20	.16	.07	.00	.58	.58	-.11	-.20
OP	707792	C	314	.44	.24	.24	.44	.09	.00	.22	.14	.06	.22
OP	707793	A	314	.35	.35	.22	.34	.08	.00	.25	.25	.04	.10
OP	707798	B	314	.70	.09	.70	.12	.09	.00	.69	-.19	.69	-.20
OP	707799	B	314	.51	.15	.51	.26	.09	.00	.45	.01	.45	-.07
OP	707800	C	314	.58	.17	.17	.58	.08	.00	.45	-.06	-.04	.45

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Grade 5 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	707801	A	314	.64	.64	.18	.11	.07	.00	.55	.55	-.14	-.11
OP	707802	B	314	.75	.09	.75	.10	.07	.00	.52	-.06	.52	-.15
OP	707803	C	314	.53	.16	.23	.53	.08	.00	.38	-.03	.02	.38
OP	707804	A	314	.48	.48	.16	.28	.09	.00	.44	.44	-.04	-.03
OP	707806	A	314	.40	.40	.08	.43	.09	.00	.40	.40	-.06	.04
OP	707807	C	314	.83	.06	.05	.83	.07	.00	.61	-.17	-.15	.61
OP	708023	C	314	.64	.12	.16	.64	.08	.00	.30	.07	.04	.30
OP	708027	B	314	.75	.08	.75	.09	.08	.00	.62	-.13	.62	-.19
FT	749158	B	173	.64	.12	.64	.16	.08	.00	.57	.02	.57	-.25
FT	749159	A	139	.29	.29	.09	.55	.08	.00	.27	.27	-.13	.20
FT	749160	C	139	.45	.14	.32	.45	.08	.00	.19	-.11	.28	.19
FT	749162	C	173	.33	.21	.38	.33	.08	.00	.09	.10	.22	.09
FT	749163	A	139	.81	.81	.05	.06	.08	.00	.70	.70	-.16	-.22
FT	749164	A	173	.40	.40	.20	.32	.08	.00	.57	.57	-.10	-.12
FT	749239	B	139	.29	.22	.29	.41	.08	.00	.40	.03	.40	-.02
FT	749240	A	173	.41	.41	.27	.24	.08	.00	.37	.37	.25	-.24
FT	749241	C	173	.42	.27	.23	.42	.08	.00	.13	.07	.21	.13
FT	749245	C	173	.50	.23	.19	.50	.08	.00	.07	.18	.19	.07
FT	749246	B	173	.29	.13	.29	.49	.08	.00	.21	.15	.21	.08
FT	749247	C	139	.61	.12	.19	.61	.08	.00	.44	.02	-.09	.44
FT	749251	A	173	.54	.54	.11	.27	.08	.00	.64	.64	-.18	-.17
FT	751398	B	139	.58	.10	.58	.24	.08	.00	.64	-.07	.64	-.25
FT	751399	C	139	.46	.29	.17	.46	.08	.00	.18	.17	.06	.18
FT	755215	B	139	.35	.32	.35	.24	.08	.00	.34	.13	.34	-.09

Grade 6

Grade 6 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651278	C	332	.67	.16	.11	.67	.06	.00	.54	-.17	-.17	.54
OP	651279	B	332	.45	.18	.45	.31	.06	.00	.48	-.03	.48	-.18
OP	651285	A	332	.47	.47	.16	.31	.06	.00	.48	.48	-.15	-.12
OP	673835	A	332	.67	.67	.12	.15	.06	.00	.60	.60	-.13	-.27
OP	691082	C	332	.70	.13	.11	.70	.06	.00	.52	-.17	-.15	.52
OP	691085	B	332	.55	.11	.55	.29	.06	.00	.47	-.07	.47	-.17
OP	691087	C	332	.77	.10	.08	.77	.06	.00	.56	-.11	-.24	.56
OP	691088	A	332	.59	.59	.13	.24	.05	.00	.49	.49	-.22	-.14

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Grade 6 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	691089	A	332	.84	.84	.05	.06	.05	.00	.37	.37	-.03	-.05
OP	691091	B	332	.67	.08	.67	.20	.06	.00	.56	-.14	.56	-.22
OP	691092	B	332	.41	.18	.41	.34	.07	.00	.41	-.01	.41	-.11
OP	691094	C	332	.74	.14	.07	.74	.05	.00	.55	-.23	-.19	.55
OP	691096	A	332	.72	.72	.09	.13	.06	.00	.56	.56	-.13	-.24
OP	691097	A	332	.75	.75	.07	.14	.04	.00	.53	.53	-.20	-.25
OP	707809	A	332	.64	.64	.08	.22	.05	.00	.56	.56	-.12	-.26
OP	707812	C	332	.55	.20	.19	.55	.06	.00	.30	-.06	.01	.30
OP	707813	A	332	.40	.40	.18	.36	.06	.00	.31	.31	-.09	.04
OP	707814	C	332	.74	.10	.10	.74	.06	.00	.53	-.09	-.22	.53
OP	707816	B	332	.59	.15	.59	.20	.06	.00	.51	-.12	.51	-.18
OP	707817	B	332	.85	.05	.85	.05	.06	.00	.56	-.19	.56	-.13
OP	707819	B	332	.52	.13	.52	.29	.06	.00	.42	-.09	.42	-.09
OP	707820	A	332	.62	.62	.09	.24	.05	.00	.59	.59	-.15	-.32
OP	707821	B	332	.50	.17	.50	.28	.05	.00	.45	-.04	.45	-.19
OP	707822	C	332	.58	.09	.28	.58	.05	.00	.37	-.14	-.08	.37
OP	708026	B	332	.70	.12	.70	.13	.05	.00	.49	-.22	.49	-.12
FT	749166	B	177	.55	.15	.55	.26	.03	.00	.50	.09	.50	-.46
FT	749167	B	154	.64	.08	.64	.18	.10	.00	.57	-.08	.57	-.14
FT	749168	C	177	.58	.11	.27	.58	.03	.00	.14	.03	.01	.14
FT	749169	B	177	.72	.11	.72	.14	.03	.00	.63	-.25	.63	-.35
FT	749170	B	177	.34	.21	.34	.42	.03	.00	.15	-.16	.15	.15
FT	749218	A	154	.42	.42	.16	.32	.10	.00	.45	.45	-.03	-.02
FT	749219	C	177	.62	.23	.12	.62	.03	.00	.28	-.13	-.01	.28
FT	749220	B	177	.73	.12	.73	.12	.03	.00	.56	-.19	.56	-.33
FT	749233	C	154	.70	.08	.11	.70	.10	.00	.47	.07	-.11	.47
FT	749234	A	177	.54	.54	.27	.16	.03	.00	.47	.47	-.17	-.22
FT	749250	C	154	.55	.13	.22	.55	.10	.00	.31	.13	.00	.31
FT	751420	C	154	.68	.11	.10	.68	.10	.00	.36	-.01	.11	.36
FT	751421	A	177	.60	.60	.16	.20	.03	.00	.57	.57	-.21	-.30
FT	751422	B	154	.66	.11	.66	.13	.10	.00	.63	-.19	.63	-.14
FT	751423	A	154	.40	.40	.13	.38	.10	.00	.40	.40	-.06	.03
FT	751424	B	154	.64	.09	.64	.18	.10	.00	.65	-.06	.65	-.28

Grade 7

Grade 7 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651358	C	334	.76	.07	.10	.76	.07	.00	.55	-.11	-.18	.55
OP	651360	A	334	.50	.50	.18	.24	.08	.00	.40	.40	-.03	-.02
OP	651367	B	334	.66	.05	.66	.21	.08	.00	.68	-.11	.68	-.28
OP	651374	C	334	.58	.16	.19	.58	.07	.00	.30	.01	.04	.30
OP	651404	C	334	.69	.14	.10	.69	.08	.00	.39	-.05	.05	.39
OP	675942	B	334	.64	.08	.64	.21	.07	.00	.54	-.05	.54	-.21
OP	675960	A	334	.57	.57	.13	.22	.07	.00	.55	.55	-.05	-.19
OP	691102	C	334	.68	.10	.14	.68	.08	.00	.49	-.14	-.02	.49
OP	691103	A	334	.54	.54	.10	.27	.08	.00	.57	.57	-.11	-.15
OP	691106	A	334	.77	.77	.05	.11	.07	.00	.64	.64	-.13	-.28
OP	691107	B	334	.72	.06	.72	.14	.07	.00	.59	-.20	.59	-.12
OP	691112	A	334	.85	.85	.04	.04	.07	.00	.58	.58	-.11	-.14
OP	707858	B	334	.36	.17	.36	.39	.08	.00	.36	.05	.36	-.02
OP	707860	B	334	.39	.12	.39	.41	.08	.00	.44	-.04	.44	-.03
OP	707862	B	334	.57	.19	.57	.17	.07	.00	.57	-.07	.57	-.22
OP	707863	A	334	.68	.68	.07	.17	.08	.00	.62	.62	-.10	-.22
OP	707864	A	334	.55	.55	.23	.14	.08	.00	.50	.50	.00	-.18
OP	707865	C	334	.59	.16	.16	.59	.08	.00	.44	-.04	-.07	.44
OP	707866	B	334	.47	.17	.47	.28	.07	.00	.47	-.03	.47	-.12
OP	707867	A	334	.72	.72	.09	.11	.08	.00	.65	.65	-.15	-.23
OP	707868	B	334	.48	.22	.48	.22	.08	.00	.45	.02	.45	-.12
OP	707869	A	334	.70	.70	.13	.10	.08	.00	.62	.62	-.12	-.22
OP	707872	C	334	.76	.10	.06	.76	.08	.00	.53	-.12	-.05	.53
OP	707873	B	334	.57	.11	.57	.25	.07	.00	.53	-.05	.53	-.21
OP	707874	C	334	.51	.09	.32	.51	.08	.00	.25	-.09	.18	.25
FT	749172	C	167	.63	.14	.14	.63	.08	.00	.47	-.06	-.09	.47
FT	749173	B	167	.56	.11	.56	.25	.08	.00	.52	-.01	.52	-.20
FT	749174	A	167	.28	.28	.21	.43	.08	.00	.25	.25	.02	.11
FT	749175	A	163	.66	.12	.66	.15	.06	.00	.58	-.14	.58	-.20
FT	749176	C	167	.68	.07	.17	.68	.08	.00	.56	-.12	-.16	.56
FT	749177	A	163	.39	.39	.14	.41	.06	.00	.20	.20	-.06	.16
FT	749222	B	163	.70	.15	.70	.09	.06	.00	.56	-.09	.56	-.25
FT	749235	C	163	.54	.11	.28	.54	.07	.00	.30	-.22	.17	.30
FT	749242	B	167	.54	.13	.54	.25	.08	.00	.55	.01	.55	-.24
FT	749243	B	163	.55	.26	.55	.12	.06	.00	.48	-.11	.48	-.11
FT	749244	C	167	.59	.13	.20	.59	.08	.00	.32	-.01	.05	.32
FT	751512	C	163	.52	.26	.17	.52	.06	.00	.15	.09	.10	.15
FT	751513	A	163	.37	.37	.18	.39	.06	.00	.26	.26	.01	.05

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Grade 7 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
FT	751516	A	167	.31	.31	.17	.44	.08	.00	.24	.24	.09	.05
FT	751517	B	167	.65	.07	.65	.21	.07	.00	.52	-.10	.52	-.15
FT	751518	B	163	.33	.31	.33	.31	.06	.00	.22	.10	.22	.02

Grade 8

Grade 8 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651418	B	320	.67	.15	.67	.13	.05	.00	.60	-.19	.60	-.29
OP	651430	C	320	.76	.08	.13	.76	.04	.00	.54	-.19	-.26	.54
OP	651434	B	320	.52	.30	.52	.14	.04	.00	.45	-.01	.45	-.31
OP	651435	B	320	.65	.10	.65	.20	.04	.00	.69	-.19	.69	-.40
OP	651445	C	320	.78	.06	.11	.78	.04	.00	.37	-.11	-.06	.37
OP	675976	C	320	.83	.05	.07	.83	.04	.00	.58	-.22	-.24	.58
OP	691114	A	320	.56	.56	.22	.19	.04	.00	.51	.51	-.08	-.30
OP	691115	B	320	.73	.06	.73	.17	.04	.00	.59	-.20	.59	-.31
OP	691116	A	320	.47	.47	.24	.24	.05	.00	.47	.47	.01	-.30
OP	691117	C	320	.74	.13	.08	.74	.05	.00	.25	.01	.00	.25
OP	691118	C	320	.84	.07	.06	.84	.03	.00	.54	-.23	-.23	.54
OP	691124	C	320	.80	.09	.08	.80	.04	.00	.50	-.18	-.21	.50
OP	691129	A	320	.56	.56	.18	.21	.04	.00	.48	.48	-.05	-.28
OP	707824	C	320	.45	.19	.32	.45	.04	.00	.13	-.05	.12	.13
OP	707825	C	320	.58	.21	.17	.58	.04	.00	.30	-.08	-.04	.30
OP	707826	B	320	.60	.12	.60	.24	.04	.00	.58	-.12	.58	-.32
OP	707827	A	320	.37	.37	.25	.33	.04	.00	.36	.36	.08	-.21
OP	707828	A	320	.65	.65	.10	.21	.04	.00	.59	.59	-.16	-.30
OP	707829	A	320	.53	.53	.13	.29	.04	.00	.49	.49	-.10	-.22
OP	707830	B	320	.61	.27	.61	.08	.04	.00	.42	-.20	.42	-.06
OP	707831	A	320	.68	.68	.12	.16	.04	.00	.51	.51	-.11	-.28
OP	707834	B	320	.72	.08	.72	.16	.04	.00	.66	-.15	.66	-.40
OP	707835	C	320	.67	.17	.12	.67	.04	.00	.20	.00	.01	.20
OP	707838	B	320	.34	.31	.34	.31	.04	.00	.32	.18	.32	-.29
OP	707839	B	320	.45	.20	.45	.31	.05	.00	.38	.06	.38	-.22
FT	751448	B	150	.43	.27	.43	.25	.05	.00	.48	-.18	.48	-.11
FT	751449	C	150	.73	.09	.13	.73	.05	.00	.45	-.21	-.09	.45
FT	751451	C	167	.75	.11	.09	.75	.04	.00	.50	-.22	-.19	.50
FT	751452	A	167	.59	.59	.19	.19	.04	.00	.59	.59	-.11	-.40
FT	751453	A	167	.65	.65	.11	.21	.04	.00	.51	.51	-.10	-.32

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Grade 8 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
FT	751454	C	150	.69	.16	.11	.69	.05	.00	.54	-.21	-.22	.54
FT	751455	B	150	.32	.29	.32	.35	.05	.00	.29	.09	.29	-.14
FT	751456	C	150	.66	.13	.17	.66	.05	.00	.41	-.16	-.08	.41
FT	751458	B	167	.75	.06	.75	.14	.04	.00	.66	-.20	.66	-.42
FT	751459	C	167	.46	.33	.17	.46	.04	.00	.21	.12	-.19	.21
FT	751461	B	167	.54	.19	.54	.23	.04	.00	.54	-.07	.54	-.38
FT	751462	A	150	.55	.55	.14	.26	.05	.00	.54	.54	-.19	-.22
FT	751463	B	167	.37	.23	.37	.36	.04	.00	.24	-.04	.24	-.04
FT	751464	A	150	.63	.63	.09	.23	.05	.00	.56	.56	-.16	-.28
FT	751465	C	167	.41	.29	.26	.41	.04	.00	-.09	.19	.09	-.09
FT	751467	A	150	.39	.39	.25	.31	.05	.00	.32	.32	-.01	-.10

Grade 11

Grade 11 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651429	C	293	.76	.11	.05	.76	.08	.00	.55	-.13	-.12	.55
OP	651440	A	293	.45	.45	.20	.25	.10	.00	.43	.43	.06	-.06
OP	651448	B	293	.57	.10	.57	.26	.08	.00	.59	-.05	.59	-.22
OP	651450	C	293	.63	.16	.12	.63	.10	.00	.49	-.01	-.08	.49
OP	651467	B	293	.56	.17	.56	.18	.09	.00	.59	-.03	.59	-.20
OP	673895	C	293	.75	.02	.15	.75	.07	.00	.63	-.14	-.24	.63
OP	675987	B	293	.69	.09	.69	.13	.09	.00	.74	-.19	.74	-.25
OP	691130	B	293	.62	.11	.62	.17	.10	.00	.61	-.14	.61	-.11
OP	691132	C	293	.67	.17	.09	.67	.08	.00	.39	.01	-.04	.39
OP	691135	B	293	.72	.09	.72	.10	.10	.00	.62	-.06	.62	-.17
OP	691139	A	293	.79	.79	.05	.08	.09	.00	.70	.70	-.16	-.23
OP	691140	A	293	.64	.64	.12	.14	.09	.00	.58	.58	.03	-.23
OP	691141	A	293	.72	.72	.06	.13	.09	.00	.46	.46	-.04	.01
OP	691142	C	293	.78	.08	.06	.78	.09	.00	.62	-.09	-.15	.62
OP	707877	A	293	.59	.59	.06	.27	.08	.00	.52	.52	-.17	-.10
OP	707879	B	293	.63	.08	.63	.19	.09	.00	.62	-.07	.62	-.19
OP	707880	C	293	.46	.14	.30	.46	.10	.00	.35	-.07	.13	.35
OP	707882	B	293	.44	.16	.44	.31	.09	.00	.26	.02	.26	.14
OP	707884	A	293	.60	.60	.15	.15	.09	.00	.64	.64	-.06	-.24
OP	707886	C	293	.78	.04	.08	.78	.10	.00	.66	-.13	-.15	.66
OP	707887	B	293	.68	.08	.68	.14	.09	.00	.57	-.06	.57	-.13

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Grade 11 Reading													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	707888	C	293	.59	.13	.20	.59	.08	.00	.47	-.11	-.05	.47
OP	707890	C	293	.47	.26	.17	.47	.10	.00	.19	.18	.09	.19
OP	707891	A	293	.49	.49	.14	.27	.09	.00	.41	.41	.01	-.01
OP	707892	B	293	.73	.06	.73	.12	.09	.00	.70	-.14	.70	-.23
FT	749178	A	143	.69	.69	.11	.11	.08	.00	.54	.54	.14	-.30
FT	749180	C	149	.73	.06	.11	.73	.10	.00	.68	-.07	-.22	.68
FT	749181	B	143	.41	.18	.41	.33	.08	.00	.42	.05	.42	-.06
FT	749182	A	143	.69	.69	.07	.15	.08	.00	.61	.61	-.07	-.19
FT	749183	C	143	.76	.11	.05	.76	.08	.00	.58	-.16	-.01	.58
FT	749184	A	143	.43	.43	.16	.32	.08	.00	.45	.45	-.04	-.04
FT	749236	B	143	.50	.15	.50	.26	.08	.00	.46	.06	.46	-.12
FT	749237	B	149	.55	.19	.55	.16	.09	.00	.59	-.04	.59	-.19
FT	749238	C	143	.69	.15	.08	.69	.08	.00	.46	-.03	-.04	.46
FT	749248	A	149	.57	.57	.13	.20	.10	.00	.63	.63	-.08	-.17
FT	749249	C	149	.35	.16	.39	.35	.10	.00	.18	.02	.25	.18
FT	749252	C	149	.70	.08	.12	.70	.09	.00	.52	-.03	-.07	.52
FT	749253	A	143	.81	.81	.06	.05	.08	.00	.69	.69	-.17	-.17
FT	751400	B	149	.34	.23	.34	.32	.10	.00	.31	.16	.31	.00
FT	751634	B	149	.46	.15	.46	.28	.11	.00	.54	.10	.54	-.19
FT	751636	C	149	.52	.20	.17	.52	.10	.00	.31	.07	.09	.31

Appendix G: Mathematics Key Verification and Foil Analysis

Grade 3

Grade 3 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	650590	A	250	.60	.60	.10	.12	.18	.00	.66	.66	.02	-.06
OP	650591	C	250	.66	.10	.08	.66	.16	.00	.62	.01	-.09	.62
OP	650608	A	250	.51	.51	.08	.24	.18	.00	.62	.62	-.03	.01
OP	650613	A	250	.51	.51	.09	.22	.18	.00	.59	.59	.03	.02
OP	650661	C	250	.51	.21	.11	.51	.17	.00	.48	.15	-.03	.48
OP	676133	C	250	.73	.05	.03	.73	.18	.00	.80	-.12	-.10	.80
OP	676139	A	250	.43	.43	.13	.26	.18	.00	.54	.54	.05	.05
OP	690921	B	250	.72	.07	.72	.06	.14	.00	.74	-.18	.74	-.15
OP	690922	B	250	.60	.08	.60	.15	.16	.00	.68	-.05	.68	-.11
OP	690924	B	250	.62	.06	.62	.13	.18	.00	.70	-.04	.70	-.05
OP	691213	B	250	.44	.13	.44	.26	.16	.00	.52	-.02	.52	.06
OP	707612	A	250	.61	.61	.18	.06	.15	.00	.63	.63	-.05	-.12
OP	707613	A	250	.29	.29	.11	.42	.18	.00	.38	.38	.09	.23
OP	707614	C	250	.75	.03	.05	.75	.17	.00	.77	-.09	-.11	.77
OP	707615	B	250	.47	.16	.47	.19	.18	.00	.61	.01	.61	.02
OP	707617	A	250	.75	.75	.03	.04	.18	.00	.78	.78	-.12	-.07
OP	707618	B	250	.39	.21	.39	.23	.17	.00	.43	.21	.43	.00
OP	707621	C	250	.63	.08	.11	.63	.18	.00	.68	.01	-.07	.68
OP	707623	A	250	.37	.37	.14	.31	.18	.00	.54	.54	.08	.06
OP	707624	B	250	.49	.09	.49	.24	.18	.00	.66	-.04	.66	-.03
OP	707625	C	250	.57	.10	.14	.57	.19	.00	.65	-.01	-.02	.65
OP	707626	C	250	.60	.07	.15	.60	.18	.00	.63	-.08	.05	.63
OP	707627	C	250	.67	.08	.10	.67	.15	.00	.74	-.21	-.11	.74
OP	707628	C	250	.54	.16	.11	.54	.18	.00	.59	.04	.01	.59
OP	707629	B	250	.40	.14	.40	.30	.17	.00	.50	.04	.50	.09
FT	748785	A	131	.67	.67	.18	.04	.11	.00	.62	.62	-.06	-.23
FT	748786	A	115	.31	.31	.08	.37	.23	.00	.43	.43	.06	.30
FT	748787	C	131	.62	.09	.17	.62	.12	.00	.56	-.11	-.01	.56
FT	748788	C	115	.35	.16	.26	.35	.23	.00	.40	.26	.17	.40
FT	748789	C	131	.57	.15	.15	.57	.13	.00	.40	.09	.05	.40
FT	748791	B	115	.46	.20	.46	.10	.23	.00	.55	.13	.55	.10
FT	748792	B	115	.54	.02	.54	.21	.23	.00	.76	-.03	.76	-.05
FT	748794	A	115	.50	.50	.17	.10	.23	.00	.66	.66	.03	.05
FT	748795	B	131	.53	.18	.53	.17	.12	.00	.54	-.14	.54	.06
FT	748796	A	131	.57	.57	.11	.20	.12	.00	.58	.58	-.09	-.05
FT	748798	B	115	.60	.03	.60	.13	.23	.00	.80	-.06	.80	-.07

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Grade 3 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
FT	748799	A	131	.37	.37	.12	.37	.13	.00	.56	.56	-.11	.00
FT	748800	C	115	.56	.12	.09	.56	.23	.00	.67	.00	.08	.67
FT	748801	B	131	.47	.11	.47	.30	.12	.00	.59	-.02	.59	-.11
FT	748802	C	131	.60	.07	.21	.60	.12	.00	.58	-.12	-.07	.58
FT	748803	B	115	.44	.13	.44	.19	.23	.00	.59	.01	.59	.16

Grade 4

Grade 4 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	650757	C	262	.66	.08	.15	.66	.11	.00	.58	.01	-.14	.58
OP	650766	A	262	.66	.66	.10	.13	.11	.00	.71	.71	-.08	-.25
OP	650770	C	262	.68	.15	.07	.68	.10	.00	.57	-.03	-.16	.57
OP	650772	B	262	.58	.15	.58	.18	.10	.00	.51	.08	.51	-.18
OP	650774	B	262	.63	.07	.63	.19	.11	.00	.66	-.11	.66	-.16
OP	650779	A	262	.69	.69	.10	.12	.10	.00	.69	.69	-.19	-.16
OP	650783	B	262	.52	.14	.52	.24	.10	.00	.51	.01	.51	-.11
OP	650784	B	262	.63	.07	.63	.20	.10	.00	.68	-.10	.68	-.24
OP	650792	A	262	.67	.67	.07	.15	.11	.00	.64	.64	-.16	-.10
OP	650931	A	262	.43	.43	.23	.24	.11	.00	.48	.48	.06	-.08
OP	676143	B	262	.73	.03	.73	.15	.10	.00	.61	-.11	.61	-.15
OP	676146	B	262	.59	.10	.59	.20	.11	.00	.67	-.16	.67	-.14
OP	676160	A	262	.63	.63	.08	.19	.11	.00	.65	.65	-.05	-.18
OP	676163	C	262	.65	.15	.10	.65	.11	.00	.56	-.07	-.06	.56
OP	690950	C	262	.69	.10	.10	.69	.11	.00	.56	-.04	-.07	.56
OP	707631	C	262	.54	.14	.21	.54	.11	.00	.37	.13	-.01	.37
OP	707632	B	262	.51	.14	.51	.24	.11	.00	.62	-.06	.62	-.15
OP	707633	C	262	.69	.08	.13	.69	.10	.00	.54	-.15	-.02	.54
OP	707634	C	262	.72	.08	.10	.72	.11	.00	.59	-.06	-.09	.59
OP	707635	A	262	.42	.42	.25	.21	.11	.00	.46	.46	.14	-.15
OP	707636	A	262	.82	.82	.06	.02	.10	.00	.66	.66	-.06	-.18
OP	707637	C	262	.76	.06	.08	.76	.10	.00	.58	-.08	-.08	.58
OP	707638	A	262	.67	.67	.09	.13	.11	.00	.66	.66	-.09	-.17
OP	707639	A	262	.36	.36	.18	.35	.11	.00	.42	.42	-.03	.07
OP	707640	C	262	.55	.11	.22	.55	.11	.00	.43	.02	.02	.43
OP	707641	C	262	.68	.06	.14	.68	.11	.00	.55	-.12	.00	.55
OP	707642	A	262	.60	.60	.09	.21	.11	.00	.59	.59	-.04	-.13

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Grade 4 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	707643	B	262	.45	.17	.45	.28	.10	.00	.45	-.02	.45	-.02
OP	707645	B	262	.74	.06	.74	.09	.11	.00	.68	-.08	.68	-.20
OP	708810	A	262	.45	.45	.21	.21	.12	.00	.49	.49	.05	-.08
FT	748804	A	125	.26	.26	.31	.32	.11	.00	.29	.29	.28	-.08
FT	748805	C	135	.76	.06	.09	.76	.10	.00	.62	-.11	-.09	.62
FT	748807	B	135	.68	.07	.68	.16	.10	.00	.76	-.16	.76	-.28
FT	748809	A	135	.47	.47	.12	.32	.10	.00	.45	.45	-.03	.00
FT	748811	C	125	.74	.08	.06	.74	.11	.00	.54	-.01	-.05	.54
FT	748812	A	125	.62	.62	.06	.22	.11	.00	.68	.68	-.02	-.25
FT	748813	B	135	.30	.33	.30	.27	.10	.00	.41	.15	.41	-.10
FT	748814	C	125	.81	.04	.04	.81	.11	.00	.67	-.05	-.18	.67
FT	748815	C	135	.67	.11	.13	.67	.10	.00	.58	.02	-.19	.58
FT	748816	C	125	.65	.15	.09	.65	.11	.00	.54	.04	-.18	.54
FT	748817	A	125	.34	.34	.11	.44	.11	.00	.37	.37	.02	.08
FT	748818	B	125	.30	.10	.30	.49	.11	.00	.32	.10	.32	.09
FT	748819	B	135	.55	.16	.55	.20	.10	.00	.62	.00	.62	-.23
FT	748821	A	135	.53	.53	.10	.27	.10	.00	.48	.48	.05	-.09
FT	748822	B	135	.49	.19	.49	.22	.10	.00	.50	.07	.50	-.15
FT	748823	A	125	.65	.65	.14	.10	.11	.00	.61	.61	-.03	-.21

Grade 5

Grade 5 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	650955	C	313	.69	.09	.13	.69	.09	.00	.58	-.12	-.11	.58
OP	651002	A	313	.41	.41	.19	.32	.08	.00	.34	.34	.10	-.04
OP	651007	C	313	.78	.10	.04	.78	.09	.00	.46	.07	-.12	.46
OP	651009	B	313	.56	.20	.56	.15	.08	.00	.62	-.12	.62	-.20
OP	651010	C	313	.70	.09	.14	.70	.07	.00	.51	-.20	-.06	.51
OP	651017	B	313	.80	.04	.80	.08	.08	.00	.69	-.18	.69	-.20
OP	651022	A	313	.53	.53	.09	.29	.09	.00	.48	.48	-.09	-.04
OP	651025	C	313	.77	.05	.10	.77	.08	.00	.63	-.16	-.15	.63
OP	651030	A	313	.44	.44	.15	.32	.09	.00	.45	.45	-.02	-.03
OP	651039	B	313	.70	.08	.70	.14	.08	.00	.64	-.17	.64	-.21
OP	673364	B	313	.73	.06	.73	.13	.08	.00	.62	-.17	.62	-.16
OP	673369	B	313	.39	.19	.39	.34	.09	.00	.48	-.04	.48	-.05
OP	676194	A	313	.64	.64	.13	.14	.09	.00	.58	.58	-.02	-.21

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Grade 5 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	676196	C	313	.59	.14	.19	.59	.09	.00	.50	-.06	-.09	.50
OP	676197	A	313	.68	.68	.10	.13	.09	.00	.59	.59	-.09	-.17
OP	676201	A	313	.72	.72	.11	.10	.08	.00	.63	.63	-.15	-.18
OP	690951	A	313	.50	.50	.15	.27	.08	.00	.56	.56	-.03	-.18
OP	707649	C	313	.81	.05	.05	.81	.08	.00	.62	-.11	-.15	.62
OP	707650	B	313	.65	.09	.65	.18	.08	.00	.61	-.13	.61	-.19
OP	707651	B	313	.67	.10	.67	.14	.09	.00	.59	-.07	.59	-.17
OP	707652	C	313	.63	.12	.17	.63	.08	.00	.46	-.04	-.08	.46
OP	707653	B	313	.72	.08	.72	.12	.08	.00	.62	-.19	.62	-.16
OP	707655	C	313	.42	.12	.37	.42	.09	.00	.26	-.06	.18	.26
OP	707659	B	313	.42	.11	.42	.39	.09	.00	.49	-.07	.49	-.05
OP	707660	A	313	.60	.60	.14	.16	.09	.00	.55	.55	-.07	-.13
OP	707662	A	313	.52	.52	.20	.18	.09	.00	.58	.58	-.04	-.18
OP	707663	C	313	.53	.10	.28	.53	.09	.00	.36	-.08	.08	.36
OP	707664	C	313	.69	.10	.14	.69	.07	.00	.50	-.18	-.03	.50
OP	707665	C	313	.80	.06	.05	.80	.09	.00	.63	-.19	-.08	.63
OP	707666	B	313	.54	.14	.54	.23	.09	.00	.46	.00	.46	-.08
FT	748824	B	171	.43	.23	.43	.25	.09	.00	.43	.05	.43	-.10
FT	748825	B	171	.69	.21	.69	.01	.09	.00	.41	.04	.41	-.10
FT	748826	B	140	.41	.18	.41	.33	.08	.00	.44	-.02	.44	-.06
FT	748827	B	140	.52	.20	.52	.20	.08	.00	.32	.04	.32	.00
FT	748828	C	140	.61	.11	.19	.61	.08	.00	.47	-.06	-.08	.47
FT	748829	B	140	.50	.14	.50	.29	.08	.00	.47	-.01	.47	-.11
FT	748830	B	171	.53	.13	.53	.25	.09	.00	.49	.00	.49	-.12
FT	748831	C	171	.60	.13	.19	.60	.09	.00	.46	-.11	.02	.46
FT	748832	A	140	.26	.26	.25	.41	.08	.00	.21	.21	.08	.10
FT	748836	A	140	.60	.60	.14	.18	.08	.00	.55	.55	-.10	-.14
FT	748837	B	171	.38	.14	.38	.39	.09	.00	.41	-.02	.41	.00
FT	748838	B	171	.41	.27	.41	.23	.09	.00	.39	.14	.39	-.13
FT	748839	C	140	.69	.12	.11	.69	.08	.00	.57	-.09	-.16	.57
FT	748841	B	171	.57	.05	.57	.30	.08	.00	.54	-.02	.54	-.17
FT	748842	C	140	.56	.14	.22	.56	.08	.00	.45	-.11	-.01	.45
FT	748843	A	171	.71	.71	.11	.09	.09	.00	.64	.64	-.11	-.20

Grade 6

Grade 6 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651322	C	332	.63	.13	.19	.63	.06	.00	.26	-.02	.05	.26
OP	651323	C	332	.69	.13	.13	.69	.05	.00	.42	-.09	-.10	.42
OP	651332	C	332	.70	.11	.14	.70	.06	.00	.34	-.03	-.04	.34
OP	651334	C	332	.78	.06	.10	.78	.06	.00	.49	-.13	-.14	.49
OP	651339	A	332	.43	.43	.13	.38	.06	.00	.42	.42	-.07	-.09
OP	651341	C	332	.66	.15	.14	.66	.05	.00	.43	-.12	-.14	.43
OP	651348	B	332	.76	.08	.76	.11	.05	.00	.60	-.20	.60	-.25
OP	651350	B	332	.77	.03	.77	.14	.06	.00	.54	-.09	.54	-.21
OP	651353	A	332	.53	.53	.13	.28	.06	.00	.49	.49	-.11	-.15
OP	651392	B	332	.59	.15	.59	.20	.06	.00	.56	-.01	.56	-.32
OP	673372	A	332	.67	.67	.17	.11	.05	.00	.48	.48	-.09	-.23
OP	673373	A	332	.43	.43	.16	.34	.06	.00	.49	.49	.03	-.22
OP	676241	C	332	.69	.08	.17	.69	.06	.00	.42	-.22	.01	.42
OP	690969	A	332	.62	.62	.12	.20	.06	.00	.58	.58	-.15	-.24
OP	690972	C	332	.80	.06	.08	.80	.06	.00	.54	-.13	-.17	.54
OP	690981	A	332	.78	.78	.06	.09	.06	.00	.66	.66	-.18	-.30
OP	707667	A	332	.61	.61	.16	.17	.05	.00	.51	.51	-.16	-.15
OP	707668	B	332	.72	.08	.72	.15	.05	.00	.56	-.14	.56	-.27
OP	707670	B	332	.50	.10	.50	.34	.06	.00	.41	-.03	.41	-.12
OP	707671	B	332	.53	.15	.53	.27	.06	.00	.39	-.09	.39	-.05
OP	707672	C	332	.76	.07	.12	.76	.05	.00	.53	-.13	-.21	.53
OP	707673	B	332	.54	.12	.54	.29	.05	.00	.53	-.08	.53	-.26
OP	707675	A	332	.45	.45	.17	.32	.06	.00	.47	.47	-.08	-.13
OP	707676	A	332	.58	.58	.15	.22	.05	.00	.53	.53	-.10	-.25
OP	707677	A	332	.45	.45	.19	.31	.06	.00	.44	.44	-.06	-.12
OP	707678	B	332	.64	.10	.64	.20	.05	.00	.45	-.04	.45	-.19
OP	707679	C	332	.59	.15	.20	.59	.06	.00	.33	-.03	-.04	.33
OP	707680	A	332	.48	.48	.20	.26	.06	.00	.44	.44	-.10	-.08
OP	707683	B	332	.50	.12	.50	.32	.06	.00	.43	-.04	.43	-.12
OP	707684	B	332	.57	.10	.57	.27	.06	.00	.53	-.08	.53	-.20
FT	748844	A	179	.59	.59	.10	.28	.03	.00	.60	.60	-.22	-.35
FT	748845	C	179	.66	.13	.18	.66	.03	.00	.25	-.23	.08	.25
FT	748847	C	179	.60	.11	.27	.60	.03	.00	.20	-.12	.03	.20
FT	748848	B	152	.55	.13	.55	.23	.10	.00	.60	-.12	.60	-.14
FT	748849	A	152	.33	.33	.24	.33	.10	.00	.34	.34	.09	.00
FT	748851	B	152	.51	.16	.51	.23	.10	.00	.47	.08	.47	-.15
FT	748852	B	152	.55	.14	.55	.21	.10	.00	.49	.00	.49	-.10

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Grade 6 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
FT	748855	A	179	.41	.41	.11	.45	.03	.00	.40	.40	-.03	-.23
FT	748856	B	179	.42	.34	.42	.21	.03	.00	.42	-.11	.42	-.20
FT	748858	B	152	.38	.24	.38	.29	.09	.00	.47	.04	.47	-.11
FT	748859	A	152	.36	.36	.16	.39	.09	.00	.43	.43	.05	-.06
FT	748860	A	152	.66	.66	.12	.12	.10	.00	.73	.73	-.18	-.26
FT	748861	C	179	.67	.15	.16	.67	.03	.00	.31	-.17	-.03	.31
FT	748862	C	179	.87	.05	.06	.87	.03	.00	.50	-.16	-.28	.50
FT	748863	C	179	.59	.16	.22	.59	.03	.00	-.06	.09	.17	-.06
FT	748864	C	152	.55	.20	.16	.55	.09	.00	.45	.01	-.09	.45

Grade 7

Grade 7 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651845	C	342	.63	.16	.13	.63	.08	.00	.58	-.20	-.10	.58
OP	651852	A	342	.73	.73	.06	.12	.08	.00	.59	.59	-.09	-.19
OP	652047	A	342	.75	.75	.09	.09	.08	.00	.65	.65	-.23	-.19
OP	652117	C	342	.61	.15	.15	.61	.08	.00	.39	-.06	.03	.39
OP	652118	B	342	.74	.06	.74	.13	.08	.00	.63	-.16	.63	-.21
OP	652120	C	342	.66	.08	.20	.66	.07	.00	.39	-.18	.03	.39
OP	652122	A	342	.66	.66	.11	.15	.08	.00	.63	.63	-.16	-.22
OP	652129	C	342	.76	.09	.07	.76	.08	.00	.62	-.20	-.13	.62
OP	652131	C	342	.72	.10	.10	.72	.08	.00	.53	-.14	-.09	.53
OP	652140	C	342	.63	.13	.15	.63	.08	.00	.55	-.07	-.18	.55
OP	690983	A	342	.52	.52	.20	.21	.07	.00	.55	.55	.00	-.27
OP	690986	B	342	.61	.11	.61	.20	.08	.00	.60	-.12	.60	-.21
OP	690991	B	342	.75	.07	.75	.10	.08	.00	.65	-.16	.65	-.25
OP	690992	C	342	.70	.12	.10	.70	.08	.00	.61	-.17	-.19	.61
OP	690993	B	342	.42	.15	.42	.34	.08	.00	.38	-.03	.38	.01
OP	690995	B	342	.63	.08	.63	.21	.07	.00	.61	-.13	.61	-.26
OP	690997	C	342	.80	.06	.05	.80	.08	.00	.64	-.16	-.19	.64
OP	707685	B	342	.48	.19	.48	.25	.08	.00	.43	.00	.43	-.11
OP	707686	A	342	.49	.49	.17	.26	.08	.00	.56	.56	-.06	-.17
OP	707689	A	342	.51	.51	.12	.28	.08	.00	.61	.61	-.14	-.18
OP	707690	B	342	.58	.07	.58	.27	.07	.00	.56	-.08	.56	-.20
OP	707691	C	342	.46	.23	.23	.46	.08	.00	.37	.11	-.12	.37
OP	707692	B	342	.55	.16	.55	.22	.07	.00	.53	-.07	.53	-.18

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Grade 7 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	707693	A	342	.51	.51	.21	.20	.08	.00	.52	.52	-.06	-.16
OP	707694	A	342	.40	.40	.07	.44	.09	.00	.36	.36	-.14	.09
OP	707695	C	342	.66	.15	.10	.66	.09	.00	.56	-.11	-.15	.56
OP	707697	B	342	.55	.14	.55	.23	.07	.00	.38	.07	.38	-.14
OP	707698	B	342	.50	.24	.50	.19	.07	.00	.50	.00	.50	-.24
OP	707699	C	342	.62	.11	.19	.62	.08	.00	.39	-.02	-.05	.39
OP	708811	A	342	.41	.41	.11	.40	.08	.00	.36	.36	-.05	.04
FT	748865	C	173	.54	.24	.13	.54	.09	.00	.52	-.03	-.19	.52
FT	748866	C	165	.66	.13	.15	.66	.06	.00	.50	-.22	-.05	.50
FT	748868	B	173	.35	.17	.35	.39	.09	.00	.33	.04	.33	.01
FT	748869	A	165	.75	.75	.12	.08	.06	.00	.60	.60	-.14	-.25
FT	748870	B	165	.68	.16	.10	.68	.06	.00	.50	-.15	-.09	.50
FT	748871	C	173	.58	.16	.16	.58	.09	.00	.48	-.09	-.07	.48
FT	748873	B	173	.31	.22	.31	.38	.09	.00	.37	.04	.37	-.02
FT	748875	A	165	.41	.41	.32	.22	.06	.00	.31	.31	.09	-.11
FT	748876	A	173	.40	.40	.19	.32	.09	.00	.41	.41	.05	-.09
FT	748877	B	165	.56	.17	.56	.21	.06	.00	.45	-.05	.45	-.14
FT	748878	B	173	.40	.13	.40	.37	.09	.00	.49	-.14	.49	-.03
FT	748879	C	165	.66	.10	.18	.66	.06	.00	.47	-.11	-.11	.47
FT	748880	C	173	.76	.08	.08	.76	.09	.00	.56	-.16	-.12	.56
FT	748881	A	165	.58	.58	.14	.21	.07	.00	.50	.50	.02	-.25
FT	748883	B	165	.42	.14	.42	.38	.06	.00	.29	-.14	.29	.12
FT	748884	A	173	.53	.53	.13	.24	.09	.00	.54	.54	-.09	-.14

Grade 8

Grade 8 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	652152	A	328	.71	.71	.08	.17	.05	.00	.54	.54	-.14	-.25
OP	652162	C	328	.76	.08	.12	.76	.05	.00	.56	-.18	-.24	.56
OP	652167	B	328	.70	.04	.70	.21	.05	.00	.65	-.20	.65	-.35
OP	652170	C	328	.63	.15	.17	.63	.05	.00	.30	-.04	-.03	.30
OP	652182	B	328	.65	.07	.65	.24	.04	.00	.65	-.19	.65	-.36
OP	652186	B	328	.44	.16	.44	.35	.05	.00	.42	-.07	.42	-.14
OP	652188	A	328	.80	.80	.06	.10	.05	.00	.57	.57	-.21	-.22
OP	652192	B	328	.41	.28	.41	.27	.05	.00	.45	.04	.45	-.27
OP	652196	C	328	.72	.15	.09	.72	.05	.00	.51	-.17	-.19	.51

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Grade 8 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	652199	A	328	.48	.48	.21	.26	.05	.00	.49	.49	-.06	-.23
OP	673378	C	328	.60	.19	.17	.60	.04	.00	.22	.07	-.08	.22
OP	676333	C	328	.74	.06	.15	.74	.05	.00	.52	-.20	-.17	.52
OP	690999	A	328	.71	.71	.09	.16	.05	.00	.57	.57	-.09	-.32
OP	691002	C	328	.81	.06	.09	.81	.04	.00	.46	-.14	-.17	.46
OP	691005	B	328	.76	.04	.76	.16	.05	.00	.55	-.16	.55	-.25
OP	691010	A	328	.39	.39	.27	.29	.05	.00	.35	.35	.08	-.20
OP	691012	C	328	.75	.12	.09	.75	.04	.00	.40	-.11	-.12	.40
OP	707702	B	328	.50	.13	.50	.32	.05	.00	.45	-.10	.45	-.15
OP	707703	B	328	.55	.16	.55	.24	.05	.00	.51	-.03	.51	-.30
OP	707704	B	328	.68	.09	.68	.18	.05	.00	.61	-.18	.61	-.31
OP	707706	C	328	.70	.13	.12	.70	.05	.00	.40	-.08	-.13	.40
OP	707707	B	328	.74	.07	.74	.15	.04	.00	.66	-.16	.66	-.39
OP	707708	A	328	.49	.49	.20	.26	.05	.00	.51	.51	-.01	-.30
OP	707710	A	328	.56	.56	.21	.19	.04	.00	.55	.55	-.07	-.36
OP	707711	B	328	.44	.11	.44	.40	.05	.00	.47	-.16	.47	-.13
OP	707713	C	328	.77	.09	.09	.77	.04	.00	.43	-.08	-.18	.43
OP	707714	A	328	.62	.62	.07	.26	.04	.00	.57	.57	-.09	-.35
OP	707715	C	328	.57	.14	.25	.57	.04	.00	.23	-.07	.03	.23
OP	707716	C	328	.56	.08	.32	.56	.04	.00	.29	-.14	.00	.29
OP	707718	A	328	.75	.75	.19	.02	.04	.00	.54	.54	-.27	-.17
FT	749052	C	173	.68	.14	.14	.68	.03	.00	.40	-.25	-.04	.40
FT	749054	A	173	.45	.45	.31	.21	.03	.00	.43	.43	.03	-.35
FT	749056	C	152	.57	.16	.23	.57	.05	.00	.55	-.22	-.18	.55
FT	749057	C	173	.71	.12	.14	.71	.03	.00	.38	-.18	-.09	.38
FT	749058	B	152	.45	.17	.45	.34	.05	.00	.42	.01	.42	-.21
FT	749059	C	152	.72	.14	.09	.72	.05	.00	.50	-.23	-.10	.50
FT	749060	B	173	.39	.29	.39	.28	.03	.00	.26	.11	.26	-.20
FT	749061	A	152	.84	.84	.09	.03	.05	.00	.60	.60	-.24	-.24
FT	749062	B	173	.70	.06	.70	.20	.03	.00	.53	-.27	.53	-.23
FT	749063	A	152	.78	.78	.05	.13	.05	.00	.64	.64	-.18	-.34
FT	749065	B	173	.36	.31	.36	.29	.03	.00	.39	-.01	.39	-.22
FT	749066	C	152	.61	.19	.15	.61	.05	.00	.30	-.11	.04	.30
FT	749068	C	173	.66	.14	.16	.66	.03	.00	.38	-.09	-.18	.38
FT	749069	A	152	.73	.73	.07	.15	.05	.00	.68	.68	-.22	-.37
FT	749070	A	152	.55	.55	.20	.21	.05	.00	.56	.56	-.04	-.36
FT	749071	C	173	.61	.23	.13	.61	.03	.00	.42	-.17	-.15	.42

Grade 11

Grade 11 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651135	A	312	.82	.82	.05	.04	.09	.00	.75	.75	-.20	-.20
OP	651138	A	312	.77	.77	.05	.08	.09	.00	.65	.65	-.15	-.14
OP	651164	C	312	.52	.16	.23	.52	.09	.00	.34	.05	.04	.34
OP	651166	B	312	.57	.17	.57	.18	.08	.00	.49	-.04	.49	-.15
OP	651168	C	312	.75	.10	.06	.75	.09	.00	.61	-.19	-.11	.61
OP	651169	B	312	.66	.12	.66	.13	.09	.00	.64	-.07	.64	-.22
OP	651173	B	312	.76	.08	.76	.07	.09	.00	.65	-.13	.65	-.16
OP	651183	C	312	.69	.11	.11	.69	.09	.00	.60	-.11	-.12	.60
OP	651198	A	312	.54	.54	.13	.23	.09	.00	.54	.54	-.09	-.08
OP	651227	C	312	.78	.04	.09	.78	.09	.00	.67	-.15	-.16	.67
OP	651245	A	312	.68	.68	.13	.11	.09	.00	.60	.60	-.07	-.18
OP	651311	A	312	.67	.67	.10	.14	.09	.00	.66	.66	-.13	-.19
OP	651319	B	312	.69	.13	.69	.09	.09	.00	.58	-.04	.58	-.21
OP	651320	B	312	.56	.13	.56	.21	.09	.00	.61	-.16	.61	-.12
OP	673387	B	312	.60	.11	.60	.20	.09	.00	.57	-.04	.57	-.16
OP	676343	A	312	.64	.64	.12	.15	.09	.00	.64	.64	-.12	-.18
OP	676351	C	312	.78	.04	.09	.78	.09	.00	.67	-.16	-.17	.67
OP	676354	A	312	.59	.59	.14	.18	.09	.00	.56	.56	-.02	-.18
OP	691024	C	312	.79	.08	.05	.79	.08	.00	.65	-.16	-.21	.65
OP	691026	C	312	.70	.12	.09	.70	.09	.00	.61	-.12	-.12	.61
OP	691027	B	312	.59	.07	.59	.26	.08	.00	.49	-.09	.49	-.07
OP	707721	C	312	.46	.20	.25	.46	.09	.00	.38	.03	.00	.38
OP	707722	B	312	.63	.18	.63	.11	.08	.00	.57	-.10	.57	-.20
OP	707724	B	312	.44	.06	.44	.41	.08	.00	.36	-.09	.36	.06
OP	707725	C	312	.68	.05	.18	.68	.09	.00	.46	-.11	.02	.46
OP	707727	B	312	.64	.10	.64	.17	.09	.00	.67	-.11	.67	-.21
OP	707728	A	312	.45	.45	.29	.17	.09	.00	.42	.42	.08	-.12
OP	707729	B	312	.53	.06	.53	.31	.09	.00	.59	-.09	.59	-.13
OP	707732	B	312	.56	.20	.56	.15	.09	.00	.52	.01	.52	-.18
OP	707734	C	312	.49	.23	.19	.49	.09	.00	.29	.16	-.05	.29
FT	749073	B	157	.56	.08	.56	.28	.08	.00	.64	-.03	.64	-.26
FT	749075	B	157	.54	.28	.54	.10	.08	.00	.31	.19	.31	-.17
FT	749076	C	154	.44	.16	.31	.44	.10	.00	.28	.01	.14	.28
FT	749077	C	157	.62	.14	.17	.62	.08	.00	.49	-.06	-.08	.49
FT	749078	A	154	.81	.81	.05	.04	.10	.00	.67	.67	-.06	-.23
FT	749079	A	154	.44	.44	.26	.20	.10	.00	.44	.44	-.04	.01
FT	749080	B	154	.41	.23	.41	.27	.10	.00	.41	.13	.41	-.11
FT	749081	B	157	.54	.07	.54	.32	.08	.00	.63	-.11	.63	-.21

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Grade 11 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	<i>N</i>	<i>p</i> -value	A	B	C	-	*	Total	A	B	C
FT	749083	C	157	.65	.15	.12	.65	.08	.00	.50	-.09	-.06	.50
FT	749084	C	154	.77	.04	.08	.77	.10	.01	.71	-.19	-.22	.71
FT	749085	B	154	.58	.16	.58	.16	.10	.00	.50	.05	.50	-.17
FT	749086	A	157	.20	.20	.43	.29	.08	.00	.13	.13	.33	-.06
FT	749087	B	157	.48	.18	.48	.27	.08	.00	.50	.02	.50	-.15
FT	749088	A	154	.39	.39	.32	.18	.10	.00	.51	.51	-.01	-.09
FT	749089	B	154	.42	.18	.42	.30	.10	.00	.35	.02	.35	.07
FT	749091	B	157	.41	.03	.41	.48	.08	.00	.43	-.05	.43	-.03

Appendix H: Science Key Verification and Foil Analysis

Grade 5

Grade 5 Science													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651050	B	309	.54	.11	.54	.26	.09	.00	.50	-.08	.50	-.04
OP	651078	C	309	.50	.22	.21	.50	.07	.00	.32	.05	-.02	.32
OP	651113	A	309	.65	.65	.10	.16	.09	.00	.67	.67	-.11	-.22
OP	676460	C	309	.65	.14	.14	.65	.08	.00	.46	.00	-.10	.46
OP	676461	C	309	.70	.06	.16	.70	.08	.00	.46	-.09	-.02	.46
OP	691146	B	309	.58	.13	.58	.21	.09	.00	.55	-.01	.55	-.17
OP	691147	B	309	.69	.06	.69	.17	.08	.00	.64	-.11	.64	-.22
OP	691149	C	309	.62	.17	.13	.62	.08	.00	.40	-.02	.00	.40
OP	691150	B	309	.43	.22	.43	.26	.08	.00	.45	-.10	.45	.04
OP	691151	A	309	.74	.74	.07	.10	.09	.00	.66	.66	-.14	-.18
OP	691154	A	309	.70	.70	.08	.13	.09	.00	.71	.71	-.12	-.28
OP	691155	B	309	.49	.33	.49	.09	.09	.00	.54	-.04	.54	-.17
OP	691158	A	309	.47	.47	.33	.12	.08	.00	.41	.41	.13	-.24
OP	691159	A	309	.72	.72	.09	.10	.08	.00	.69	.69	-.18	-.22
OP	691212	A	309	.88	.88	.03	.01	.08	.00	.60	.60	-.03	-.03
OP	707414	A	309	.75	.75	.09	.08	.07	.00	.65	.65	-.18	-.21
OP	707417	B	309	.51	.17	.51	.23	.08	.00	.55	-.02	.55	-.17
OP	707419	C	309	.69	.11	.12	.69	.08	.00	.58	-.09	-.16	.58
OP	707420	C	309	.56	.16	.20	.56	.08	.00	.34	.12	-.05	.34
OP	707421	B	309	.55	.15	.55	.22	.09	.00	.33	.09	.33	.00
OP	707422	A	309	.82	.82	.06	.05	.08	.00	.68	.68	-.16	-.21
OP	707426	A	309	.48	.48	.19	.25	.08	.00	.45	.45	-.01	-.07
OP	707428	C	309	.72	.08	.11	.72	.08	.00	.57	-.11	-.12	.57
OP	707429	B	309	.78	.04	.78	.09	.08	.00	.67	-.16	.67	-.19
OP	707430	C	309	.73	.08	.10	.73	.09	.00	.57	-.09	-.09	.57
FT	748726	B	170	.66	.02	.66	.23	.09	.00	.61	-.06	.61	-.19
FT	748727	A	138	.71	.71	.12	.09	.09	.00	.67	.67	-.16	-.19
FT	748728	B	138	.70	.10	.70	.11	.09	.00	.66	-.21	.66	-.11
FT	748729	C	170	.59	.17	.15	.59	.09	.00	.49	.05	-.18	.49
FT	748732	C	170	.78	.02	.11	.78	.09	.00	.66	-.07	-.20	.66
FT	748733	B	138	.57	.10	.57	.24	.09	.00	.56	-.12	.56	-.10
FT	748734	A	138	.37	.37	.17	.38	.09	.00	.34	.34	.05	.03
FT	748735	A	170	.45	.45	.08	.38	.09	.00	.57	.57	-.13	-.10
FT	748736	B	170	.64	.09	.64	.19	.09	.00	.64	-.07	.64	-.22
FT	748738	C	170	.77	.05	.09	.77	.09	.00	.65	-.11	-.18	.65
FT	748739	B	138	.51	.22	.51	.18	.09	.00	.51	-.04	.51	-.10

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Grade 5 Science													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
FT	748740	A	170	.54	.54	.18	.19	.09	.00	.53	.53	-.14	-.02
FT	748741	A	138	.57	.57	.12	.23	.09	.00	.51	.51	-.04	-.09
FT	748742	C	138	.67	.13	.12	.67	.09	.00	.56	-.10	-.09	.56
FT	748743	C	170	.67	.10	.14	.67	.09	.00	.53	.04	-.18	.53
FT	748744	A	138	.67	.67	.18	.07	.09	.00	.54	.54	-.08	-.10

Grade 8

Grade 8 Science													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651233	B	316	.68	.16	.68	.12	.04	.00	.62	-.16	.62	-.36
OP	651246	B	316	.51	.16	.51	.28	.05	.00	.39	-.10	.39	-.08
OP	673797	B	316	.62	.08	.62	.26	.05	.00	.62	-.19	.62	-.29
OP	676474	A	316	.64	.64	.11	.21	.04	.00	.57	.57	-.17	-.27
OP	676475	B	316	.61	.21	.61	.14	.04	.00	.35	.02	.35	-.21
OP	676476	C	316	.82	.07	.07	.82	.04	.00	.57	-.23	-.22	.57
OP	676477	C	316	.66	.08	.21	.66	.05	.00	.38	-.19	-.02	.38
OP	676478	C	316	.61	.08	.27	.61	.05	.00	.40	-.17	-.07	.40
OP	676479	B	316	.44	.26	.44	.26	.05	.00	.40	.02	.40	-.19
OP	691162	A	316	.66	.66	.13	.16	.04	.00	.63	.63	-.14	-.37
OP	691166	B	316	.58	.24	.58	.14	.05	.00	.43	.05	.43	-.33
OP	707432	A	316	.56	.56	.11	.28	.04	.00	.50	.50	-.15	-.19
OP	707433	A	316	.75	.75	.07	.13	.05	.00	.58	.58	-.17	-.25
OP	707434	C	316	.58	.22	.16	.58	.05	.00	.21	.09	-.06	.21
OP	707435	C	316	.69	.10	.16	.69	.05	.00	.39	-.04	-.13	.39
OP	707436	A	316	.76	.76	.06	.13	.05	.00	.67	.67	-.20	-.34
OP	707437	B	316	.68	.11	.68	.17	.04	.00	.62	-.20	.62	-.29
OP	707438	C	316	.79	.07	.09	.79	.05	.00	.49	-.14	-.15	.49
OP	707440	C	316	.54	.13	.28	.54	.05	.00	.12	-.04	.16	.12
OP	707442	A	316	.73	.73	.10	.12	.05	.00	.59	.59	-.14	-.30
OP	707445	A	316	.72	.72	.08	.15	.05	.00	.54	.54	-.18	-.19
OP	707446	C	316	.46	.25	.24	.46	.05	.00	.17	-.03	.11	.17
OP	707447	C	316	.60	.20	.15	.60	.05	.00	.28	-.01	-.03	.28
OP	707448	A	316	.76	.76	.09	.11	.04	.00	.62	.62	-.17	-.33
OP	708809	A	316	.56	.56	.14	.24	.05	.00	.54	.54	-.12	-.23
FT	748746	B	166	.82	.04	.82	.11	.03	.00	.66	-.20	.66	-.42
FT	748747	B	147	.65	.07	.65	.23	.05	.00	.63	-.27	.63	-.25

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Grade 8 Science													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
FT	748748	B	147	.49	.24	.49	.22	.05	.00	.41	-.13	.41	-.06
FT	748749	C	166	.83	.07	.08	.83	.03	.00	.59	-.24	-.30	.59
FT	748750	A	147	.24	.24	.40	.31	.05	.00	.21	.21	.22	-.16
FT	748751	C	166	.60	.14	.22	.60	.03	.00	.37	-.06	-.18	.37
FT	748752	C	166	.72	.16	.09	.72	.03	.00	.40	-.15	-.13	.40
FT	748753	B	147	.62	.19	.62	.14	.05	.00	.43	-.07	.43	-.18
FT	748754	C	166	.72	.17	.08	.72	.03	.00	.32	-.04	-.16	.32
FT	748755	A	166	.62	.62	.13	.22	.03	.00	.56	.56	-.09	-.38
FT	748756	C	147	.81	.09	.05	.81	.05	.00	.57	-.28	-.10	.57
FT	748757	B	166	.75	.05	.75	.17	.03	.00	.59	-.12	.59	-.38
FT	748759	A	147	.81	.81	.05	.09	.05	.00	.64	.64	-.17	-.31
FT	748761	A	147	.72	.72	.07	.16	.05	.00	.63	.63	-.14	-.34
FT	748762	C	166	.55	.20	.22	.55	.03	.00	.27	-.03	-.10	.27
FT	748763	A	147	.83	.83	.06	.06	.05	.00	.61	.61	-.18	-.28

Grade 11

Grade 11 Science													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	651774	B	293	.58	.14	.58	.18	.09	.00	.59	-.10	.59	-.16
OP	651785	C	293	.66	.13	.12	.66	.09	.00	.50	-.07	-.05	.50
OP	651793	B	293	.63	.12	.63	.16	.09	.00	.65	-.07	.65	-.25
OP	651798	B	293	.62	.09	.62	.19	.10	.00	.56	.00	.56	-.17
OP	651808	A	293	.45	.45	.10	.37	.09	.00	.47	.47	-.13	-.01
OP	651822	A	293	.63	.63	.07	.22	.08	.00	.63	.63	-.16	-.19
OP	673806	B	293	.65	.14	.65	.12	.10	.00	.61	-.09	.61	-.17
OP	673809	C	293	.50	.23	.18	.50	.09	.00	.30	.06	.07	.30
OP	676484	B	293	.67	.12	.67	.13	.08	.00	.68	-.22	.68	-.21
OP	676495	B	293	.72	.06	.72	.13	.09	.00	.71	-.18	.71	-.23
OP	691177	A	293	.59	.59	.17	.14	.10	.00	.55	.55	-.05	-.12
OP	691179	C	293	.62	.08	.20	.62	.09	.00	.54	-.12	-.08	.54
OP	691183	A	293	.58	.58	.26	.06	.09	.00	.55	.55	-.08	-.18
OP	691185	C	293	.73	.09	.09	.73	.08	.00	.62	-.11	-.20	.62
OP	691187	C	293	.78	.04	.10	.78	.08	.00	.71	-.18	-.27	.71
OP	691189	B	293	.52	.21	.52	.18	.09	.00	.48	.00	.48	-.11
OP	691192	A	293	.84	.84	.06	.01	.09	.00	.70	.70	-.19	-.14
OP	707451	A	293	.82	.82	.03	.05	.09	.00	.69	.69	-.15	-.16

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Grade 11 Science													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	N	p-value	A	B	C	-	*	Total	A	B	C
OP	707452	A	293	.82	.82	.02	.06	.09	.00	.73	.73	-.15	-.24
OP	707453	A	293	.67	.67	.13	.12	.08	.00	.56	.56	-.11	-.14
OP	707454	C	293	.66	.12	.13	.66	.09	.00	.38	.05	-.01	.38
OP	707456	C	293	.42	.33	.15	.42	.10	.00	.36	.15	-.12	.36
OP	707457	B	293	.43	.29	.43	.18	.09	.00	.43	.16	.43	-.23
OP	707458	A	293	.61	.61	.12	.17	.09	.00	.62	.62	-.11	-.18
OP	707459	A	293	.70	.70	.07	.14	.09	.00	.70	.70	-.17	-.22
OP	707461	B	293	.55	.17	.55	.20	.09	.00	.52	.04	.52	-.19
OP	707462	C	293	.56	.19	.16	.56	.09	.00	.42	-.02	.00	.42
OP	707463	C	293	.53	.23	.14	.53	.10	.00	.47	.02	-.11	.47
OP	707464	A	293	.72	.72	.09	.12	.08	.00	.65	.65	-.16	-.24
OP	707466	C	293	.81	.04	.06	.81	.09	.00	.67	-.08	-.21	.67
FT	748764	C	146	.68	.10	.12	.68	.10	.00	.70	-.27	-.13	.70
FT	748765	B	146	.71	.08	.71	.12	.09	.00	.71	-.14	.71	-.28
FT	748766	C	146	.66	.08	.18	.66	.08	.00	.58	-.09	-.15	.58
FT	748767	B	146	.72	.01	.72	.20	.08	.00	.68	-.07	.68	-.30
FT	748768	A	146	.74	.74	.05	.11	.10	.00	.68	.68	-.19	-.16
FT	748769	A	146	.50	.50	.10	.32	.08	.00	.53	.53	-.16	-.06
FT	748770	A	146	.68	.68	.08	.14	.10	.00	.73	.73	-.19	-.23
FT	748771	B	146	.42	.25	.42	.23	.10	.00	.39	.14	.39	-.12
FT	748772	A	146	.46	.46	.25	.21	.08	.00	.40	.40	.15	-.17
FT	748773	C	146	.67	.12	.13	.67	.08	.00	.50	-.13	.00	.50
FT	748774	A	146	.33	.33	.23	.35	.10	.00	.47	.47	-.13	.08
FT	748778	C	146	.50	.22	.18	.50	.10	.00	.37	.02	.04	.37
FT	748779	B	146	.72	.11	.72	.09	.08	.00	.66	-.15	.66	-.20
FT	748780	B	146	.73	.06	.73	.12	.08	.00	.56	-.05	.56	-.13
FT	748782	C	146	.76	.09	.05	.76	.09	.01	.65	-.16	-.20	.65
FT	748783	A	146	.79	.79	.05	.08	.08	.00	.62	.62	-.21	-.10

APPENDIX I: OVERVIEW OF RASCH MEASUREMENT

Most psychometricians agree that, when possible, the Rasch model is the preferred approach to manage the assessment and reporting processes (Rasch, 1960; Wright & Stone, 1979; Smith & Smith, 2004; Mead, 2008). For non-statisticians, the most compelling reasons may be that the Rasch model:

- is simple to apply, and
- preserves the number-correct ordering.

Simplicity makes the methods (relatively) easy to explain and the results to interpret. The results are straightforward and readily defended in front of administrators, parents, educators, and courts. And nontrivially, the simplicity helps meet the increasingly demanding time lines for reporting.

With number-correct scoring, students with more correct responses are always considered more proficient than students with fewer correct. This is intuitively obvious, based on more than a century of experience using and interpreting such scores.

For statisticians, the attractions of the Rasch model are more esoteric, including:

- an interval scale of measurement,
- meaningful estimates of the standard errors at each raw score, and,
- simple sufficient statistics for person and item parameters.

The interval scale makes it possible to construct a ruler and place the students and the items on the same ruler, along with any performance expectations or normative information. A difference of, say, 10 scale score units will have the same meaning at any point along the scale and will have the same implications when comparing a student to earlier assessments, to an item, to normative information, to expectations, to a growth target, or to another student.

The sufficient statistics are essential to the simplicity. They make it possible to derive estimation equations for person parameters that do not involve the item parameters and for the item parameters that do not involve person parameters. It does not matter which items are used for the assessment or which students are used for the calibration, given the items are appropriate for the students.

Still more compelling, once the sufficient statistics have been extracted, there is nothing remaining in the data that is directly relevant to the measurement. Any residual information can be used to control and monitor the model. The residuals contain diagnostic information about the student's performance on specific items or clusters of items.

The model does, however, place special demands on the item development and test construction processes. In essence, the model requires that all items, while imperfect, be equally valid and reliable instances of the construct. When sufficient care is taken in item and test development, most achievement test data can adequately satisfy the demands of the model and help realize its advantages of valid measurement, quality control, and effective, timely reporting.

The Rasch Philosophy of Measurement

George Rasch (1960), to derive data that he considered worthy of the name measurement, reasoned that the interaction between the person and the item must be governed by a single person parameter (ability) and a single item parameter (difficulty). If person *A* has more ability than person *B*, then *A* is more likely than *B* to answer any item correctly. If item *i* is more difficult than item *j*, then any person is less likely to answer item *i* correctly. These two common sense assertions are axiomatic to Rasch Measurement and must hold regardless of any other characteristics of the people or the items.

This reasoning led Rasch to the simple logistic model, which had several very useful and closely related properties touched on above (Rasch, 1960, 1977):

- *Simplicity*, which allows straightforward calculations, ready communication, and interpretation of the measures (Wright & Stone, 1979),
- *Separability* of the model parameters (Rasch, 1960),
- *Sufficiency* that does not involve the parameters (Andersen, 1977),
- *Specific objectivity*, sometimes called *person-free[d]* calibration and *item-free[d]* measurement (Wright, 1968), and

Specific objectivity means that the estimation equations for ability do not involve the difficulty parameters, and the equations for difficulty do not involve the ability parameters. Specific objectivity is possible when *sufficient statistics* for the parameters exist. The sufficient statistics exist because the parameters are *separable* in the model.

In practical terms, the students can be ordered on the measurement continuum by their number correct scores and the items can be ordered on the same continuum by the number of correct responses. No other information is necessary for the measurement and anything remaining in the data can be used to control and monitor fit to the model. Specific objectivity is the cornerstone of the Rasch family of measurement models (Wright & Mok, 1980).

THE MODEL FOR MEASUREMENT

Dichotomous Items

Multiple-choice items (MC) are calibrated using the most familiar form of the model (Rasch, 1960; Wright & Panchapakesan, 1969; Wright & Stone 1979; Andrich, 1988; Fischer & Molenaar, 1995; Smith & Smith, 2004). The Rasch model applicable to dichotomously scored items, given person ability and item difficulty, can be seen in the basic statement of the model.

The probability of success for a person with ability β_v on an item with difficulty δ_i is a function of the difference between the ability of the person and the difficulty of the item; mathematically:

$$1. \quad P(\text{right} \mid \beta_v, \delta_i) = \frac{e^{\beta_v - \delta_i}}{1 + e^{\beta_v - \delta_i}} = \frac{B_v}{B_v + \Delta_i}, \text{ where } B_v = e^{\beta_v} \text{ and } \Delta_i = e^{\delta_i}.$$

This is the probability of scoring one rather than zero on an item for which those are the only possibilities. This expression results in the familiar S-shaped curve relating the ability-difficulty metric to number correct score. Its simplicity makes it especially suited for educational assessment by drawing a clear distinction between the information (captured in the parameter estimates by the sufficient statistics) relevant to estimating the ability property that all examinees share and the information relevant to describing unique characteristics of individuals.

The model returns the identical estimated ability for every student with the same number correct score on a form. In the estimation phase, there is no distinction between the student who passes the easy item and misses the difficult items and the student who misses the easy items and passes the difficult ones. At the control and diagnostic stage, there is a great deal of difference between the two situations. In the first, there is a very clear statement of the person's true location on the construct; in the second, there are two very different statements when the two halves of the test are viewed separately.

This is the stage at which Rasch focuses his concern for the control of the model. The model itself provides a probability statement about any outcome. Typically, one examines the residuals, which can be expressed as the odds against the observed response. When these are collected and dissected, the conclusion for the first student would be nothing surprising occurred; for the second student, most of the responses were surprising. This diagnostic information can be put to good use when reporting and interpreting the test scores.

The strong measurement model is the instrument for understanding the scores, whether it concludes the student was accurately and validly measured or not. It will help lead the teacher and students to the most appropriate next steps.

CALIBRATION: ESTIMATING ITEM DIFFICULTIES

DRC uses the Rasch measurement model to estimate the student proficiencies and to control the assessment process. The model provides straightforward algorithms to compute ability estimates on a unidimensional, equal-interval scale of measurement from the number correct scores.

WINSTEPS (2015) implements the joint maximum likelihood estimation procedure (Linacre, 2015) for estimating item difficulties. This calibration software is commercially available and widely used in the testing industry. In addition to performing item calibration and ability estimation, the capabilities of the WINSTEPS program will be utilized to assess unidimensionality, item interdependence, and other deviations from the model. The program also has several options for exploring the person-item residual matrix (Mead, 1976, 2008; Ludlow 1986; Smith, 2000).

In the simplest formulation, estimating either the item difficulty or the person ability involves solving the fundamental equation that states the observed score must equal the expected score. For example, the ability estimate for a person who scores r on a set of L items is derived from:

2.
$$r_v = \sum_{i=1}^L \sum_{k=0}^{m_i} k \hat{P}_{vik}, \text{ where } \hat{P}_{vik} \text{ is defined by (1) with estimates replacing the parameters.}$$

Rasch calibration and scaling have become relatively routine operations. Members of the DRC psychometric staff have been instrumental in the development of the Rasch model and its application over several decades and are intimately familiar with the software for its application.

Appendix J: Reading, Mathematics, and Science Operational Form Calibration Summaries

Winsteps Table 3.1 Interpretation Guide

Tables in this Appendix are taken directly from the Winsteps output file and summarize calibration run of each form for each grade.

Grade 3

Number of students

Number of Items

Items are dichotomous

TABLE 3.1 NESA Grade 3 Reading FT 2009 ZOU508WB.TXT Jun 12 15:53 2009
 INPUT: 12420 STUDENTS 210 Readings MEASURED: 2134 STUDENTS 42 Readings 2 CATS

SUMMARY OF 2130 MEASURED (NON-EXTREME) STUDENTS

	RAW SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	27.6	42.0	.93	.41	.99	.1	.99	.1
S.D.	7.9	.0	1.18	.10	.17	.9	.45	1.1
MAX.	41.0	42.0	4.33	1.04	1.65	4.0	9.13	5.0
MIN.	4.0	42.0	-2.65	.34	.58	-2.6	.10	-1.9
REAL RMSE	.43	ADJ.SD	1.09	SEPARATION	2.53	STUDEN RELIABILITY	.86	
MODEL RMSE	.42	ADJ.SD	1.10	SEPARATION	2.61	STUDEN RELIABILITY	.87	
S.E. OF STUDENT MEAN	= .03							

Student mean logit relative to the form

Fit "Z" should have mean = 0 and SD = 1

Form Reliability*

*Form Reliability run in Winsteps is run on an anchored file

Reading

Grade 3

TABLE 3.1 State NE READING ALT Spring 2016 Grade RE03_OUT.txt Oct 5 2016 13: 4
 INPUT: 394393 Student 25 READ REPORTED: 258 Student 25 READ 2 CATS WINSTEPS 3.92.1

SUMMARY OF 224 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	16.1	25.0	1.0991	.5298	1.00	.1	.96	.1
P.SD	5.4	.0	1.2890	.1595	.12	.7	.23	.8
S.SD	5.4	.0	1.2919	.1599	.12	.7	.23	.8
MAX.	24.0	25.0	3.6551	1.0326	1.33	2.1	1.84	2.2
MIN.	1.0	25.0	-3.1070	.4213	.73	-2.3	.53	-2.2
REAL RMSE	.5627	TRUE SD	1.1597	SEPARATION	2.06	Studen	RELIABILITY	.81
MODEL RMSE	.5533	TRUE SD	1.1642	SEPARATION	2.10	Studen	RELIABILITY	.82
S.E. OF Student MEAN = .0863								

Grade 4

TABLE 3.1 State NE READING ALT Spring 2016 Grade RE04_OUT.txt Oct 5 2016 13: 5
 INPUT: 394393 Student 25 READ REPORTED: 273 Student 25 READ 2 CATS WINSTEPS 3.92.1

SUMMARY OF 243 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	17.3	25.0	1.1058	.5669	1.02	.3	.99	.2
P.SD	5.3	.0	1.3494	.1742	.15	.8	.35	.8
S.SD	5.3	.0	1.3522	.1746	.15	.8	.35	.8
MAX.	24.0	25.0	3.4347	1.0444	1.65	3.9	2.71	4.1
MIN.	1.0	25.0	-3.5505	.4290	.63	-2.2	.29	-1.8
REAL RMSE	.6083	TRUE SD	1.2045	SEPARATION	1.98	Studen	RELIABILITY	.80
MODEL RMSE	.5930	TRUE SD	1.2121	SEPARATION	2.04	Studen	RELIABILITY	.81
S.E. OF Student MEAN = .0867								

Grade 5

TABLE 3.1 State NE READING ALT Spring 2016 Grade RE05_OUT.txt Oct 5 2016 13: 6
 INPUT: 394393 Student 25 READ REPORTED: 312 Student 25 READ 2 CATS WINSTEPS 3.92.1

SUMMARY OF 288 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	16.3	25.0	1.0953	.5245	1.00	.1	.98	.1
P.SD	5.0	.0	1.1994	.1440	.16	.8	.34	.9
S.SD	5.0	.0	1.2015	.1442	.16	.8	.34	.9
MAX.	24.0	25.0	3.6760	1.0357	1.54	3.3	2.14	3.4
MIN.	1.0	25.0	-3.2326	.4280	.69	-2.0	.35	-1.8
REAL RMSE	.5576	TRUE SD	1.0619	SEPARATION	1.90	Studen	RELIABILITY	.78
MODEL RMSE	.5439	TRUE SD	1.0689	SEPARATION	1.97	Studen	RELIABILITY	.79
S.E. OF Student MEAN = .0708								

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Grade 6

TABLE 3.1 State NE READING ALT Spring 2016 Grade RE06_OUT.txt Oct 5 2016 13: 8
INPUT: 394393 Student 25 READ REPORTED: 331 Student 25 READ 2 CATS WINSTEPS 3.92.1

SUMMARY OF 314 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	16.1	25.0	1.1475	.5420	1.00	.1	1.00	.1
P.SD	5.6	.0	1.3531	.1641	.16	.9	.57	.9
S.SD	5.6	.0	1.3553	.1644	.16	.9	.57	.9
MAX.	24.0	25.0	3.7388	1.0403	1.52	2.7	8.82	3.2
MIN.	1.0	25.0	-3.1814	.4262	.71	-2.3	.33	-2.1
REAL RMSE	.5814	TRUE SD	1.2219	SEPARATION	2.10	Student	RELIABILITY	.82
MODEL RMSE	.5663	TRUE SD	1.2289	SEPARATION	2.17	Student	RELIABILITY	.82
S.E. OF Student MEAN = .0765								

Grade 7

TABLE 3.1 State NE READING ALT Spring 2016 Grade RE07_OUT.txt Oct 5 2016 13: 9
INPUT: 394393 Student 25 READ REPORTED: 330 Student 25 READ 2 CATS WINSTEPS 3.92.1

SUMMARY OF 303 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	16.1	25.0	1.1816	.5325	1.02	.2	.98	.1
P.SD	5.2	.0	1.2701	.1571	.16	.9	.33	.9
S.SD	5.2	.0	1.2722	.1574	.16	.9	.33	.9
MAX.	24.0	25.0	3.8176	1.0382	1.52	3.0	3.26	3.3
MIN.	1.0	25.0	-3.1394	.4296	.64	-2.2	.30	-2.1
REAL RMSE	.5722	TRUE SD	1.1339	SEPARATION	1.98	Student	RELIABILITY	.80
MODEL RMSE	.5552	TRUE SD	1.1423	SEPARATION	2.06	Student	RELIABILITY	.81
S.E. OF Student MEAN = .0731								

Grade 8

TABLE 3.1 State NE READING ALT Spring 2016 Grade RE08_OUT.txt Oct 5 2016 13:10
INPUT: 394393 Student 25 READ REPORTED: 317 Student 25 READ 2 CATS WINSTEPS 3.92.1

SUMMARY OF 306 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	16.1	25.0	1.7080	.5289	1.01	.2	.99	.1
P.SD	5.2	.0	1.2481	.1399	.17	.8	.33	.9
S.SD	5.2	.0	1.2502	.1402	.17	.8	.33	.9
MAX.	24.0	25.0	4.3721	1.0396	1.57	3.4	2.62	3.2
MIN.	3.0	25.0	-1.3988	.4322	.68	-2.1	.31	-2.0
REAL RMSE	.5627	TRUE SD	1.1141	SEPARATION	1.98	Student	RELIABILITY	.80
MODEL RMSE	.5471	TRUE SD	1.1219	SEPARATION	2.05	Student	RELIABILITY	.81
S.E. OF Student MEAN = .0715								

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Grade 11

TABLE 3.1 State NE READING ALT Spring 2016 Grade RE11_OUT.txt Oct 5 2016 13:12
 INPUT: 394393 Student 25 READ REPORTED: 292 Student 25 READ 2 CATS WINSTEPS 3.92.1

SUMMARY OF 268 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	17.0	25.0	1.2758	.5438	.99	.2	.95	.1
P.SD	5.2	.0	1.2517	.1546	.13	.7	.28	.8
S.SD	5.3	.0	1.2540	.1549	.13	.7	.28	.8
MAX.	24.0	25.0	3.6406	1.0323	1.46	3.2	1.83	3.3
MIN.	1.0	25.0	-3.1389	.4219	.73	-1.4	.40	-1.4
REAL RMSE	.5759	TRUE SD	1.1113	SEPARATION	1.93	Studen	RELIABILITY	.79
MODEL RMSE	.5654	TRUE SD	1.1167	SEPARATION	1.98	Studen	RELIABILITY	.80
S.E. OF Student MEAN = .0766								

Mathematics

Grade 3

TABLE 3.1 State NE MATH ALT Spring 2016 Grade 3 MA03_OUT.txt Oct 5 2016 12:54
 INPUT: 394393 Student 25 MATH REPORTED: 246 Student 25 MATH 2 CATS WINSTEPS 3.92.1

SUMMARY OF 208 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	16.2	25.0	.8300	.5581	1.01	.1	.94	.1
P.SD	5.6	.0	1.4539	.1711	.20	1.0	.38	1.0
S.SD	5.7	.0	1.4574	.1715	.20	1.0	.38	1.0
MAX.	24.0	25.0	3.4941	1.0495	1.69	3.1	2.32	3.7
MIN.	1.0	25.0	-3.6962	.4370	.64	-2.3	.25	-2.0
REAL RMSE	.6016	TRUE SD	1.3236	SEPARATION	2.20	Studen	RELIABILITY	.83
MODEL RMSE	.5837	TRUE SD	1.3316	SEPARATION	2.28	Studen	RELIABILITY	.84
S.E. OF Student MEAN = .1011								

Grade 4

TABLE 3.1 State NE MATH ALT Spring 2015 Grade 4 MA04_OUT.txt Oct 5 2016 12:55
 INPUT: 394393 Student 30 MATH REPORTED: 260 Student 30 MATH 2 CATS WINSTEPS 3.92.1

SUMMARY OF 226 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	20.0	30.0	1.0763	.4966	1.00	.1	.97	.1
P.SD	6.2	.0	1.2692	.1619	.13	.8	.35	.9
S.SD	6.2	.0	1.2720	.1622	.13	.8	.35	.9
MAX.	29.0	30.0	3.6957	1.0288	1.52	3.1	3.63	3.1
MIN.	3.0	30.0	-2.3319	.3870	.73	-2.5	.39	-2.3
REAL RMSE	.5315	TRUE SD	1.1526	SEPARATION	2.17	Studen	RELIABILITY	.82
MODEL RMSE	.5223	TRUE SD	1.1567	SEPARATION	2.21	Studen	RELIABILITY	.83
S.E. OF Student MEAN = .0846								

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Grade 5

TABLE 3.1 State NE MATH ALT Spring 2013 Grade 5 MA05_OUT.txt Oct 5 2016 12:57
 INPUT: 394393 Student 30 MATH REPORTED: 311 Student 30 MATH 2 CATS WINSTEPS 3.92.1

SUMMARY OF 283 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	19.7	30.0	.9107	.5024	1.00	.1	.96	.0
P.SD	6.3	.0	1.3326	.1693	.15	.9	.33	1.0
S.SD	6.3	.0	1.3349	.1696	.16	.9	.33	1.0
MAX.	29.0	30.0	3.6166	1.0313	1.52	3.2	2.34	3.3
MIN.	1.0	30.0	-3.6874	.3910	.65	-2.5	.28	-2.4
REAL RMSE	.5423	TRUE SD	1.2172	SEPARATION	2.24	Studen	RELIABILITY	.83
MODEL RMSE	.5302	TRUE SD	1.2226	SEPARATION	2.31	Studen	RELIABILITY	.84
S.E. OF Student MEAN = .0794								

Grade 6

TABLE 3.1 State NE MATH ALT Spring 2015 Grade 6 MA06_OUT.txt Oct 5 2016 12:58
 INPUT: 394393 Student 30 MATH REPORTED: 331 Student 30 MATH 2 CATS WINSTEPS 3.92.1

SUMMARY OF 310 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	19.1	30.0	.8372	.4715	1.01	.1	1.00	.0
P.SD	6.2	.0	1.2091	.1356	.13	.9	.24	1.0
S.SD	6.2	.0	1.2111	.1358	.13	.9	.24	1.0
MAX.	29.0	30.0	3.6443	1.0284	1.57	4.1	2.16	4.0
MIN.	1.0	30.0	-3.5325	.3858	.67	-2.6	.53	-2.6
REAL RMSE	.5012	TRUE SD	1.1004	SEPARATION	2.20	Studen	RELIABILITY	.83
MODEL RMSE	.4906	TRUE SD	1.1051	SEPARATION	2.25	Studen	RELIABILITY	.84
S.E. OF Student MEAN = .0688								

Grade 7

TABLE 3.1 State NE MATH ALT Spring 2015 Grade 7 MA07_OUT.txt Oct 5 2016 12:59
 INPUT: 394393 Student 30 MATH REPORTED: 338 Student 30 MATH 2 CATS WINSTEPS 3.92.1

SUMMARY OF 316 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	19.3	30.0	1.0208	.4932	1.03	.3	1.00	.2
P.SD	6.5	.0	1.3224	.1540	.16	.9	.31	1.0
S.SD	6.5	.0	1.3245	.1543	.16	.9	.31	1.0
MAX.	29.0	30.0	3.7922	1.0326	1.57	3.3	2.58	3.2
MIN.	1.0	30.0	-3.5359	.3925	.69	-2.4	.38	-2.2
REAL RMSE	.5314	TRUE SD	1.2110	SEPARATION	2.28	Studen	RELIABILITY	.84
MODEL RMSE	.5166	TRUE SD	1.2174	SEPARATION	2.36	Studen	RELIABILITY	.85
S.E. OF Student MEAN = .0745								

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Grade 8

TABLE 3.1 State NE MATH ALT Spring 2015 Grade 8 MA08_OUT.txt Oct 5 2016 13: 1
 INPUT: 394393 Student 30 MATH REPORTED: 325 Student 30 MATH 2 CATS WINSTEPS 3.92.1

SUMMARY OF 309 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	19.6	30.0	.8821	.4855	1.00	.1	.99	.1
P.SD	6.3	.0	1.2439	.1431	.14	.8	.35	.9
S.SD	6.3	.0	1.2460	.1434	.14	.8	.35	.9
MAX.	29.0	30.0	3.6180	1.0299	1.53	3.7	4.42	3.8
MIN.	3.0	30.0	-2.4225	.3889	.63	-3.1	.36	-2.9
REAL RMSE	.5185	TRUE SD	1.1307	SEPARATION	2.18	Studen	RELIABILITY	.83
MODEL RMSE	.5062	TRUE SD	1.1363	SEPARATION	2.24	Studen	RELIABILITY	.83
S.E. OF Student MEAN = .0709								

Grade 11

TABLE 3.1 State NE MATH ALT Spring 2015 Grade 11 MA11_OUT.txt Oct 5 2016 13: 2
 INPUT: 394393 Student 30 MATH REPORTED: 311 Student 30 MATH 2 CATS WINSTEPS 3.92.1

SUMMARY OF 280 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	20.3	30.0	.7938	.5086	1.00	.1	.95	.0
P.SD	6.5	.0	1.3519	.1722	.11	.7	.28	.8
S.SD	6.5	.0	1.3543	.1725	.11	.7	.28	.8
MAX.	29.0	30.0	3.3615	1.0291	1.50	2.7	2.55	2.7
MIN.	1.0	30.0	-3.8257	.3859	.75	-2.3	.48	-2.2
REAL RMSE	.5454	TRUE SD	1.2370	SEPARATION	2.27	Studen	RELIABILITY	.84
MODEL RMSE	.5369	TRUE SD	1.2407	SEPARATION	2.31	Studen	RELIABILITY	.84
S.E. OF Student MEAN = .0809								

Science

Grade 5

TABLE 3.1 State NE SCIENCE ALT Spring 2016 Grade SC05_OUT.txt Oct 5 2016 13:13
 INPUT: 394393 Student 25 SCIE REPORTED: 308 Student 25 SCIE 2 CATS WINSTEPS 3.92.1

SUMMARY OF 279 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	16.9	25.0	-.0999	.5499	1.00	.1	.97	.1
P.SD	5.2	.0	1.2898	.1679	.14	.7	.44	.8
S.SD	5.2	.0	1.2921	.1682	.14	.7	.44	.8
MAX.	24.0	25.0	2.3014	1.0424	1.52	2.6	4.97	2.7
MIN.	1.0	25.0	-4.6473	.4289	.71	-2.1	.51	-1.8
REAL RMSE	.5872	TRUE SD	1.1484	SEPARATION	1.96	Studen	RELIABILITY	.79
MODEL RMSE	.5750	TRUE SD	1.1546	SEPARATION	2.01	Studen	RELIABILITY	.80
S.E. OF Student MEAN = .0774								

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Grade 8

TABLE 3.1 State NE SCIENCE ALT Spring 2016 Grade SC08_OUT.txt Oct 5 2016 13:14

INPUT: 394393 Student 25 SCIE REPORTED: 313 Student 25 SCIE 2 CATS WINSTEPS 3.92.1

SUMMARY OF 297 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	16.5	25.0	-.1549	.5241	1.01	.2	.96	.1
P.SD	5.1	.0	1.1853	.1498	.13	.8	.24	.9
S.SD	5.1	.0	1.1873	.1501	.13	.8	.24	.9
MAX.	24.0	25.0	2.2965	1.0322	1.41	2.8	1.88	3.0
MIN.	1.0	25.0	-4.4352	.4187	.75	-1.9	.38	-1.8
REAL RMSE	.5559	TRUE SD	1.0468	SEPARATION	1.88	Studen	RELIABILITY	.78
MODEL RMSE	.5451	TRUE SD	1.0525	SEPARATION	1.93	Studen	RELIABILITY	.79
S.E. OF Student MEAN = .0689								

Grade 11

TABLE 3.1 State NE SCIENCE ALT Spring 2016 Grade SC11_OUT.txt Oct 5 2016 13:16

INPUT: 394393 Student 30 SCIE REPORTED: 292 Student 30 SCIE 2 CATS WINSTEPS 3.92.1

SUMMARY OF 265 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT		OUTFIT	
					MNSQ	ZSTD	MNSQ	ZSTD
MEAN	20.4	30.0	.1207	.5168	1.02	.2	.98	.1
P.SD	6.5	.0	1.3724	.1666	.15	.8	.36	.8
S.SD	6.6	.0	1.3750	.1669	.15	.8	.36	.8
MAX.	29.0	30.0	2.6958	1.0420	1.57	3.3	2.54	3.4
MIN.	1.0	30.0	-4.7842	.3954	.72	-2.3	.37	-1.7
REAL RMSE	.5568	TRUE SD	1.2544	SEPARATION	2.25	Studen	RELIABILITY	.84
MODEL RMSE	.5430	TRUE SD	1.2604	SEPARATION	2.32	Studen	RELIABILITY	.84
S.E. OF Student MEAN = .0845								

Appendix K: Reading Item Bank Difficulties

Grade 3 Reading

ENTRY	TOTAL	TOTAL	MODEL	INFIT	OUTFIT	PTBISERL-EX	EXACT	MATCH						
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	READ
1	96	258	1.1366A	.1512	1.27	4.1	1.40	3.2	.34	.51	60.6	70.3	.4087	650565
2	188	258	-.3859A	.1749	.82	-2.1	.74	-1.4	.63	.60	84.5	79.4	-.4602	650617
3	117	258	1.0660A	.1512	.83	-3.0	.74	-2.5	.60	.51	77.4	70.3	-.0033	650627
4	189	258	-.4722A	.1780	.81	-2.1	.69	-1.7	.66	.61	84.1	80.3	-.4104	650631
5	136	258	.8543A	.1518	.79	-3.7	.71	-2.9	.65	.53	79.6	70.5	-.2310	650716
6	161	258	.1278A	.1609	1.02	.3	1.09	.7	.55	.57	74.8	74.2	-.1273	675833
7	113	258	1.1532	.1512	1.11	1.8	1.10	.9	.44	.51	67.3	70.3	.0010	691040
8	147	258	.4143A	.1559	.85	-2.4	.74	-2.2	.64	.56	75.7	72.1	-.0548	691043
9	151	258	-.1661A	.1681	1.14	1.6	1.05	.4	.59	.59	71.2	76.9	.4302	691044
10	187	258	-.7994	.1917	.90	-.9	.75	-1.1	.67	.62	84.1	83.9	.0000	691048
11	139	258	.6079A	.1535	.97	-.4	1.12	1.0	.56	.54	75.7	71.1	-.0552	707756
12	147	258	.2659A	.1582	1.06	.9	1.00	.1	.54	.57	70.4	73.1	.0950	707757
13	171	258	-.3155A	.1726	.79	-2.5	.62	-2.4	.72	.60	82.7	78.6	.0383	707759
14	113	258	1.0279A	.1512	1.03	.5	1.00	.0	.50	.52	69.5	70.4	.1260	707760
15	135	258	.5287A	.1544	1.02	.3	.97	-.2	.54	.55	70.4	71.5	.1194	707761
16	133	258	1.0769A	.1512	1.06	1.1	1.01	.1	.51	.51	67.7	70.3	-.3823	707763
17	117	258	.9521A	.1514	1.16	2.5	1.16	1.4	.43	.52	61.5	70.4	.1105	707765
18	186	258	-1.1451A	.2101	1.24	1.7	1.06	.3	.64	.64	82.7	87.3	.3851	707766
19	169	258	-.1497A	.1676	1.01	.2	1.21	1.2	.58	.59	74.8	76.8	-.0709	707767
20	182	258	-.4229A	.1762	.89	-1.2	.73	-1.5	.64	.60	82.7	79.8	-.2039	707768
21	151	258	-.0468A	.1649	1.10	1.2	1.00	.1	.58	.58	71.7	75.7	.3103	707769
22	174	258	-.4460A	.1771	.93	-.7	.77	-1.2	.67	.60	78.3	80.1	.0798	707770
23	144	258	.5195A	.1545	1.26	3.8	1.54	3.9	.40	.55	62.8	71.5	-.0870	707771
24	135	258	.9944A	.1513	.87	-2.2	.80	-1.9	.61	.52	75.7	70.4	-.3472	707772
25	122	258	.7385A	.1524	.97	-.4	.99	.0	.55	.54	72.1	70.7	.2101	708015
26	44	119	1.4029	.2277	.96	-.4	.86	-.6	.52	.50	69.3	70.2	.0018	749135
27	63	139	1.2008	.2032	1.28	3.1	1.26	1.9	.33	.49	57.6	70.5	.0004	749136
28	82	139	.4084	.2083	.91	-1.1	.78	-1.4	.58	.52	73.6	71.4	-.0002	749138
29	98	139	-.3516	.2317	.99	-.1	.79	-.8	.56	.54	75.2	78.4	-.0006	749140
30	49	119	1.1453	.2267	.95	-.6	.87	-.6	.55	.52	70.3	70.3	.0017	749141
31	73	119	-.1857	.2550	.88	-1.0	.82	-.7	.69	.64	81.2	77.9	.0009	749142
32	94	139	-.1450	.2233	1.10	1.0	1.20	.9	.46	.54	79.2	76.1	-.0005	749143
33	71	139	.8715	.2032	.93	-.9	.86	-1.0	.54	.50	72.0	70.2	.0001	749144
34	33	119	1.9948	.2382	.90	-.9	.82	-.6	.47	.43	78.2	73.7	.0020	749221
35	50	119	1.0939	.2268	1.19	2.0	1.14	.8	.44	.53	59.4	70.3	.0017	749223
36	68	119	.1234	.2432	.93	-.6	.85	-.7	.65	.62	80.2	75.2	.0011	749224
37	59	139	1.3666	.2042	.93	-.9	.90	-.7	.52	.48	75.2	71.0	.0006	749225
38	79	119	-.6070	.2768	.82	-1.2	.72	-.9	.74	.67	86.1	82.4	.0007	750257
39	38	139	2.3073	.2235	1.27	2.3	1.49	2.2	.28	.42	68.0	76.8	.0014	750258
40	40	139	2.2089	.2204	1.28	2.4	1.40	2.0	.26	.43	71.2	76.0	.0013	750259
41	21	119	2.7564	.2702	1.09	.6	1.31	.9	.28	.35	82.2	81.3	.0019	750260
MEAN	113.8	207.7	.5538	.1894	1.01	.1	.98	-.1			74.1	74.6	-.0026	
P.S.D	49.6	63.2	.8787	.0371	.15	1.8	.23	1.5			7.2	4.5	.1898	

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Grade 4 Reading

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	READ
1	186	273	-.4458A	.1723	.99	-.1	.83	-.8	.65	.58	80.2	80.6	.3014	650970
2	181	273	-.1212A	.1628	.90	-1.2	.77	-1.4	.64	.57	80.6	77.7	.1057	650974
3	173	273	-.3899A	.1705	1.09	1.0	.90	-.5	.65	.58	74.9	80.1	.5765	650976
4	207	273	-.4052A	.1710	.75	-3.1	.55	-2.8	.68	.58	85.4	80.2	-.3783	650990
5	200	273	-1.1208A	.2013	1.19	1.5	.82	-.6	.69	.61	81.0	87.0	.5761	675853
6	166	273	.5161A	.1510	1.06	.9	.95	-.3	.50	.54	67.6	73.2	-.1670	691050
7	196	273	-.3386A	.1689	.74	-3.2	.53	-3.0	.71	.58	84.2	79.6	-.0906	691051
8	142	273	1.0000A	.1475	.96	-.6	.96	-.3	.53	.51	73.7	71.6	-.1087	691057
9	183	273	-.0913A	.1620	1.17	2.1	1.21	1.2	.48	.57	71.7	77.4	.0231	691058
10	201	273	-.6670A	.1804	.94	-.6	.76	-1.1	.64	.59	84.2	82.8	.0887	691061
11	170	273	.5870A	.1502	.94	-.9	.94	-.5	.57	.54	77.7	72.8	-.3342	691063
12	215	273	-.6093A	.1781	.93	-.7	1.06	.3	.55	.59	85.4	82.2	-.4698	707773
13	161	273	.0865A	.1580	1.14	1.9	1.15	1.0	.53	.56	72.1	75.9	.3825	707774
14	132	273	1.0668A	.1473	1.06	1.0	1.21	1.7	.47	.51	71.3	71.6	.0417	707775
15	180	273	.4681A	.1516	1.07	1.0	.99	-.1	.50	.54	66.8	73.4	-.4651	707776
16	206	273	-.5544A	.1761	.73	-3.1	.48	-3.0	.71	.59	85.0	81.6	-.1908	707777
17	131	273	1.3061A	.1474	1.25	3.8	1.47	3.4	.38	.49	63.2	71.6	-.1740	707778
18	178	273	-.3373A	.1688	1.31	3.2	1.57	2.7	.48	.58	74.5	79.6	.4002	707779
19	166	273	.2287A	.1552	1.17	2.3	1.30	2.0	.47	.55	69.6	74.8	.1227	707780
20	161	273	.8971A	.1479	1.05	.8	.98	-.1	.50	.52	70.9	71.8	-.4314	707781
21	124	273	1.3061A	.1474	1.30	4.5	1.28	2.2	.35	.49	57.1	71.6	-.0237	707782
22	161	273	-.0202A	.1603	1.13	1.6	1.22	1.3	.56	.57	73.7	76.7	.4895	707785
23	216	273	-1.4548A	.2210	1.41	2.5	1.42	1.2	.56	.62	85.0	89.7	.3493	707786
24	239	273	-2.1391A	.2740	.81	-.9	.46	-1.3	.66	.64	94.7	93.6	-.3158	707787
25	177	273	.3522A	.1532	.86	-2.2	.78	-1.8	.62	.55	78.5	74.0	-.2709	707789
26	89	129	-.1626	.2470	1.12	.9	1.36	1.4	.54	.60	75.9	80.0	.0024	749148
27	107	144	-.6567	.2403	1.02	.2	.97	.0	.55	.56	82.4	81.3	-.0011	749149
28	90	144	.1819	.2092	.94	-.7	.89	-.5	.57	.53	75.6	73.4	-.0011	749150
29	98	129	-.7769	.2788	.80	-1.2	.74	-.7	.71	.63	88.8	85.2	.0023	749151
30	97	144	-.1367	.2180	.97	-.3	.92	-.3	.56	.54	74.8	76.1	-.0011	749152
31	80	129	.3448	.2297	.88	-1.1	.70	-1.6	.64	.58	79.3	76.0	.0025	749153
32	99	129	-.8560	.2838	.96	-.2	1.15	.5	.64	.63	86.2	85.9	.0022	749154
33	101	144	-.3330	.2252	.85	-1.4	.67	-1.4	.64	.55	80.2	77.9	-.0011	749226
34	87	144	.3115	.2065	1.01	.2	.88	-.7	.52	.52	70.2	72.6	-.0012	749227
35	49	129	1.8426	.2201	1.13	1.4	1.60	2.2	.37	.46	70.7	73.4	.0027	749228
36	89	144	.2254	.2083	1.23	2.4	1.19	1.0	.39	.53	67.2	73.0	-.0011	749229
37	63	144	1.2883	.2011	1.16	1.9	1.22	1.4	.39	.47	66.4	71.4	-.0012	749230
38	76	144	.7660	.2009	.92	-.9	.87	-.8	.55	.50	72.5	71.1	-.0012	749231
39	64	129	1.1327	.2172	.95	-.5	.91	-.4	.55	.52	70.7	72.0	.0027	749719
40	89	129	-.1626	.2470	.90	-.8	.77	-.9	.66	.60	79.3	80.0	.0024	749720
41	80	129	.3448	.2297	1.23	2.1	1.14	.7	.46	.58	67.2	76.0	.0025	749721
MEAN	141.7	219.7	.0603	.1924	1.02	.3	.99	.0			76.0	77.5	.0012	
P.SD	51.3	66.7	.8017	.0394	.16	1.8	.28	1.5			7.7	5.4	.2531	

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Grade 5 Reading

ENTRY	TOTAL	TOTAL	MODEL	INFIT	OUTFIT	PTBISERL-EX	EXACT	MATCH							
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	READ	
1	179	312	.3658A	.1346	.88	-2.3	.82	-2.0	.56	.46	74.9	70.7	.1532	651132	
2	203	312	-.1884A	.1455	.91	-1.4	.77	-1.8	.62	.48	76.6	76.3	.2673	651152	
3	220	312	-.2824A	.1481	.88	-1.7	.85	-1.1	.58	.49	78.4	77.4	.0089	651154	
4	165	312	.9229A	.1303	1.05	1.0	1.02	.3	.40	.44	62.9	68.3	-.1627	673824	
5	245	312	-1.1087A	.1819	.94	-.5	.69	-1.5	.66	.52	85.6	86.9	.2124	691067	
6	162	312	.8106	.1306	1.07	1.5	1.06	.8	.39	.44	64.3	68.4	.0013	691072	
7	224	312	-.8622A	.1696	1.24	2.2	1.27	1.3	.54	.51	79.0	84.4	.5044	691073	
8	179	312	.1194A	.1386	.89	-1.8	.76	-2.4	.63	.47	73.5	72.9	.4013	691075	
9	242	312	-.7033A	.1627	1.09	.9	1.58	2.8	.37	.50	83.2	82.5	-.1125	691077	
10	234	312	-.4835A	.1545	.92	-.9	.80	-1.3	.53	.50	81.8	79.8	-.1202	691078	
11	182	312	.3358A	.1350	.87	-2.5	.79	-2.3	.58	.46	76.6	70.9	.1299	691079	
12	179	312	.6033A	.1320	.84	-3.4	.83	-2.1	.56	.45	75.6	69.2	-.0864	707790	
13	137	312	1.6330A	.1334	1.32	5.3	1.52	4.9	.23	.39	60.5	70.7	-.3908	707792	
14	110	312	1.4963A	.1321	1.15	2.8	1.19	2.1	.26	.40	61.5	69.9	.2085	707793	
15	220	312	-.1330A	.1441	.72	-4.6	.56	-4.1	.67	.48	83.2	75.6	-.1435	707798	
16	160	312	.6496A	.1316	1.03	.7	.98	-.2	.44	.45	65.6	69.0	.1972	707799	
17	183	312	.5154A	.1328	.99	-.2	.94	-.7	.46	.46	67.7	69.6	-.0694	707800	
18	202	312	.1669A	.1377	.91	-1.6	.79	-2.0	.53	.47	75.9	72.4	-.0730	707801	
19	234	312	-.3616A	.1505	.92	-1.0	.82	-1.3	.51	.49	80.4	78.3	-.2452	707802	
20	166	312	.5828A	.1322	1.10	2.0	1.10	1.2	.39	.45	64.9	69.2	.1615	707803	
21	151	312	1.0638A	.1301	.99	-.1	.97	-.4	.44	.43	68.4	68.4	-.0649	707804	
22	126	312	1.5619A	.1327	1.02	.5	1.11	1.2	.39	.40	70.4	70.3	-.1354	707806	
23	260	312	-1.1430A	.1838	.79	-1.8	.57	-2.2	.60	.52	90.0	87.2	-.2716	707807	
24	200	312	.4939A	.1330	1.18	3.3	1.15	1.6	.31	.46	57.7	69.8	-.3658	708023	
25	235	312	-.5568A	.1571	.84	-1.9	.66	-2.3	.61	.50	80.8	80.8	-.0712	708027	
26	111	173	.2460	.1858	.90	-1.3	.81	-1.3	.55	.47	74.2	73.1	.0029	749158	
27	40	139	1.9343	.2104	1.10	1.1	1.27	1.6	.27	.36	73.4	74.0	-.0009	749159	
28	63	139	1.0135	.1945	1.29	3.8	1.39	3.2	.21	.42	53.9	67.8	-.0009	749160	
29	57	173	1.9541	.1824	1.34	3.9	1.60	3.4	.10	.38	64.4	72.3	.0033	749162	
30	113	139	-1.3280	.2821	.80	-1.1	.50	-1.7	.68	.53	88.3	88.0	-.0010	749163	
31	70	173	1.5372	.1765	.76	-3.7	.70	-2.6	.57	.41	82.2	70.2	.0032	749164	
32	41	139	1.8903	.2090	1.00	.0	1.05	.4	.37	.37	72.7	73.5	-.0009	749239	
33	71	173	1.5061	.1762	1.07	1.0	1.06	.5	.36	.41	66.9	70.0	.0032	749240	
34	72	173	1.4750	.1760	1.38	5.0	1.44	3.2	.14	.41	54.0	69.9	.0032	749241	
35	86	173	1.0458	.1750	1.52	6.8	1.68	5.1	.08	.44	48.5	68.7	.0031	749245	
36	51	173	2.1586	.1869	1.28	3.0	1.37	2.0	.18	.36	62.6	73.7	.0034	749246	
37	85	139	.1635	.2025	1.04	.5	1.03	.3	.43	.46	71.9	70.5	-.0009	749247	
38	94	173	.7990	.1766	.75	-4.0	.66	-3.3	.63	.45	81.6	69.1	.0030	749251	
39	81	139	.3247	.1992	.78	-3.2	.68	-2.7	.62	.45	77.3	69.3	-.0009	751398	
40	64	139	.9757	.1944	1.33	4.3	1.33	2.8	.18	.42	46.9	67.7	-.0009	751399	
41	49	139	1.5558	.2007	1.10	1.3	1.08	.7	.32	.39	62.5	70.3	-.0009	755215	
MEAN	145.0	251.1	.5549	.1640	1.02	.3	1.01	.0			71.2	73.3	-.0012		
P.SD	67.4	76.8	.9180	.0322	.19	2.7	.30	2.3			10.4	5.7	.1726		

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Grade 6 Reading

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	READ
1	222	331	.1017A	.1378	.91	-1.4	.83	-1.3	.55	.48	74.5	74.9	-.0074	651278
2	149	331	1.2867A	.1299	.97	-.6	.91	-.9	.48	.47	74.2	71.9	.0748	651279
3	157	331	.7960A	.1304	1.01	.3	.97	-.3	.49	.48	72.6	72.1	.4316	651285
4	222	331	.1565A	.1369	.83	-3.0	.68	-2.7	.60	.48	80.2	74.5	-.0634	673835
5	232	331	-.3933A	.1488	1.08	1.1	.91	-.4	.52	.48	75.2	79.3	.2977	691082
6	181	331	.7626A	.1306	1.03	.5	1.12	1.2	.47	.48	70.1	72.2	.0604	691085
7	254	331	-.5610A	.1538	.88	-1.5	.67	-1.9	.56	.48	82.1	81.1	-.0183	691087
8	196	331	.7246A	.1308	.97	-.5	1.01	.1	.49	.48	73.6	72.3	-.1611	691088
9	278	331	-.7601A	.1607	.89	-1.3	1.42	1.8	.37	.47	88.7	83.3	-.5027	691089
10	221	331	.4205A	.1333	.84	-3.0	.70	-2.8	.57	.48	77.7	73.2	-.3138	691091
11	135	331	1.7470A	.1327	1.05	.8	1.12	1.1	.41	.44	72.6	73.2	-.1435	691092
12	247	331	-.8177A	.1629	1.19	2.0	.89	-.4	.54	.47	77.7	83.9	.4062	691094
13	239	331	.0571A	.1386	.81	-3.2	.65	-2.9	.57	.48	79.9	75.2	-.3101	691096
14	249	331	-.1601A	.1429	.86	-2.1	.85	-.9	.53	.48	81.4	76.9	-.3120	691097
15	213	331	.2185A	.1359	.90	-1.7	.94	-.5	.56	.48	78.0	74.2	.0445	707809
16	183	331	.3438A	.1342	1.37	5.8	1.36	2.7	.30	.48	58.2	73.6	.4481	707812
17	132	331	1.7399A	.1326	1.24	3.9	1.36	2.8	.31	.45	64.8	73.1	-.0854	707813
18	246	331	-.3647A	.1480	.92	-1.0	1.13	.8	.52	.48	83.0	79.0	-.0313	707814
19	197	331	.9243A	.1299	.95	-.9	.94	-.6	.51	.48	75.2	71.9	-.3798	707816
20	282	331	-1.6525A	.2065	1.03	.3	.96	.0	.56	.46	90.3	91.1	.2716	707817
21	174	331	.5570A	.1320	1.14	2.4	1.13	1.2	.43	.48	70.8	72.8	.3861	707819
22	207	331	.2185A	.1359	.90	-1.7	.81	-1.5	.58	.48	78.6	74.2	.1548	707820
23	166	331	1.1756A	.1297	1.03	.6	1.04	.4	.44	.47	70.4	71.9	-.0997	707821
24	194	331	.5997	.1316	1.14	2.4	1.32	2.7	.39	.48	68.2	72.7	.0002	707822
25	231	331	.1327A	.1373	.96	-.7	.86	-1.0	.48	.48	75.5	74.7	-.2189	708026
26	98	177	.9137	.1759	.94	-.7	.93	-.4	.50	.46	76.6	72.3	.0031	749166
27	99	154	.0869	.2035	.91	-1.0	.81	-.9	.58	.52	79.7	74.0	-.0033	749167
28	103	177	.7581	.1770	1.40	4.7	1.36	2.3	.15	.46	57.7	72.7	.0031	749168
29	127	177	-.0426	.1912	.76	-2.9	.64	-2.1	.63	.43	85.7	76.6	.0029	749169
30	60	177	2.1089	.1838	1.35	3.9	1.52	2.2	.16	.42	63.4	74.6	.0032	749170
31	64	154	1.4207	.1944	1.06	.8	1.08	.6	.44	.47	70.6	72.1	-.0031	749218
32	109	177	.5682	.1791	1.24	2.9	1.18	1.2	.27	.45	61.7	73.4	.0030	749219
33	129	177	-.1165	.1933	.85	-1.7	.71	-1.5	.55	.43	82.3	77.2	.0029	749220
34	108	154	-.3069	.2157	1.06	.6	1.14	.6	.49	.53	74.8	77.9	-.0033	749233
35	95	177	1.0063	.1755	.98	-.2	.89	-.8	.46	.46	69.1	72.1	.0031	749234
36	84	154	.6747	.1940	1.30	3.5	1.33	2.0	.33	.51	62.9	71.8	-.0032	749250
37	105	154	-.1704	.2109	1.22	2.1	2.02	3.4	.37	.53	74.1	76.3	-.0033	751420
38	107	177	.6320	.1783	.87	-1.7	.77	-1.6	.55	.45	77.1	73.1	.0030	751421
39	102	154	-.0394	.2069	.83	-1.9	.65	-1.7	.64	.53	76.2	75.0	-.0033	751422
40	61	154	1.5347	.1956	1.06	.7	1.10	.8	.41	.47	68.5	72.6	-.0031	751423
41	98	154	.1282	.2025	.81	-2.2	.64	-2.0	.64	.52	79.0	73.7	-.0033	751424
MEAN	164.8	266.4	.4002	.1610	1.01	.1	1.01	.0			74.5	75.1	-.0018	
P.SD	64.3	81.1	.7563	.0292	.17	2.2	.29	1.7			7.4	3.9	.2039	

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Grade 7 Reading

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	READ
1	254	330	-.5151A	.1547	.94	-.7	.80	-1.3	.54	.49	81.3	81.0	-.1101	651358
2	167	330	.9711A	.1282	1.10	1.9	1.15	1.7	.38	.45	63.9	70.1	.0550	651360
3	222	330	.1965A	.1362	.73	-5.0	.60	-4.1	.65	.48	83.9	73.7	-.1276	651367
4	193	330	.4099A	.1329	1.29	4.7	1.38	3.4	.31	.47	60.0	72.2	.1848	651374
5	229	330	-.0632A	.1415	1.16	2.3	1.20	1.5	.37	.48	70.6	76.0	-.0028	651404
6	214	330	-.2320A	.1458	1.16	2.1	1.06	.5	.51	.49	73.2	77.7	.4589	675942
7	191	330	.6984A	.1297	.90	-1.9	.82	-2.1	.52	.46	74.2	70.8	-.0717	675960
8	228	330	.3610A	.1335	.96	-.8	.85	-1.5	.47	.47	73.2	72.5	-.4160	691102
9	182	330	.4014A	.1330	.97	-.4	.98	-.1	.55	.47	71.9	72.3	.3795	691103
10	258	330	-.7332A	.1630	.84	-1.8	.59	-2.5	.63	.50	83.5	83.6	.0078	691106
11	241	330	-.4673A	.1530	.96	-.5	.80	-1.2	.58	.49	79.0	80.5	.1529	691107
12	284	330	-1.2866A	.1912	.77	-1.8	.58	-1.9	.56	.51	91.6	89.2	-.3220	691112
13	120	330	1.9401A	.1327	1.07	1.3	1.09	.8	.37	.40	71.0	72.1	-.1322	707858
14	131	330	1.6946A	.1300	1.02	.3	.99	-.1	.42	.41	68.7	70.8	-.0751	707860
15	190	330	.6381A	.1303	.89	-2.1	.87	-1.4	.54	.46	74.5	71.1	.0061	707862
16	226	330	-.2293A	.1458	.91	-1.2	.76	-1.8	.61	.49	76.5	77.7	.2267	707863
17	183	330	.9253A	.1283	.97	-.6	.91	-1.0	.47	.45	71.0	70.2	-.1636	707864
18	198	330	.2081A	.1360	1.14	2.2	1.12	1.1	.44	.48	66.5	73.6	.3020	707865
19	158	330	1.7205A	.1303	1.07	1.2	1.10	1.0	.46	.41	70.0	70.9	-.5350	707866
20	240	330	-.5714A	.1567	.93	-.8	.74	-1.6	.64	.50	78.7	81.7	.2806	707867
21	159	330	1.3171A	.1280	1.00	-.1	.97	-.3	.43	.43	68.7	70.0	-.1585	707868
22	233	330	-.1493A	.1436	.83	-2.6	.68	-2.6	.61	.49	79.7	76.9	.0021	707869
23	254	330	-.5714A	.1567	.97	-.3	.98	-.1	.51	.50	82.6	81.7	-.0523	707872
24	190	330	.5685A	.1310	.94	-1.1	.88	-1.3	.52	.47	73.2	71.4	.0762	707873
25	169	330	.9797A	.1281	1.31	5.6	1.33	3.6	.23	.45	57.4	70.1	.0137	707874
26	106	167	.0271	.1893	1.03	.5	1.03	.2	.46	.48	69.7	71.9	-.0019	749172
27	94	167	.4406	.1827	.96	-.6	.94	-.4	.50	.47	71.6	70.0	-.0019	749173
28	47	167	2.0436	.1973	1.26	2.6	1.36	1.7	.22	.40	69.7	75.6	-.0018	749174
29	20	163	3.7403	.2546	1.38	2.1	3.25	4.7	-.15	.24	85.2	87.2	.0036	749175
30	114	167	-.2712	.1973	.90	-1.1	.74	-1.5	.56	.49	77.4	74.8	-.0019	749176
31	63	163	1.9224	.1814	1.24	3.2	1.28	2.2	.20	.38	61.9	69.5	.0031	749177
32	114	163	.2030	.1997	.88	-1.2	.82	-1.1	.56	.47	78.1	76.4	.0027	749222
33	88	163	1.1181	.1802	1.17	2.4	1.18	1.7	.30	.43	60.0	69.3	.0029	749235
34	91	167	.5402	.1818	.88	-1.7	.85	-1.2	.55	.47	75.5	69.8	-.0019	749242
35	90	163	1.0530	.1808	.92	-1.2	.88	-1.1	.49	.43	71.6	69.6	.0029	749243
36	99	167	.2718	.1848	1.21	2.7	1.25	1.7	.33	.48	60.6	70.6	-.0019	749244
37	84	163	1.2471	.1792	1.37	4.9	1.48	4.1	.16	.42	54.2	68.9	.0029	751512
38	60	163	2.0219	.1827	1.14	1.8	1.20	1.5	.26	.37	64.5	70.0	.0032	751513
39	51	167	1.8913	.1932	1.29	3.0	1.38	1.9	.23	.41	64.5	74.3	-.0018	751516
40	108	167	-.0452	.1910	.96	-.5	.92	-.5	.51	.48	73.5	72.5	-.0019	751517
41	53	163	2.2608	.1870	1.19	2.3	1.29	2.0	.22	.35	65.8	72.2	.0032	751518
MEAN	156.0	265.6	.6506	.1606	1.04	.5	1.05	.1			71.9	74.2	-.0003	
P.SD	70.4	80.5	1.0022	.0294	.17	2.2	.42	1.9			8.0	5.0	.1792	

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Grade 8 Reading

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	READ
1	214	317	.6102A	.1390	.82	-3.0	.70	-2.6	.60	.45	81.8	74.7	.0210	651418
2	242	317	.4700A	.1417	.77	-3.8	.59	-3.5	.55	.45	80.5	75.7	-.4450	651430
3	165	317	1.2443A	.1317	1.05	.9	.99	-.1	.44	.46	68.8	71.8	.2614	651434
4	209	317	.4593A	.1419	.78	-3.6	.64	-3.0	.69	.45	83.4	75.8	.2719	651435
5	251	317	.2154A	.1475	.98	-.2	.90	-.6	.35	.44	79.5	78.0	-.4088	651445
6	266	317	-.5972	.1777	.84	-1.5	.58	-1.9	.55	.42	87.0	86.5	.0002	675976
7	179	317	.7410A	.1369	1.09	1.5	1.01	.1	.50	.45	67.9	73.8	.5276	691114
8	233	317	.0796A	.1513	.91	-1.1	.72	-1.8	.57	.44	79.9	79.4	.1707	691115
9	151	317	2.1980A	.1328	1.04	.6	1.07	.8	.48	.43	71.4	72.4	-.4463	691116
10	237	317	-.0184A	.1543	1.32	3.7	1.76	3.5	.23	.43	76.0	80.4	.1816	691117
11	268	317	-.7802A	.1875	.98	-.1	.71	-1.0	.51	.41	87.3	88.3	.1228	691118
12	255	317	-.1769A	.1597	.91	-1.0	.65	-1.9	.49	.43	82.1	82.1	-.1058	691124
13	180	317	1.0710A	.1330	1.02	.3	1.04	.4	.46	.46	70.5	72.3	.1774	691129
14	144	317	2.3409A	.1342	1.52	7.6	1.82	7.1	.14	.42	57.1	73.0	-.4669	707824
15	187	317	1.0613A	.1331	1.24	4.0	1.22	2.1	.29	.46	61.0	72.3	.0640	707825
16	191	317	1.0533	.1332	.84	-3.0	.73	-2.9	.58	.46	77.9	72.3	.0006	707826
17	118	317	2.0258A	.1316	1.07	1.2	1.19	2.1	.37	.44	69.5	71.9	.2876	707827
18	207	317	.8136A	.1359	.82	-3.3	.80	-1.9	.59	.45	80.8	73.4	-.0515	707828
19	169	317	1.8585A	.1309	.97	-.5	.96	-.5	.49	.44	73.4	71.5	-.4196	707829
20	196	317	.6826A	.1378	1.15	2.3	1.23	1.8	.40	.45	70.8	74.2	.2865	707830
21	218	317	.7889A	.1362	.90	-1.8	.86	-1.2	.50	.45	77.3	73.5	-.2428	707831
22	230	317	.1587A	.1490	.78	-3.2	.61	-2.7	.66	.44	83.1	78.6	.1550	707834
23	213	317	.8238A	.1358	1.32	4.9	1.42	3.3	.18	.45	61.4	73.3	-.1785	707835
24	109	317	2.4464A	.1354	1.10	1.6	1.20	1.9	.33	.41	69.8	73.4	.0331	707838
25	143	317	1.7057A	.1305	1.09	1.7	1.05	.6	.38	.45	65.9	71.4	.1732	707839
26	64	150	1.9905	.1936	.96	-.5	.93	-.5	.49	.46	71.0	72.5	.0006	751448
27	109	150	.2364	.2142	1.03	.3	.92	-.3	.45	.46	76.6	77.6	-.0002	751449
28	126	167	.1705	.2046	.92	-.8	.75	-1.2	.49	.42	79.8	78.8	.0007	751451
29	98	167	1.1785	.1804	.83	-2.3	.79	-1.8	.57	.44	80.4	71.5	.0010	751452
30	108	167	.8450	.1854	.92	-1.0	.86	-.9	.50	.43	75.5	72.8	.0009	751453
31	103	150	.5007	.2061	.92	-.9	.71	-1.5	.55	.47	73.1	75.6	-.0001	751454
32	48	150	2.6139	.2028	1.20	2.0	1.26	1.5	.30	.42	67.6	75.0	.0008	751455
33	99	150	.6671	.2020	1.09	1.0	1.02	.1	.41	.47	71.7	74.6	.0000	751456
34	126	167	.1705	.2046	.73	-2.9	.50	-2.7	.66	.42	82.2	78.8	.0007	751458
35	76	167	1.8790	.1783	1.28	3.5	1.31	2.7	.20	.42	60.1	70.8	.0013	751459
36	91	167	1.4037	.1786	.84	-2.2	.76	-2.3	.56	.43	74.8	71.1	.0011	751461
37	83	150	1.2865	.1932	.89	-1.4	.81	-1.4	.56	.48	75.2	72.2	.0002	751462
38	62	167	2.3329	.1826	1.20	2.4	1.26	2.0	.25	.40	65.0	72.3	.0014	751463
39	95	150	.8276	.1988	.87	-1.5	.78	-1.4	.57	.48	80.0	73.8	.0000	751464
40	69	167	2.1032	.1799	1.63	7.0	1.99	7.0	-.09	.41	52.8	71.4	.0014	751465
41	58	150	2.2178	.1960	1.17	1.9	1.29	2.0	.33	.45	66.2	73.2	.0007	751467
MEAN	155.9	255.1	1.0171	.1624	1.02	.2	.98	.0			73.6	74.9	-.0005	
P.SD	65.4	77.5	.8621	.0283	.20	2.7	.34	2.4			8.1	4.0	.2105	

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Grade 11 Reading

ENTRY	TOTAL	TOTAL	MODEL	INFIT	OUTFIT	PTBISERL-EX	EXACT	MATCH						
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	READ
1	224	292	-.5842A	.1735	1.02	.2	1.06	.4	.54	.57	83.3	83.1	-.1108	651429
2	132	292	1.1711A	.1393	1.03	.5	1.01	.1	.45	.48	70.4	71.1	.2034	651440
3	166	292	.7339A	.1421	.85	-2.5	.80	-2.1	.60	.51	76.7	72.3	-.0248	651448
4	185	292	.1906A	.1504	1.10	1.4	1.13	1.0	.50	.54	73.3	75.7	.1207	651450
5	163	292	.3253A	.1478	.97	-.4	.85	-1.3	.60	.53	72.6	74.7	.4464	651467
6	221	292	-.2977A	.1632	.81	-2.3	.62	-2.6	.63	.56	85.6	80.2	-.3102	673895
7	202	292	-.3858A	.1662	.83	-1.9	.59	-2.7	.73	.56	81.1	81.1	.3064	675987
8	182	292	.2917A	.1484	.90	-1.5	.74	-2.3	.61	.53	77.0	74.9	.0844	691130
9	195	292	.1677A	.1509	1.21	2.8	1.56	3.7	.40	.54	68.9	75.9	-.0851	691132
10	211	292	-.4190A	.1673	.95	-.5	.86	-.7	.61	.56	81.1	81.4	.1062	691135
11	231	292	-.9722A	.1912	.86	-1.2	.54	-2.2	.69	.58	86.3	86.8	.0460	691139
12	188	292	.2917A	.1484	.91	-1.4	.93	-.6	.58	.53	79.3	74.9	-.0487	691140
13	210	292	-.0041A	.1549	1.07	1.0	1.30	1.9	.45	.55	77.8	77.4	-.2908	691141
14	228	292	-.7030A	.1784	.86	-1.4	.69	-1.5	.63	.57	86.3	84.2	-.1232	691142
15	174	292	.6121A	.1435	.99	-.1	1.05	.5	.52	.52	74.4	72.9	-.0676	707877
16	186	292	.1049A	.1523	.90	-1.4	.79	-1.6	.63	.54	80.4	76.4	.1852	707879
17	135	292	1.2041A	.1392	1.21	3.4	1.25	2.5	.34	.48	64.8	71.0	.1131	707880
18	129	292	1.1671A	.1393	1.38	5.9	1.48	4.5	.26	.48	55.2	71.1	.2650	707882
19	177	292	.2144A	.1499	.89	-1.5	.80	-1.7	.63	.54	80.4	75.5	.2698	707884
20	228	292	-.6897A	.1779	.81	-1.9	.67	-1.7	.65	.57	87.8	84.1	-.1369	707886
21	200	292	.0479A	.1536	.94	-.8	.92	-.6	.57	.54	80.0	76.9	-.0843	707887
22	173	292	.9500A	.1403	1.02	.3	1.11	1.1	.48	.50	69.6	71.6	-.3841	707888
23	138	292	1.4136A	.1391	1.47	7.1	1.65	5.6	.20	.47	54.1	71.0	-.1507	707890
24	144	292	1.4274A	.1391	1.14	2.3	1.17	1.7	.41	.47	66.7	71.0	-.2784	707891
25	214	292	-.1264A	.1581	.72	-3.8	.53	-3.6	.68	.55	84.4	78.5	-.2771	707892
26	99	143	-.0049	.2220	.95	-.5	1.13	.7	.55	.54	85.1	77.8	-.0012	749178
27	109	149	-.4753	.2363	.79	-1.7	.55	-2.1	.70	.57	85.3	81.6	.0021	749180
28	58	143	1.7121	.2004	1.04	.5	1.02	.2	.44	.45	68.7	72.1	-.0007	749181
29	99	143	-.0049	.2220	.85	-1.4	.67	-1.6	.63	.54	80.6	77.8	-.0012	749182
30	108	143	-.4885	.2435	.98	-.1	.89	-.3	.57	.55	81.3	82.4	-.0013	749183
31	62	143	1.5524	.1994	.98	-.2	.97	-.1	.46	.46	74.6	71.8	-.0007	749184
32	72	143	1.1559	.1994	1.02	.3	.99	.0	.47	.48	66.4	71.6	-.0008	749236
33	82	149	.7457	.1984	.88	-1.5	.83	-1.3	.58	.51	74.3	71.9	.0025	749237
34	98	143	.0440	.2202	1.09	.9	1.04	.3	.48	.54	73.9	77.4	-.0012	749238
35	85	149	.6267	.2002	.81	-2.3	.74	-2.0	.63	.52	79.4	72.5	.0025	749248
36	52	149	1.8951	.1987	1.31	3.4	1.62	3.1	.19	.42	63.2	71.4	.0029	749249
37	105	149	-.2620	.2263	1.05	.4	1.06	.3	.53	.56	80.1	79.4	.0021	749252
38	116	143	-1.0269	.2785	.73	-1.6	.42	-1.8	.72	.57	89.6	87.7	-.0013	749253
39	51	149	1.9347	.1993	1.16	1.8	1.23	1.3	.32	.42	65.4	71.5	.0030	751400
40	69	149	1.2443	.1945	.87	-1.7	.85	-1.2	.56	.48	76.5	70.5	.0027	751634
41	78	149	.9014	.1965	1.27	3.0	1.24	1.7	.34	.50	59.6	71.3	.0026	751636
MEAN	145.8	235.0	.3825	.1778	.99	.0	.96	-.1			75.6	76.2	-.0052	
P.SD	56.8	71.2	.7969	.0345	.17	2.2	.30	2.0			8.7	4.8	.1662	

Appendix L: Mathematics Item Bank Difficulties

Grade 3 Mathematics

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	MATH
1	149	246	-.0768A	.1700	.93	-.9	.84	-1.0	.65	.62	74.8	75.1	-.2082	650590
2	166	246	-.8407A	.1913	1.16	1.5	1.48	1.8	.60	.66	78.1	81.6	-.0041	650591
3	128	246	.2947A	.1646	.98	-.2	1.02	.2	.61	.60	71.0	73.3	.0208	650608
4	128	246	-.0275A	.1691	1.09	1.2	1.04	.3	.59	.62	70.5	74.8	.3450	650613
5	127	246	.4829A	.1630	1.27	3.5	1.45	2.8	.47	.59	61.4	72.9	-.1411	650661
6	183	246	-1.4892A	.2227	.67	-2.6	.40	-2.2	.79	.68	90.5	87.6	-.0881	676133
7	108	246	.6726A	.1620	1.06	.9	1.06	.5	.53	.57	71.4	72.7	.1713	676139
8	180	246	-1.8283A	.2449	1.25	1.4	.84	-.3	.73	.70	86.7	90.2	.4035	690921
9	151	246	.0263A	.1682	.87	-1.8	.80	-1.3	.67	.61	80.5	74.5	-.3754	690922
10	156	246	-.5685A	.1820	.93	-.7	.76	-1.2	.69	.65	79.0	79.1	.0683	690924
11	111	246	.8318A	.1617	1.08	1.2	1.12	.9	.52	.56	69.0	72.7	-.0656	691213
12	153	246	-.3283A	.1754	1.04	.5	1.08	.5	.62	.63	75.2	77.0	-.0783	707612
13	72	246	1.8022A	.1697	1.19	2.3	1.36	1.6	.37	.48	71.9	75.4	.0144	707613
14	187	246	-1.4051A	.2178	.70	-2.4	.40	-2.3	.75	.68	90.5	86.9	-.3973	707614
15	118	246	.2655A	.1650	.99	-.2	.91	-.6	.61	.60	76.2	73.4	.3175	707615
16	187	246	-2.2238A	.2762	1.04	.3	.61	-.8	.78	.70	91.4	92.5	.4273	707617
17	97	246	1.5466A	.1659	1.32	3.9	1.49	2.4	.42	.50	63.3	74.2	-.4030	707618
18	157	246	-.5524A	.1815	.93	-.8	.73	-1.4	.68	.65	77.6	79.0	.0190	707621
19	92	246	.7107A	.1619	.97	-.4	.96	-.2	.56	.57	75.2	72.7	.5529	707623
20	122	246	.4020A	.1636	.82	-2.7	.75	-1.9	.67	.59	81.4	73.0	.0744	707624
21	142	246	-.0058A	.1688	.91	-1.2	.81	-1.2	.66	.62	76.2	74.7	-.0697	707625
22	151	246	-.4381A	.1782	1.02	.3	1.10	.5	.63	.64	78.6	78.0	.0963	707626
23	167	246	-.4381A	.1782	.77	-2.8	.64	-2.1	.71	.64	84.3	78.0	-.4532	707627
24	135	246	.4470A	.1633	1.04	.6	.97	-.2	.58	.59	71.9	73.0	-.3256	707628
25	99	246	.9360A	.1618	1.09	1.2	1.19	1.3	.50	.55	70.0	72.8	.1431	707629
26	88	131	-.5777	.2431	.93	-.6	.90	-.2	.63	.60	83.6	78.3	-.0014	748785
27	36	115	1.5203	.2445	1.14	1.4	1.19	.7	.44	.50	67.0	72.6	.0034	748786
28	81	131	-.1863	.2308	1.07	.7	1.15	.7	.56	.59	78.4	75.2	-.0015	748787
29	40	115	1.2848	.2408	1.25	2.4	1.45	1.5	.39	.52	64.9	71.9	.0034	748788
30	75	131	.1241	.2246	1.40	3.7	1.69	2.9	.38	.58	62.9	74.0	-.0014	748789
31	53	115	.5393	.2411	1.11	1.1	.98	.0	.56	.59	67.0	72.0	.0035	748791
32	62	115	-.0045	.2525	.69	-3.0	.53	-2.3	.78	.64	83.0	75.1	.0035	748792
33	57	115	.3036	.2448	.87	-1.2	.77	-1.0	.67	.62	76.6	73.0	.0035	748794
34	70	131	.3727	.2216	1.07	.8	1.11	.6	.54	.57	72.4	73.5	-.0014	748795
35	75	131	.1241	.2246	1.00	.1	1.19	1.0	.58	.58	75.0	74.0	-.0014	748796
36	69	115	-.4800	.2707	.71	-2.2	.49	-2.0	.80	.68	80.9	79.4	.0034	748798
37	49	131	1.3959	.2235	.87	-1.3	.87	-.6	.56	.52	81.9	75.1	-.0014	748799
38	64	115	-.1340	.2566	.93	-.6	.80	-.8	.68	.65	78.7	76.2	.0035	748800
39	61	131	.8095	.2198	.92	-.7	.91	-.5	.58	.55	77.6	73.9	-.0014	748801
40	79	131	-.0809	.2284	1.00	.1	.96	-.1	.59	.59	76.7	74.6	-.0015	748802
41	51	115	.6549	.2399	1.00	.0	.91	-.3	.58	.58	72.3	71.7	.0035	748803
MEAN	109.2	198.0	.0942	.2033	1.00	.1	.97	-.1			76.0	76.2	.0015	
P.SD	44.9	60.2	.8701	.0366	.17	1.7	.30	1.3			7.2	4.9	.2095	

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Grade 4 Mathematics

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	MATH
1	174	260	.2099A	.1580	.95	-.7	.87	-.9	.57	.56	76.6	74.0	-.4286	650757
2	173	260	.2814A	.1569	.69	-5.0	.56	-4.0	.72	.56	84.0	73.6	-.4736	650766
3	179	260	-.4676A	.1739	1.12	1.3	.96	-.1	.55	.59	74.9	78.9	.1244	650770
4	152	260	.3913A	.1555	1.08	1.2	1.09	.7	.51	.56	68.4	73.1	-.0304	650772
5	164	260	.4012A	.1554	.79	-3.3	.67	-2.9	.66	.55	79.7	73.0	-.3478	650774
6	180	260	-.5542A	.1768	.90	-1.1	.70	-1.6	.68	.59	81.4	79.8	.1832	650779
7	136	260	1.0369A	.1517	1.04	.6	1.04	.4	.51	.52	71.9	71.5	-.2966	650783
8	164	260	.0776A	.1603	.79	-3.2	.63	-2.8	.68	.57	83.1	74.8	-.0163	650784
9	176	260	-.4648A	.1738	.96	-.4	.93	-.3	.64	.59	78.8	78.9	.2090	650792
10	112	260	1.0955A	.1517	1.05	.8	1.08	.8	.48	.52	70.1	71.6	.1980	650931
11	190	260	-.5058A	.1752	.88	-1.3	.87	-.6	.62	.59	84.0	79.3	-.1869	676143
12	155	260	.1309A	.1593	.84	-2.3	.75	-1.9	.66	.57	79.2	74.5	.1599	676146
13	164	260	-.3401A	.1700	.99	-.1	.93	-.3	.66	.58	77.1	77.8	.4087	676160
14	170	260	-.0971	.1638	1.06	.8	1.07	.5	.54	.57	71.4	76.0	.0011	676163
15	181	260	-.2611A	.1679	1.02	.3	.84	-.9	.55	.58	71.9	77.1	-.1490	690950
16	141	260	.6828A	.1528	1.35	4.8	1.38	3.2	.36	.54	58.9	72.0	-.0595	707631
17	134	260	.5579A	.1538	.89	-1.8	.85	-1.3	.61	.55	74.5	72.4	.2308	707632
18	181	260	-.1589A	.1653	1.05	.7	.96	-.2	.53	.58	73.6	76.4	-.2552	707633
19	188	260	-.6214	.1792	1.01	.2	.83	-.8	.59	.59	79.7	80.5	.0009	707634
20	111	260	1.0101A	.1517	1.07	1.1	1.09	.9	.47	.52	67.1	71.6	.3065	707635
21	214	260	-2.0531A	.2705	1.20	1.0	1.45	1.1	.66	.63	91.3	93.1	.3646	707636
22	198	260	-.6015A	.1785	.92	-.8	.94	-.2	.58	.59	82.3	80.3	-.3820	707637
23	176	260	-.6617A	.1807	1.06	.7	1.03	.2	.65	.59	77.9	81.0	.4087	707638
24	94	260	1.3220A	.1523	1.11	1.6	1.07	.7	.41	.50	67.1	72.0	.3938	707639
25	145	260	.8472A	.1520	1.21	3.0	1.18	1.7	.42	.53	62.8	71.7	-.3204	707640
26	179	260	-.0566A	.1629	1.01	.1	.98	-.1	.54	.57	73.6	75.7	-.3004	707641
27	156	260	.2135A	.1580	.96	-.5	.90	-.7	.59	.56	72.3	74.0	.0509	707642
28	119	260	1.0508A	.1517	1.14	2.2	1.21	2.0	.45	.52	65.4	71.5	.0817	707643
29	194	260	-.9866A	.1947	.94	-.5	.78	-.8	.67	.60	83.1	84.5	.1700	707645
30	119	260	1.0990A	.1517	1.04	.6	1.03	.3	.49	.52	72.3	71.6	.0336	708810
31	32	125	2.5224	.2471	1.26	1.9	1.49	1.7	.30	.43	74.8	79.0	.0028	748804
32	102	135	-.8981	.2603	.97	-.2	.87	-.3	.61	.58	83.3	83.1	.0008	748805
33	92	135	-.3041	.2307	.65	-3.6	.48	-2.9	.77	.56	87.5	76.4	.0009	748807
34	63	135	1.0325	.2078	1.13	1.5	1.15	1.2	.44	.51	65.0	71.1	.0012	748809
35	93	125	-.8118	.2741	1.20	1.3	1.10	.4	.53	.61	78.4	83.3	.0011	748811
36	77	125	.1832	.2326	.82	-1.8	.67	-1.6	.67	.58	82.0	75.3	.0014	748812
37	41	135	2.0204	.2204	1.01	.2	1.00	.1	.42	.43	75.0	74.0	.0013	748813
38	101	125	-1.5266	.3311	.93	-.2	.82	-.2	.67	.63	89.2	89.6	.0010	748814
39	90	135	-.1995	.2269	.99	-.1	.84	-.7	.57	.56	70.8	75.5	.0009	748815
40	81	125	-.0385	.2388	1.08	.8	1.63	2.2	.54	.59	76.6	76.7	.0013	748816
41	42	125	1.9551	.2310	1.31	2.6	1.31	1.5	.37	.48	63.1	75.2	.0025	748817
42	38	125	2.1730	.2362	1.28	2.3	1.51	2.1	.32	.46	69.4	76.6	.0026	748818
43	74	135	.5541	.2103	.85	-1.7	.77	-1.8	.62	.53	79.2	71.5	.0010	748819
44	72	135	.6421	.2094	1.10	1.1	1.11	.9	.48	.53	67.5	71.3	.0011	748821
45	66	135	.9030	.2079	1.05	.6	1.16	1.3	.49	.51	70.8	71.0	.0011	748822
46	81	125	-.0385	.2388	.95	-.4	.88	-.4	.62	.59	74.8	76.7	.0013	748823
MEAN	129.7	214.8	.2336	.1915	1.02	.1	.99	-.1			75.2	76.3	.0022	
P.SD	50.0	62.0	.9324	.0422	.15	1.8	.25	1.5			7.2	4.8	.2110	

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Grade 5 Mathematics

ENTRY	TOTAL	TOTAL		MODEL	INFIT	OUTFIT	PTBISERL-EX	EXACT	MATCH						
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	MATH	
1	216	311	-.1999A	.1438	.87	-2.2	.74	-1.9	.57	.52	76.2	74.4	-.2436	650955	
2	128	311	1.0293A	.1355	1.19	3.1	1.28	2.6	.34	.48	67.2	72.0	.2174	651002	
3	243	311	-.7191A	.1570	.94	-.8	1.11	.6	.47	.53	85.2	80.1	-.4152	651007	
4	176	311	.1053A	.1390	.88	-2.1	.80	-1.8	.61	.51	73.8	72.1	.2642	651009	
5	218	311	-.4217A	.1486	1.03	.4	1.17	1.1	.50	.52	76.2	76.7	-.0599	651010	
6	250	311	-1.4569A	.1892	.89	-.9	.52	-2.0	.67	.54	87.2	87.9	.1218	651017	
7	165	311	.1897A	.1381	1.08	1.4	1.11	1.0	.49	.51	69.0	71.7	.3834	651022	
8	241	311	-.9017A	.1633	.80	-2.4	.72	-1.4	.62	.53	85.9	82.2	-.1630	651025	
9	137	311	.9270A	.1352	1.05	.8	1.08	.8	.45	.49	71.4	71.7	.1534	651030	
10	218	311	-.9016A	.1633	1.09	1.0	.78	-1.0	.62	.53	75.9	82.2	.4292	651039	
11	228	311	-1.1097A	.1718	1.15	1.5	.92	-.3	.59	.53	79.0	84.4	.4019	673364	
12	122	311	1.6006A	.1402	1.02	.3	1.01	.2	.48	.45	75.2	74.3	-.2375	673369	
13	200	311	-.1937A	.1437	.91	-1.4	.99	.0	.58	.52	79.7	74.4	.0984	676194	
14	184	311	.3519A	.1366	1.00	.0	.90	-.9	.50	.50	67.6	71.3	-.1407	676196	
15	213	311	-.3690	.1474	.90	-1.5	.70	-2.1	.59	.52	76.6	76.1	-.0002	676197	
16	224	311	-.3782A	.1476	.79	-3.4	.66	-2.4	.63	.52	80.3	76.2	-.2490	676201	
17	156	311	.4028A	.1362	.92	-1.4	.84	-1.5	.56	.50	73.8	71.2	.3335	690951	
18	253	311	-1.0288A	.1684	.70	-3.5	.61	-2.0	.62	.53	90.0	83.6	-.4280	707649	
19	202	311	-.0615A	.1414	.85	-2.7	.71	-2.4	.61	.51	76.6	73.3	-.0790	707650	
20	209	311	-.4757A	.1500	.96	-.5	1.18	1.1	.58	.52	77.9	77.3	.1969	707651	
21	198	311	.1363A	.1387	1.06	1.1	.99	.0	.46	.51	67.9	72.0	-.1998	707652	
22	226	311	-.7834A	.1591	.96	-.5	.87	-.6	.60	.53	79.3	80.9	.1205	707653	
23	132	311	.9858A	.1353	1.36	5.6	1.41	3.8	.26	.48	58.3	71.9	.1867	707655	
24	130	311	1.1147A	.1359	.94	-.9	.92	-.8	.49	.48	75.2	72.3	.0946	707659	
25	189	311	.5055A	.1357	.93	-1.3	.83	-1.7	.54	.50	74.5	71.1	-.3972	707660	
26	164	311	.7619A	.1350	.86	-2.7	.79	-2.2	.59	.49	77.9	71.4	-.1779	707662	
27	167	311	.8550A	.1350	1.24	4.0	1.18	1.8	.35	.49	60.0	71.6	-.3281	707663	
28	215	311	-.4128	.1484	1.06	.8	1.01	.1	.49	.52	75.9	76.6	-.0002	707664	
29	249	311	-1.2878A	.1802	.85	-1.4	.61	-1.6	.63	.54	87.6	86.3	-.0172	707665	
30	170	311	.5055A	.1357	1.06	1.1	1.04	.4	.47	.50	67.2	71.1	-.0298	707666	
31	74	171	1.3223	.1859	1.07	.9	1.03	.2	.44	.49	72.7	73.9	.0029	748824	
32	118	171	-.2457	.2018	1.16	1.6	1.51	2.1	.42	.54	77.0	77.0	.0021	748825	
33	58	140	.9969	.1989	1.02	.3	1.10	.9	.44	.45	72.1	70.2	-.0022	748826	
34	73	140	.4122	.1976	1.25	3.1	1.26	2.0	.30	.47	56.6	69.4	-.0023	748827	
35	86	140	-.1094	.2044	1.02	.3	.99	.0	.47	.49	72.9	71.2	-.0024	748828	
36	70	140	.5290	.1971	.99	.0	.96	-.3	.47	.47	69.8	69.3	-.0023	748829	
37	91	171	.7404	.1853	1.02	.3	.97	-.2	.50	.52	73.3	72.8	.0025	748830	
38	102	171	.3574	.1887	1.12	1.5	1.00	.0	.46	.53	63.4	72.7	.0023	748831	
39	37	140	1.8935	.2188	1.22	2.0	1.59	2.9	.20	.39	70.5	76.3	-.0020	748832	
40	84	140	-.0265	.2028	.91	-1.1	.83	-1.1	.55	.49	76.0	70.7	-.0024	748836	
41	65	171	1.6377	.1888	1.03	.3	1.09	.6	.43	.47	75.2	74.7	.0031	748837	
42	39	171	2.6557	.2111	2.00	7.2	3.32	5.9	-.15	.39	63.4	79.8	.0037	748838	
43	97	140	-.5987	.2189	.93	-.7	.84	-.7	.56	.50	75.2	75.8	-.0025	748839	
44	97	171	.5332	.1867	.94	-.8	.92	-.5	.56	.52	73.3	72.6	.0024	748841	
45	79	140	.1758	.1997	1.04	.5	.93	-.5	.46	.48	65.1	69.9	-.0024	748842	
46	122	171	-.4128	.2074	.85	-1.5	.85	-.5	.62	.54	81.4	78.8	.0020	748843	
MEAN	154.7	256.9	.1876	.1658	1.02	.1	1.01	-.1			74.0	75.1	-.0035		
P.S.D	64.0	74.6	.8737	.0280	.20	2.1	.41	1.7			7.3	4.6	.1974		

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Grade 6 Mathematics

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	MATH
1	208	331	-.0371A	.1334	1.29	4.8	1.60	4.6	.26	.47	63.8	72.6	.0837	651322
2	228	331	-.3205	.1385	1.07	1.1	1.09	.7	.42	.47	72.1	75.1	.0007	651323
3	231	331	-.3968A	.1402	1.17	2.5	1.41	2.7	.34	.47	74.0	75.9	.0193	651332
4	260	331	-.8940A	.1546	.92	-1.0	.80	-1.1	.49	.47	81.7	81.4	-.1244	651334
5	143	331	.8917A	.1278	1.02	.4	1.06	.7	.43	.45	69.6	69.7	.2313	651339
6	220	331	-.3878A	.1400	1.15	2.2	1.29	2.0	.42	.47	71.8	75.8	.2217	651341
7	251	331	-.8940A	.1546	.93	-.9	.74	-1.5	.58	.47	80.1	81.4	.0974	651348
8	256	331	-.9881A	.1580	.95	-.5	.89	-.6	.53	.47	81.4	82.5	.0735	651350
9	176	331	.6168A	.1278	.98	-.4	1.07	.8	.48	.46	73.1	69.5	-.0342	651353
10	196	331	.3908A	.1288	.86	-2.9	.76	-2.8	.56	.46	76.3	69.9	-.1414	651392
11	224	331	.0454A	.1323	.94	-1.0	.93	-.6	.47	.47	76.6	71.9	-.2961	673372
12	144	331	.9465A	.1280	.95	-1.1	.92	-.9	.48	.45	72.8	69.8	.1598	673373
13	228	331	-.4578A	.1416	1.10	1.4	1.17	1.2	.43	.47	74.0	76.5	.1406	676241
14	205	331	.0675A	.1320	.86	-2.7	.78	-2.2	.58	.47	78.2	71.8	.0304	690969
15	267	331	-1.1235A	.1635	.86	-1.5	.97	-.1	.53	.47	85.9	84.0	-.0792	690972
16	260	331	-1.2248A	.1679	.89	-1.1	.60	-2.1	.64	.47	84.3	85.1	.2138	690981
17	203	331	-.0035A	.1329	.99	-.1	1.03	.3	.49	.47	71.8	72.3	.1375	707667
18	239	331	-.4392A	.1412	.87	-1.9	.74	-2.0	.55	.47	78.8	76.3	-.1016	707668
19	166	331	1.1363A	.1289	1.12	2.1	1.14	1.5	.41	.45	67.0	70.5	-.3897	707670
20	175	331	.7350A	.1277	1.08	1.6	1.15	1.7	.40	.46	67.6	69.4	-.1366	707671
21	253	331	-.8078A	.1516	.93	-.8	.85	-.9	.51	.47	82.7	80.4	-.0381	707672
22	178	331	.9984A	.1282	.94	-1.1	.96	-.5	.53	.45	73.7	70.0	-.4498	707673
23	150	331	.6760A	.1277	.95	-1.0	.88	-1.5	.49	.46	71.5	69.4	.3323	707675
24	193	331	.4651A	.1284	.89	-2.2	.81	-2.2	.54	.46	72.1	69.7	-.1654	707676
25	148	331	.7529A	.1277	1.00	.0	.99	-.1	.45	.46	71.8	69.5	.2880	707677
26	212	331	-.0259	.1333	1.03	.5	1.07	.6	.45	.47	71.5	72.5	.0007	707678
27	196	331	.4994A	.1282	1.13	2.5	1.23	2.5	.36	.46	59.6	69.6	-.2515	707679
28	158	331	.8013A	.1277	1.02	.3	.99	-.1	.45	.46	68.9	69.5	.0754	707680
29	165	331	.5210A	.1281	1.08	1.6	1.08	.9	.42	.46	68.9	69.6	.2427	707683
30	189	331	.4651A	.1284	.90	-2.1	.82	-2.1	.53	.46	75.3	69.7	-.0976	707684
31	105	179	.4634	.1726	.82	-2.8	.72	-2.5	.58	.42	79.4	70.2	.0019	748844
32	118	179	.0647	.1785	1.16	2.1	1.09	.7	.29	.42	67.4	72.6	.0019	748845
33	107	179	.4037	.1732	1.23	3.1	1.21	1.6	.24	.42	56.6	70.4	.0019	748847
34	83	152	.2861	.1934	.84	-2.2	.79	-1.5	.60	.50	78.1	69.5	-.0007	748848
35	50	152	1.5392	.2036	1.18	1.9	1.21	1.4	.34	.45	67.2	74.1	-.0005	748849
36	77	152	.5087	.1921	1.01	.2	1.06	.5	.49	.49	69.3	69.1	-.0006	748851
37	84	152	.2486	.1938	.99	-.1	.92	-.5	.51	.50	65.7	69.7	-.0007	748852
38	74	179	1.3734	.1733	.96	-.6	.97	-.2	.42	.41	77.1	71.2	.0020	748855
39	75	179	1.3434	.1730	.93	-1.0	.98	-.1	.43	.41	76.6	71.1	.0020	748856
40	58	152	1.2192	.1970	.95	-.6	.90	-.7	.49	.47	72.3	71.6	-.0006	748858
41	54	152	1.3766	.1999	1.00	.1	1.07	.5	.45	.46	73.7	72.8	-.0006	748859
42	101	152	-.4268	.2075	.71	-3.5	.56	-2.4	.71	.52	83.9	74.6	-.0007	748860
43	120	179	.0006	.1798	1.10	1.3	1.02	.2	.34	.42	72.0	73.2	.0019	748861
44	155	179	-1.4642	.2479	.85	-.9	.53	-1.6	.53	.37	88.6	88.4	.0018	748862
45	106	179	.4336	.1729	1.60	7.4	2.05	6.6	-.05	.42	49.1	70.3	.0019	748863
46	84	152	.2486	.1938	1.10	1.4	1.03	.3	.43	.50	64.2	69.7	-.0007	748864
MEAN	164.6	273.4	.2093	.1557	1.01	.1	1.00	.0			73.0	73.3	.0012	
P.SD	64.0	79.2	.7412	.0295	.15	2.1	.26	1.8			7.5	4.8	.1553	

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Grade 7 Mathematics

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	MATH
1	216	338	-.0860A	.1374	.95	-.8	.92	-.6	.56	.51	77.3	74.6	.1063	651845
2	249	338	-.9423A	.1600	1.09	1.0	.86	-.7	.57	.52	79.2	82.9	.3022	651852
3	255	338	-1.1108A	.1668	1.00	.1	.68	-1.5	.65	.52	81.7	84.7	.3319	652047
4	209	338	.1443	.1341	1.19	3.0	1.22	1.8	.39	.51	62.1	73.4	.0010	652117
5	253	338	-.7156A	.1523	.85	-1.9	.73	-1.6	.61	.52	82.0	80.4	-.0247	652118
6	226	338	.0889A	.1348	1.16	2.6	1.33	2.6	.38	.51	66.2	73.7	-.2671	652120
7	226	338	-.5296A	.1469	1.00	.0	.81	-1.2	.62	.52	73.5	78.4	.3665	652122
8	259	338	-.8939A	.1583	.91	-1.0	.65	-2.0	.59	.52	83.0	82.4	.0099	652129
9	246	338	-.3521A	.1426	.95	-.8	1.09	.6	.51	.52	80.1	76.7	-.2376	652131
10	216	338	-.0982A	.1376	.98	-.3	.89	-.8	.55	.51	71.0	74.7	.1188	652140
11	177	338	.9853A	.1292	.94	-1.1	.93	-.8	.54	.49	75.4	71.8	-.2863	690983
12	208	338	-.2995A	.1415	1.04	.6	1.01	.1	.59	.52	74.8	76.2	.4695	690986
13	258	338	-1.0981A	.1663	.94	-.6	.75	-1.1	.64	.52	82.6	84.6	.2451	690991
14	239	338	-.6154A	.1493	.98	-.3	.80	-1.2	.59	.52	77.6	79.3	.1897	690992
15	143	338	.9204A	.1292	1.17	2.9	1.27	2.9	.38	.49	65.0	71.8	.3456	690993
16	217	338	.3706A	.1317	.83	-3.1	.81	-2.0	.60	.51	81.4	72.7	-.3798	690995
17	274	338	-1.5301A	.1877	1.01	.1	.65	-1.4	.62	.52	86.8	88.7	.2386	690997
18	164	338	.8839A	.1292	1.10	1.7	1.09	1.0	.42	.49	68.5	71.8	.0318	707685
19	166	338	.6018A	.1301	.92	-1.4	.89	-1.2	.56	.50	76.3	72.2	.2813	707686
20	176	338	.9642A	.1292	.80	-3.8	.75	-3.1	.62	.49	78.9	71.8	-.2486	707689
21	199	338	.7080A	.1296	.93	-1.2	.90	-1.1	.54	.50	74.1	72.0	-.3895	707690
22	159	338	.9540A	.1292	1.22	3.6	1.26	2.8	.35	.49	64.0	71.8	.0450	707691
23	187	338	.6373A	.1299	.98	-.3	.93	-.8	.51	.50	72.9	72.1	-.1091	707692
24	175	338	1.1295A	.1295	.98	-.4	.95	-.5	.53	.48	71.3	71.8	-.3946	707693
25	137	338	1.1732A	.1296	1.18	3.1	1.20	2.2	.35	.48	65.0	71.9	.1941	707694
26	227	338	-.1807A	.1391	.96	-.5	.88	-.9	.54	.52	77.6	75.3	-.0094	707695
27	189	338	.5050A	.1306	1.21	3.5	1.38	3.6	.37	.50	66.6	72.4	-.0102	707697
28	171	338	1.1384A	.1295	1.00	.0	1.00	.1	.51	.48	71.9	71.8	-.3367	707698
29	211	338	.1083	.1345	1.20	3.2	1.29	2.4	.39	.51	65.3	73.6	.0010	707699
30	139	338	1.4536A	.1310	1.19	3.2	1.22	2.2	.36	.46	64.0	72.4	-.1160	708811
31	93	173	.3513	.1802	.97	-.4	.93	-.5	.51	.49	69.6	70.6	-.0002	748865
32	109	165	.1709	.1977	1.05	.6	1.03	.2	.49	.52	73.7	76.1	.0025	748866
33	60	173	1.4394	.1873	1.22	2.4	1.25	1.6	.33	.46	65.8	73.8	.0000	748868
34	123	165	-.4275	.2183	.91	-.8	.79	-.9	.59	.53	81.4	80.6	.0023	748869
35	17	165	3.8495	.2737	1.40	2.0	4.15	4.8	-.10	.24	88.5	89.3	.0039	748870
36	101	173	.0887	.1825	1.03	.4	.94	-.4	.48	.49	65.2	70.8	-.0003	748871
37	53	173	1.6916	.1926	1.10	1.1	1.14	.9	.37	.44	74.5	75.5	.0000	748873
38	67	165	1.6347	.1840	1.16	2.0	1.26	2.0	.32	.44	66.7	71.1	.0032	748875
39	69	173	1.1319	.1828	1.08	1.0	1.11	.9	.41	.47	69.6	72.5	-.0001	748876
40	93	165	.7563	.1865	1.06	.8	1.10	.8	.45	.50	71.2	72.6	.0028	748877
41	70	173	1.0986	.1824	.96	-.4	.96	-.3	.50	.47	73.9	72.3	-.0001	748878
42	109	165	.1709	.1977	1.08	.9	1.01	.1	.47	.52	72.4	76.1	.0025	748879
43	132	173	-1.1002	.2188	.88	-1.0	.75	-.9	.57	.50	84.5	82.2	-.0004	748880
44	96	165	.6512	.1880	1.01	.1	.93	-.5	.50	.50	73.1	73.2	.0027	748881
45	70	165	1.5335	.1835	1.25	3.1	1.30	2.3	.29	.45	60.9	70.9	.0032	748883
46	92	173	.3837	.1800	.94	-.8	.93	-.5	.53	.49	75.2	70.6	-.0002	748884
MEAN	163.6	279.2	.3856	.1596	1.04	.5	1.06	.2			73.5	75.3	.0107	
P.SD	67.6	80.5	.9697	.0321	.13	1.7	.50	1.7			6.9	4.9	.1995	

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Grade 8 Mathematics

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	MATH
1	232	325	-.1619A	.1377	.86	-2.4	.78	-1.9	.53	.47	79.7	74.2	-.2778	652152
2	249	325	-.5082A	.1445	.79	-3.3	.64	-2.6	.55	.46	82.9	77.0	-.3030	652162
3	231	325	-.8205A	.1530	.98	-.2	.74	-1.5	.64	.46	76.5	80.2	.4189	652167
4	207	325	.0987A	.1342	1.26	4.2	1.31	2.7	.28	.48	62.3	72.8	-.0517	652170
5	214	325	-.5336A	.1451	.94	-.8	.85	-1.0	.64	.46	77.1	77.2	.4605	652182
6	145	325	1.3931A	.1330	1.08	1.3	1.21	2.2	.41	.45	73.2	72.8	-.2687	652186
7	262	325	-1.2620A	.1696	.93	-.7	1.19	.9	.55	.44	84.8	85.0	.1445	652188
8	133	325	1.3263	.1325	.97	-.4	1.02	.2	.47	.46	74.5	72.7	.0014	652192
9	236	325	-.5304A	.1451	.95	-.7	.88	-.7	.51	.46	78.7	77.2	.0181	652196
10	158	325	.9074A	.1305	.97	-.5	.96	-.5	.48	.47	73.2	71.6	-.0103	652199
11	196	325	.1583A	.1335	1.39	6.2	1.54	4.5	.22	.48	56.8	72.6	.0877	673378
12	243	325	-.5898A	.1465	.92	-1.1	.74	-1.7	.51	.46	79.0	77.8	-.0759	676333
13	232	325	-.2212A	.1387	.84	-2.8	.71	-2.4	.56	.47	78.4	74.6	-.2163	690999
14	266	325	-1.2319A	.1683	.98	-.2	1.10	.5	.45	.45	84.8	84.7	-.0002	691002
15	249	325	-.8340A	.1535	.91	-1.1	.91	-.5	.53	.46	81.6	80.3	.0366	691005
16	129	325	1.1172A	.1312	1.17	2.9	1.29	3.2	.34	.46	66.8	72.1	.2785	691010
17	245	325	-.3026A	.1402	1.02	.4	1.15	1.1	.37	.47	75.2	75.2	-.4226	691012
18	165	325	.8765A	.1304	1.04	.8	1.00	.1	.44	.47	71.0	71.5	-.0983	707702
19	182	325	.6674A	.1305	.95	-.9	.94	-.7	.51	.47	74.2	71.4	-.1806	707703
20	224	325	-.2659A	.1395	.82	-3.1	.70	-2.5	.61	.47	82.9	74.9	-.0052	707704
21	231	325	-.2260A	.1388	1.04	.6	1.04	.3	.41	.47	72.9	74.7	-.1901	707706
22	242	325	-.5971A	.1467	.77	-3.6	.60	-2.9	.63	.46	83.2	77.8	-.0455	707707
23	161	325	.7948A	.1304	.94	-1.2	.87	-1.7	.51	.47	72.9	71.4	.0512	707708
24	184	325	.4525	.1313	.90	-1.8	.84	-1.8	.54	.48	77.4	71.6	.0010	707710
25	145	325	.6355A	.1306	1.02	.5	1.02	.3	.47	.47	70.0	71.4	.4837	707711
26	254	325	-.8411A	.1537	1.01	.2	1.09	.5	.41	.46	81.9	80.4	-.0794	707713
27	203	325	.1154A	.1340	.88	-2.1	.82	-1.7	.56	.48	77.1	72.8	.0049	707714
28	188	325	.3796A	.1317	1.36	5.9	1.57	5.2	.22	.48	58.7	71.8	.0048	707715
29	184	325	.5720A	.1308	1.26	4.4	1.40	4.1	.28	.48	62.6	71.4	-.1195	707716
30	245	325	-1.0268A	.1601	1.12	1.3	.97	-.1	.51	.45	78.4	82.5	.3272	707718
31	117	173	-.1027	.1870	1.05	.6	1.06	.4	.41	.45	72.0	73.5	.0026	749052
32	78	173	1.1595	.1791	1.01	.2	1.07	.7	.44	.46	69.5	71.6	.0032	749054
33	86	152	.3669	.1938	.93	-.8	.83	-1.2	.53	.49	74.0	72.5	-.0011	749056
34	123	173	-.3181	.1924	1.06	.7	1.06	.4	.40	.44	72.6	75.1	.0025	749057
35	68	152	1.0327	.1925	1.08	.9	1.03	.3	.42	.47	69.2	72.7	-.0008	749058
36	109	152	-.5644	.2130	.98	-.1	.87	-.5	.51	.49	74.7	77.5	-.0013	749059
37	68	173	1.4859	.1827	1.25	2.9	1.42	3.1	.26	.45	64.6	72.9	.0033	749060
38	127	152	-1.5539	.2654	.82	-1.1	.53	-1.3	.61	.48	88.4	87.4	-.0014	749061
39	121	173	-.2449	.1904	.92	-.9	.88	-.7	.51	.45	76.8	74.5	.0026	749062
40	118	152	-1.0058	.2314	.77	-1.9	.57	-1.6	.64	.49	85.6	81.9	-.0014	749063
41	63	173	1.6552	.1855	1.05	.6	1.09	.7	.41	.44	70.1	73.8	.0034	749065
42	93	152	.1001	.1970	1.30	3.2	1.35	2.0	.30	.49	61.0	73.3	-.0011	749066
43	115	173	-.0333	.1856	1.08	1.0	1.10	.7	.40	.45	64.0	73.1	.0026	749068
44	111	152	-.6565	.2163	.75	-2.6	.53	-2.2	.67	.49	84.2	78.3	-.0013	749069
45	83	152	.4789	.1929	.90	-1.2	.83	-1.2	.56	.49	74.7	72.4	-.0010	749070
46	105	173	.3005	.1805	1.01	.2	.93	-.5	.45	.46	66.5	71.5	.0028	749071
MEAN	170.0	268.5	.0357	.1611	1.00	.1	.98	.0			74.3	75.3	-.0003	
P.SD	62.5	77.6	.7928	.0319	.15	2.2	.25	1.9			7.5	4.1	.1754	

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Grade 11 Mathematics

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	MATH
1	255	311	-1.5986A	.1962	.68	-2.7	.36	-2.9	.73	.59	89.9	88.5	-.1248	651135
2	241	311	-1.1449A	.1737	.84	-1.6	.60	-2.0	.65	.58	86.5	84.2	-.0778	651138
3	162	311	.3105A	.1384	1.36	5.5	1.50	3.7	.33	.53	59.7	72.6	.2418	651164
4	178	311	.1526A	.1401	1.07	1.1	1.35	2.6	.49	.53	70.8	73.2	.0961	651166
5	235	311	-1.0414	.1694	.95	-.5	.80	-.9	.60	.57	83.7	83.2	-.0001	651168
6	205	311	.0376A	.1416	.79	-3.6	.71	-2.5	.64	.54	81.6	73.9	-.3453	651169
7	237	311	-1.1449A	.1737	.91	-.9	.71	-1.3	.64	.58	84.4	84.2	.0460	651173
8	216	311	-.5340A	.1530	.94	-.8	.81	-1.2	.59	.56	79.5	78.4	-.0171	651183
9	169	311	.6205A	.1364	.97	-.5	.98	-.1	.53	.51	72.9	71.8	-.2004	651198
10	244	311	-1.3175	.1814	.90	-.9	.66	-1.5	.64	.58	85.8	85.9	-.0001	651227
11	211	311	-.3402A	.1484	.91	-1.2	.94	-.3	.59	.55	79.2	76.7	-.0968	651245
12	210	311	-.3777A	.1492	.82	-2.6	.64	-2.6	.66	.55	79.9	77.0	-.0356	651311
13	216	311	-.1986A	.1455	.90	-1.5	.90	-.6	.57	.55	78.5	75.6	-.3596	651319
14	176	311	.3291A	.1383	.84	-2.9	.78	-2.0	.62	.52	80.6	72.5	-.0427	651320
15	188	311	.3292A	.1383	.88	-2.0	.79	-1.8	.59	.52	76.4	72.5	-.2800	673387
16	200	311	-.1950	.1454	.85	-2.4	.73	-2.1	.64	.55	81.9	75.6	.0002	676343
17	242	311	-1.2527	.1784	.85	-1.4	.84	-.6	.66	.58	85.4	85.3	-.0001	676351
18	185	311	-.1924A	.1454	1.02	.3	.91	-.6	.58	.55	72.6	75.6	.3063	676354
19	247	311	-1.3974A	.1854	.89	-1.0	1.02	.2	.63	.58	88.2	86.7	-.0220	691024
20	219	311	-.6223	.1554	.95	-.6	.74	-1.6	.60	.56	79.2	79.2	.0000	691026
21	184	311	-.2028A	.1456	1.19	2.7	1.25	1.7	.49	.55	70.1	75.6	.3366	691027
22	143	311	.7679A	.1360	1.15	2.6	1.23	1.9	.39	.50	67.0	71.6	.1354	707721
23	196	311	-.0300A	.1426	.92	-1.2	1.15	1.1	.57	.54	78.5	74.4	-.0822	707722
24	138	311	.4989A	.1370	1.27	4.3	1.59	4.4	.36	.52	62.2	72.0	.4969	707724
25	212	311	-.4659A	.1513	1.17	2.2	1.19	1.2	.46	.56	72.9	77.8	.0080	707725
26	199	311	-.0978A	.1437	.78	-3.6	.64	-3.1	.67	.54	81.6	74.9	-.0771	707727
27	140	311	.6023A	.1365	1.15	2.5	1.17	1.4	.42	.51	66.7	71.8	.3563	707728
28	166	311	.6023A	.1365	.81	-3.4	.72	-2.7	.62	.51	77.8	71.8	-.1256	707729
29	174	311	.6047A	.1365	1.01	.3	.96	-.3	.51	.51	71.5	71.8	-.2800	707732
30	154	311	.7679A	.1360	1.39	6.1	1.45	3.5	.28	.50	55.6	71.6	-.0671	707734
31	88	157	.4431	.1923	.78	-3.0	.67	-2.4	.64	.51	78.6	71.6	.0006	749073
32	85	157	.5533	.1912	1.35	4.1	1.64	3.7	.30	.50	59.3	71.2	.0007	749075
33	67	154	.9295	.1951	1.40	4.4	1.63	2.8	.26	.50	61.5	72.3	.0003	749076
34	97	157	.1021	.1977	1.03	.3	1.00	.1	.50	.52	68.3	73.2	.0005	749077
35	125	154	-1.8301	.2892	.84	-.8	.54	-1.1	.68	.61	90.2	89.5	-.0006	749078
36	68	154	.8914	.1950	1.12	1.4	1.16	.8	.44	.50	67.1	72.3	.0003	749079
37	63	154	1.0822	.1958	1.09	1.1	1.20	1.0	.40	.49	73.4	72.4	.0003	749080
38	84	157	.5898	.1909	.77	-3.2	.68	-2.5	.64	.50	82.1	71.1	.0007	749081
39	102	157	-.0976	.2024	1.04	.4	.95	-.2	.51	.53	71.7	74.7	.0004	749083
40	119	154	-1.3875	.2565	.79	-1.4	1.00	.1	.70	.60	87.4	85.6	-.0005	749084
41	89	154	.0799	.2008	1.06	.7	1.09	.5	.51	.55	69.2	73.9	.0001	749085
42	32	157	2.6470	.2266	1.29	2.2	2.20	3.8	.13	.35	76.6	81.2	.0018	749086
43	75	157	.9146	.1896	.98	-.3	.97	-.2	.50	.48	73.1	70.8	.0009	749087
44	60	154	1.1977	.1967	.93	-.9	.88	-.5	.52	.48	74.1	72.6	.0003	749088
45	64	154	1.0439	.1956	1.24	2.7	1.24	1.2	.35	.49	62.2	72.3	.0003	749089
46	65	157	1.2757	.1911	1.02	.2	1.02	.2	.43	.46	71.7	71.5	.0012	749091
MEAN	157.1	256.9	.0414	.1705	1.00	.0	1.00	.0			75.4	76.1	-.0044	
P.SD	63.7	74.1	.8965	.0338	.18	2.4	.35	2.0			8.6	5.4	.1603	

Appendix M: Science Item Bank Difficulties

Grade 5 Science

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD	PTBISERL-EX CORR.	EXP.	EXACT OBS%	MATCH EXP%	DISPLACE	SCIE
1	166	308	-.6959A	.1414	1.07	1.2	1.26	2.1	.51	.53	72.2	73.5	.2560	651050
2	153	308	-.2053A	.1386	1.30	4.7	1.99	7.4	.33	.51	62.3	72.2	.0149	651078
3	200	308	-.8963A	.1437	.73	-4.7	.59	-3.8	.69	.54	82.6	74.2	-.2424	651113
4	200	308	-.8716A	.1434	1.10	1.6	1.05	.5	.47	.54	70.1	74.1	-.2676	676460
5	215	308	-1.7000A	.1610	1.23	2.6	1.74	3.3	.47	.56	77.2	80.1	.2293	676461
6	179	308	-1.0292A	.1457	1.04	.6	1.06	.5	.56	.55	74.4	74.9	.3349	691146
7	213	308	-1.4451A	.1540	.85	-2.0	.72	-1.8	.65	.56	81.1	77.7	.0178	691147
8	191	308	-.6072A	.1406	1.23	3.5	1.26	2.1	.39	.53	64.8	73.1	-.3401	691149
9	134	308	-.1301A	.1386	1.05	.8	1.01	.2	.46	.51	67.3	72.0	.3041	691150
10	228	308	-1.5991A	.1581	.75	-3.3	.56	-2.8	.67	.56	84.7	79.1	-.2124	691151
11	215	308	-1.4313A	.1537	.73	-4.0	.54	-3.3	.71	.56	84.7	77.6	-.0450	691154
12	152	308	-.1700	.1386	.92	-1.3	.86	-1.4	.55	.51	74.0	72.1	-.0011	691155
13	146	308	-.1706A	.1386	1.12	2.0	1.35	3.0	.44	.51	69.0	72.1	.1144	691158
14	222	308	-1.6723A	.1602	.80	-2.6	.56	-2.7	.69	.56	82.6	79.8	.0251	691159
15	271	308	-3.2102A	.2432	.74	-1.5	1.19	.6	.58	.59	95.4	92.9	-.3980	691212
16	232	308	-2.0118A	.1719	.92	-.8	.62	-1.9	.66	.57	82.6	83.3	.0985	707414
17	157	308	-.6633A	.1411	1.00	.0	.95	-.4	.55	.53	72.6	73.3	.3976	707417
18	212	308	-1.5472A	.1566	1.05	.6	1.06	.4	.56	.56	77.9	78.6	.1461	707419
19	174	308	-.2163A	.1387	1.35	5.4	1.37	3.2	.33	.51	57.7	72.2	-.3830	707420
20	169	308	-.1781A	.1386	1.35	5.4	1.50	4.1	.34	.51	60.1	72.1	-.3221	707421
21	252	308	-2.1936A	.1795	.68	-3.3	.42	-2.9	.68	.57	89.3	85.1	-.3969	707422
22	148	308	-.3290A	.1390	1.13	2.1	1.12	1.1	.45	.52	66.9	72.4	.2346	707426
23	224	308	-2.0397A	.1730	1.18	1.8	1.01	.1	.57	.57	79.0	83.6	.3466	707428
24	242	308	-2.1464A	.1774	.81	-1.9	.59	-1.9	.66	.57	86.8	84.7	-.0744	707429
25	226	308	-1.5051A	.1555	.90	-1.4	.81	-1.1	.58	.56	79.4	78.2	-.2542	707430
26	112	170	-1.1171	.2016	.90	-1.1	.73	-1.3	.62	.56	79.2	76.2	-.0008	748726
27	98	138	-1.6500	.2329	.78	-1.9	.60	-1.8	.68	.55	83.5	78.7	-.0027	748727
28	97	138	-1.5962	.2307	.82	-1.7	.60	-1.9	.67	.55	81.1	78.1	-.0027	748728
29	100	170	-.6524	.1929	1.09	1.1	.98	.0	.50	.55	68.8	74.0	-.0008	748729
30	133	170	-2.1167	.2419	.85	-1.1	.58	-1.3	.66	.58	85.7	85.0	-.0003	748732
31	79	138	-.7469	.2080	.91	-1.0	.92	-.5	.57	.52	78.7	72.8	-.0022	748733
32	51	138	.4287	.2075	1.15	1.6	1.21	1.3	.35	.44	68.5	72.2	-.0010	748734
33	77	170	.1779	.1896	.92	-1.0	.93	-.4	.56	.51	74.7	72.5	-.0008	748735
34	108	170	-.9575	.1980	.85	-1.7	.69	-1.7	.64	.56	79.9	75.3	-.0008	748736
35	131	170	-2.0026	.2356	.88	-.9	.86	-.3	.65	.58	85.7	83.8	-.0004	748738
36	71	138	-.4078	.2045	1.00	.1	.95	-.3	.50	.50	71.7	71.8	-.0018	748739
37	91	170	-.3236	.1898	.98	-.2	.89	-.6	.54	.53	72.1	72.9	-.0008	748740
38	78	138	-.7038	.2074	.99	-.1	.94	-.3	.52	.52	71.7	72.7	-.0021	748741
39	92	138	-1.3410	.2215	.97	-.2	.81	-.9	.56	.54	76.4	76.0	-.0026	748742
40	114	170	-1.1993	.2038	1.04	.4	1.00	.1	.54	.56	73.4	76.7	-.0008	748743
41	92	138	-1.3410	.2215	.96	-.3	.80	-1.0	.57	.54	73.2	76.0	-.0026	748744
MEAN	157.2	247.9	-1.0784	.1770	.98	-.1	.94	-.2			76.1	76.7	-.0107	
P.SD	58.6	75.8	.7720	.0343	.17	2.3	.33	2.2			8.1	4.8	.1992	

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Grade 8 Science

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	SCIE
1	214	313	-1.0569A	.1389	.76	-4.2	.64	-3.6	.62	.47	82.9	74.0	-.1942	651233
2	162	313	-.4853A	.1332	1.14	2.3	1.25	2.6	.37	.46	65.8	71.5	.1988	651246
3	195	313	-1.1161A	.1398	.87	-2.2	.76	-2.2	.61	.47	79.2	74.4	.2398	673797
4	202	313	-1.0208A	.1383	.87	-2.2	.79	-2.0	.57	.47	78.2	73.8	.0095	676474
5	192	313	-.8909A	.1367	1.20	3.2	1.45	3.8	.33	.47	66.4	73.1	.0679	676475
6	258	313	-2.5405A	.1870	1.03	.3	.70	-1.2	.56	.45	85.6	87.7	.2380	676476
7	209	313	-1.3540A	.1441	1.19	2.7	1.22	1.6	.38	.47	70.1	75.9	.2107	676477
8	192	313	-.7543A	.1352	1.12	2.1	1.16	1.6	.37	.47	65.1	72.5	-.0703	676478
9	138	313	.0265A	.1327	1.05	1.0	1.02	.3	.40	.45	66.4	71.2	.1078	676479
10	208	313	-.9540A	.1374	.74	-4.6	.65	-3.6	.64	.47	84.9	73.5	-.1769	691162
11	183	313	-.6486A	.1343	1.06	1.0	1.09	1.0	.43	.47	69.5	72.0	-.0110	691166
12	178	313	-.4048A	.1329	.95	-.8	.93	-.7	.49	.46	75.5	71.3	-.1651	707432
13	238	313	-1.9649A	.1612	.98	-.1	.74	-1.4	.56	.46	78.9	81.7	.1995	707433
14	184	313	-.4881A	.1333	1.40	6.3	1.58	5.5	.17	.46	58.4	71.5	-.1904	707434
15	219	313	-1.1811A	.1409	1.09	1.4	1.01	.2	.38	.47	69.8	74.8	-.1723	707435
16	241	313	-1.8437	.1571	.73	-3.6	.53	-3.1	.67	.46	85.2	80.4	.0003	707436
17	214	313	-1.4025A	.1452	.85	-2.3	.71	-2.3	.62	.47	80.5	76.3	.1590	707437
18	249	313	-1.6933A	.1525	.87	-1.7	.74	-1.7	.48	.47	82.2	78.8	-.3718	707438
19	170	313	-.3687A	.1328	1.52	8.0	1.70	6.6	.10	.46	53.4	71.2	-.0587	707440
20	231	313	-1.4488A	.1462	.80	-3.1	.69	-2.4	.59	.47	80.9	76.6	-.1644	707442
21	229	313	-1.5637	.1490	.91	-1.3	.96	-.2	.53	.47	79.5	77.6	.0003	707445
22	145	313	.1406A	.1331	1.38	6.1	1.54	5.1	.17	.44	57.7	71.3	-.1268	707446
23	191	313	-.7783A	.1354	1.28	4.4	1.34	3.1	.27	.47	59.7	72.6	-.0273	707447
24	241	313	-1.9935A	.1622	.86	-1.6	.62	-2.2	.63	.46	82.6	82.0	.1543	707448
25	178	313	-.7783A	.1354	.93	-1.2	.94	-.6	.54	.47	75.5	72.6	.2100	708809
26	136	166	-2.1316	.2334	.76	-1.9	.46	-2.2	.64	.44	85.4	84.1	.0010	748746
27	95	147	-1.1334	.2029	.78	-2.6	.67	-2.3	.64	.48	81.6	74.6	.0000	748747
28	72	147	-.2511	.1922	1.05	.6	1.04	.4	.42	.45	68.1	71.0	.0009	748748
29	137	166	-2.1868	.2367	.79	-1.5	.60	-1.4	.60	.43	86.0	84.7	.0011	748749
30	35	147	1.2135	.2160	1.18	1.6	1.37	1.6	.22	.34	76.6	77.9	.0019	748750
31	100	166	-.6591	.1855	1.07	.9	.97	-.1	.41	.47	65.6	71.8	.0010	748751
32	119	166	-1.3541	.1995	1.06	.6	.92	-.3	.42	.46	73.2	76.0	.0009	748752
33	91	147	-.9717	.1995	1.04	.5	.99	.0	.45	.48	71.6	73.8	.0002	748753
34	119	166	-1.3541	.1995	1.15	1.6	1.21	1.1	.34	.46	70.7	76.0	.0009	748754
35	103	166	-.7630	.1868	.88	-1.6	.81	-1.3	.55	.46	76.4	72.3	.0009	748755
36	119	147	-2.3154	.2518	.91	-.6	.72	-.9	.56	.48	84.4	84.8	-.0005	748756
37	124	166	-1.5596	.2063	.84	-1.7	.66	-1.7	.58	.45	80.3	77.8	.0009	748757
38	119	147	-2.3154	.2518	.73	-2.0	.47	-2.0	.68	.48	85.8	84.8	-.0005	748759
39	106	147	-1.6148	.2170	.78	-2.2	.58	-2.2	.65	.48	80.1	77.7	-.0003	748761
40	92	166	-.3875	.1833	1.20	2.5	1.15	1.1	.31	.46	61.1	71.2	.0010	748762
41	122	147	-2.5159	.2657	.76	-1.5	.44	-1.9	.66	.48	87.2	86.9	-.0005	748763
MEAN	164.6	251.9	-1.1430	.1708	.99	.1	.92	-.2			74.8	76.2	.0018	
P.SD	55.3	76.6	.7785	.0394	.20	2.8	.32	2.4			9.0	4.8	.1307	

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Grade 11 Science

ENTRY	TOTAL	TOTAL		MODEL	INFIT		OUTFIT		PTBISERL-EX		EXACT	MATCH		
NUMBER	SCORE	COUNT	MEASURE	S.E.	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	DISPLACE	SCIE
1	171	292	-.3918A	.1462	.90	-1.5	.89	-.9	.60	.55	78.7	74.0	-.1499	651774
2	194	292	-1.1989A	.1594	1.19	2.3	1.50	2.6	.50	.58	73.8	78.6	.1301	651785
3	186	292	-.5491A	.1479	.82	-2.9	.71	-2.5	.65	.56	82.0	74.7	-.3331	651793
4	183	292	-1.1730A	.1588	1.15	1.9	1.06	.4	.56	.58	73.0	78.5	.3664	651798
5	132	292	.3723A	.1435	1.06	1.0	1.13	1.1	.47	.50	71.2	72.5	-.0956	651808
6	184	292	-.4655A	.1469	.86	-2.2	1.07	.6	.62	.55	78.3	74.3	-.3698	651822
7	189	292	-.7074A	.1500	.88	-1.7	.75	-2.0	.62	.57	77.9	75.5	-.2456	673806
8	147	292	-.0747A	.1435	1.43	6.1	1.49	3.8	.30	.52	59.6	72.7	-.1072	673809
9	197	292	-1.1384A	.1580	.80	-2.7	.70	-1.9	.69	.58	85.0	78.2	-.0067	676484
10	212	292	-1.6616A	.1726	.83	-1.9	.73	-1.3	.71	.60	85.0	82.2	.1203	676495
11	174	292	-.5305A	.1477	1.02	.4	1.02	.2	.54	.56	75.3	74.6	-.0773	691177
12	183	292	-.8985A	.1531	1.08	1.1	.94	-.4	.54	.57	70.4	76.7	.0893	691179
13	170	292	-.2834A	.1453	.97	-.5	1.08	.7	.56	.55	75.3	73.6	-.2360	691183
14	215	292	-1.3651A	.1636	.90	-1.2	.70	-1.7	.62	.59	79.8	79.8	-.2734	691185
15	228	292	-2.1093A	.1905	.86	-1.3	.55	-1.8	.70	.60	86.1	86.0	.0633	691187
16	153	292	-.0437A	.1439	1.12	1.9	1.15	1.3	.47	.53	67.8	73.0	-.1137	691189
17	246	292	-3.1977A	.2619	1.09	.5	.75	-.5	.70	.62	92.1	93.5	.3867	691192
18	241	292	-2.2556A	.1976	.70	-2.7	.45	-2.2	.69	.61	89.5	87.2	-.3255	707451
19	240	292	-2.7600A	.2276	.89	-.7	.56	-1.2	.72	.61	89.9	90.9	.2423	707452
20	197	292	-1.3069A	.1620	1.11	1.4	1.16	.9	.55	.59	79.0	79.4	.1646	707453
21	192	292	-1.3573A	.1634	1.52	5.3	2.06	4.5	.38	.59	68.2	79.8	.3395	707454
22	124	292	.2543A	.1433	1.21	3.2	1.25	2.1	.38	.51	62.2	72.5	.1830	707456
23	127	292	-.0734A	.1440	1.19	2.9	1.51	3.9	.43	.53	68.5	73.0	.4484	707457
24	180	292	-.7865A	.1512	.89	-1.5	1.09	.7	.62	.57	80.1	76.0	.0452	707458
25	206	292	-1.2754A	.1612	.76	-3.1	.58	-2.7	.70	.59	84.6	79.2	-.1049	707459
26	160	292	-.0883A	.1441	1.03	.6	1.00	.0	.52	.53	69.7	73.1	-.2155	707461
27	163	292	-.3703	.1460	1.25	3.6	1.30	2.4	.42	.55	65.2	73.9	.0013	707462
28	155	292	-.4210A	.1465	1.17	2.4	1.10	.9	.47	.55	66.7	74.1	.2206	707463
29	210	292	-1.4600A	.1663	.88	-1.4	.74	-1.4	.66	.59	82.8	80.5	-.0282	707464
30	236	292	-2.6040A	.2173	1.00	.1	.93	-.1	.67	.61	89.1	89.9	.2586	707466
31	100	146	-1.3255	.2322	.81	-1.6	.61	-1.7	.71	.61	81.7	79.6	.0018	748764
32	104	146	-1.5488	.2409	.83	-1.4	.62	-1.5	.71	.62	87.0	81.2	.0018	748765
33	96	146	-.9362	.2150	.94	-.6	.86	-.6	.59	.55	77.2	76.3	.0005	748766
34	105	146	-1.3784	.2297	.82	-1.6	.65	-1.3	.67	.56	85.3	79.9	.0005	748767
35	108	146	-1.7912	.2521	.88	-.9	.97	.0	.68	.62	83.2	83.0	.0017	748768
36	73	146	.0393	.2010	.95	-.5	.92	-.5	.54	.51	70.6	73.0	.0004	748769
37	99	146	-1.2721	.2303	.76	-2.1	.72	-1.2	.72	.61	85.5	79.3	.0019	748770
38	62	146	.3915	.2050	1.20	2.2	1.43	2.1	.39	.51	65.6	72.0	.0023	748771
39	67	146	.2813	.2008	1.14	1.6	1.13	.9	.41	.50	67.6	73.0	.0004	748772
40	98	146	-1.0297	.2176	1.10	1.0	.95	-.2	.50	.55	73.5	77.1	.0005	748773
41	48	146	.9941	.2116	.95	-.5	1.05	.3	.46	.46	79.4	74.5	.0023	748774
42	73	146	-.0707	.2058	1.36	3.6	1.39	2.1	.36	.55	61.1	73.1	.0022	748778
43	105	146	-1.3784	.2297	.84	-1.4	.62	-1.5	.66	.56	82.4	79.9	.0005	748779
44	107	146	-1.4860	.2342	1.01	.2	.78	-.7	.57	.56	80.1	80.8	.0005	748780
45	111	146	-1.9894	.2627	.94	-.4	.99	.1	.65	.63	87.0	84.6	.0017	748782
46	115	146	-1.9696	.2598	.93	-.4	.65	-.9	.62	.57	85.3	85.2	.0005	748783
MEAN	153.6	241.2	-.9618	.1855	1.00	.1	.96	.0			77.4	78.3	.0086	
P.SD	53.5	69.5	.8986	.0394	.18	2.1	.32	1.7			8.4	5.3	.1831	

Appendix N: Reading Pre- and Post-Equating Summary

The Pre- values were taken from the calibrated item bank. The Post- values were taken directly from unanchored calibration runs. The correlation and SD ratio are from the first linking using all the items, items with large Z were removed from subsequent linking sets until the Robust criteria was met, or other stopping criteria reached.

	3			4			5			6			7			8			11		
Item	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z
1	1.14	1.25	-1.16	-0.45	-0.11	-0.85	0.37	0.30	-0.85	0.10	-0.19	-0.04	-0.52	-0.94	0.47	0.61	-0.20	0.07	-0.58	-0.92	0.20
2	-0.39	-1.09	1.57	-0.12	0.01	-0.38	-0.19	-0.15	-1.29	1.29	1.06	-0.24	0.97	0.70	-0.25	0.47	-0.79	1.27	1.17	1.11	-1.06
3	1.07	0.77	0.21	-0.39	0.21	-1.46	-0.28	-0.49	-0.29	0.80	0.93	-1.25	0.20	-0.26	0.61	1.24	0.63	-0.45	0.73	0.44	0.00
4	-0.47	-1.13	1.41	-0.41	-0.72	0.66	0.92	0.54	0.38	0.16	-0.19	0.11	0.41	0.26	-0.84	0.46	-0.13	-0.52	0.19	0.05	-0.70
5	0.85	0.33	0.95	-1.12	-0.50	-1.52	-1.11	-1.11	-1.12	-0.39	-0.39	-0.90	-0.06	-0.40	0.02	0.22	-1.00	1.16	0.33	0.52	-2.22
6	0.13	-0.28	0.57	0.52	0.37	0.26	0.16	0.59	-2.82	0.76	0.52	-0.20	-0.23	-0.11	-2.12	-1.27	-1.41	-1.72	-0.30	-0.83	1.09
7	0.48	0.86	-2.07	-0.34	-0.38	0.03	-0.86	-0.58	-2.23	-0.56	-0.85	-0.04	0.70	0.29	0.36	0.74	0.39	-1.17	-0.39	-0.31	-1.69
8	0.41	0.07	0.35	1.00	0.89	0.17	0.12	0.30	-1.82	0.72	0.27	0.41	0.36	-0.38	1.93	0.08	-0.60	-0.29	0.29	0.14	-0.62
9	-0.17	-0.02	-1.26	-0.09	-0.04	-0.20	-0.70	-1.03	0.14	-0.76	-1.50	1.23	0.40	0.45	-1.76	2.20	0.86	1.47	0.17	-0.14	0.09
10	-1.43	-1.06	-2.04	-0.67	-0.53	-0.39	-0.48	-0.82	0.19	0.42	-0.18	0.81	-0.73	-1.05	-0.07	-0.02	-0.68	-0.33	-0.42	-0.53	-0.82
11	0.61	0.26	0.36	0.59	0.28	0.64	0.34	0.24	-0.76	1.75	1.30	0.39	-0.47	-0.65	-0.71	-0.78	-1.47	-0.24	-0.97	-1.11	-0.69
12	0.27	0.07	-0.14	-0.61	-1.00	0.84	0.60	0.30	0.08	-0.82	-0.70	-1.23	-1.29	-1.89	1.31	-0.18	-1.08	0.31	0.29	0.01	-0.04
13	-0.32	-0.55	0.00	0.09	0.48	-0.99	1.63	1.02	1.28	0.06	-0.53	0.78	1.94	1.50	0.54	1.07	0.38	-0.24	-0.00	-0.50	0.94
14	1.03	0.86	-0.22	1.07	1.11	-0.16	1.50	1.50	-1.16	-0.16	-0.74	0.77	1.69	1.30	0.29	2.34	0.98	1.54	-0.70	-1.05	0.23
15	0.53	0.36	-0.21	0.47	0.04	0.92	-0.13	-0.49	0.29	0.22	-0.03	-0.17	0.64	0.31	-0.00	1.06	0.28	0.00	0.61	0.30	0.08
16	1.08	0.40	1.46	-0.55	-0.69	0.23	0.65	0.63	-1.04	0.34	0.49	-1.30	-0.23	-0.34	-1.03	1.62	0.21	1.67	0.10	0.03	-0.99
17	0.95	0.77	-0.17	1.31	1.13	0.34	0.52	0.22	0.02	1.74	1.35	0.22	0.93	0.43	0.79	2.03	1.44	-0.53	1.20	1.06	-0.65
18	-1.15	-1.02	-1.20	-0.34	0.09	-1.06	0.17	-0.13	0.03	-0.36	-0.68	0.00	0.21	0.17	-1.38	0.81	-0.08	0.27	1.17	1.17	-1.34
19	-0.15	-0.49	0.36	0.23	0.37	-0.40	-0.36	-0.82	0.67	0.92	0.25	1.03	1.72	0.85	2.57	1.86	0.56	1.36	0.21	0.24	-1.45
20	-0.42	-0.88	0.76	0.90	0.48	0.89	0.58	0.52	-0.89	-1.65	-1.64	-0.93	-0.57	-0.62	-1.30	0.68	0.12	-0.59	-0.69	-1.01	0.14
21	-0.05	-0.02	-0.86	1.31	1.28	0.00	1.06	0.78	-0.01	0.56	0.64	-1.13	1.32	0.83	0.75	0.79	-0.28	0.75	0.05	-0.26	0.07
22	-0.45	-0.64	-0.14	-0.02	0.48	-1.24	1.56	1.22	0.23	0.22	0.08	-0.48	-0.15	-0.48	0.00	0.16	-0.53	-0.24	0.95	0.30	1.62
23	0.52	0.15	0.46	-1.45	-1.04	-1.04	-1.14	-1.61	0.70	1.18	0.78	0.25	-0.57	-0.94	0.21	0.82	-0.20	0.64	1.41	0.98	0.64

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	3			4			5			6			7			8			11		
Item	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z
24	0.99	0.36	1.34	-2.14	-2.33	0.36	0.49	-0.09	1.17	1.21	0.30	1.71	0.57	0.31	-0.33	2.45	1.60	0.16	1.43	0.89	1.13
25	0.74	0.66	-0.50	0.35	0.11	0.48	-0.56	-0.84	0.00	0.13	-0.37	0.54	0.98	0.66	-0.05	1.71	1.01	-0.24	-0.13	-0.61	0.86
Mean	0.23	0.00		-0.04	-0.00		0.19	-0.00		0.31	0.00		0.33	-0.00		0.85	0.00		0.25	0.00	
Corr		0.907			0.924			0.947			0.936			0.961			0.939			0.955	
SD	0.71	0.70		0.85	0.80		0.79	0.79		0.82	0.79		0.83	0.79		0.94	0.84		0.70	0.71	
Ratio		0.98			0.94			0.99			0.97			0.95			0.86			1.02	

Appendix O: Mathematics Pre- and Post-Equating Summary

The Pre- values were taken from the calibrated item bank. The Post- values were taken directly from unanchored calibration runs. The correlation and SD ratio are from the first linking using all the items, items with large Z were removed from subsequent linking sets until the Robust criteria was met, or other stopping criteria reached.

	3			4			5			6			7			8			11		
Item	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z
1	-0.08	-0.21	0.92	0.21	-0.29	1.17	-0.20	-0.40	0.82	-0.04	-0.02	-0.22	-0.09	-0.14	-0.20	-0.16	-0.42	1.14	-1.60	-1.48	0.24
2	-0.84	-0.76	-0.02	0.28	-0.27	1.29	1.03	1.31	-0.57	-0.96	-0.38	-2.56	-0.94	-0.79	-0.73	-0.51	-0.75	1.09	-1.14	-0.99	0.13
3	0.29	0.37	0.00	-0.47	-0.43	-0.25	-0.72	-1.07	1.29	-0.40	-0.44	0.00	-1.11	-0.93	-0.82	-0.82	-0.38	-2.02	0.31	0.77	-0.82
4	-0.03	0.37	-1.40	0.39	0.26	0.18	0.11	0.41	-0.64	-0.89	-1.07	0.54	0.77	-0.01	1.67	0.10	0.07	0.12	0.15	0.47	-0.36
5	0.48	0.40	0.70	0.40	-0.03	0.99	-0.42	-0.44	0.30	0.89	1.04	-0.79	-0.72	-0.88	0.08	-0.53	-0.08	-2.09	-1.58	-0.81	-1.77
6	-1.49	-1.46	0.23	-0.55	-0.46	-0.41	-1.46	-1.29	-0.25	-0.39	-0.24	-0.80	0.09	-0.32	0.72	1.39	1.11	1.26	0.04	-0.08	0.98
7	0.67	0.89	-0.60	1.04	0.64	0.90	0.19	0.61	-1.00	-0.89	-0.85	-0.33	-0.53	-0.32	-0.87	-1.26	-1.09	-0.79	-1.14	-0.87	-0.24
8	-1.83	-1.32	-1.86	0.08	-0.03	0.13	-0.90	-1.01	0.58	-0.99	-0.97	-0.25	-0.89	-1.02	-0.01	0.74	1.31	-2.62	-0.53	-0.33	-0.03
9	0.03	-0.27	1.63	-0.46	-0.35	-0.47	0.93	1.13	-0.36	0.62	0.51	0.28	-0.35	-0.73	0.62	-0.53	-0.48	-0.25	0.62	0.64	0.55
10	-0.57	-0.42	-0.29	1.10	1.19	-0.40	-0.90	-0.44	-1.11	0.39	0.18	0.70	-0.10	-0.14	-0.23	0.91	0.88	0.12	-0.69	-1.08	1.83
11	0.83	0.81	0.41	-0.51	-0.76	0.51	-1.11	-0.67	-1.04	0.05	-0.31	1.29	0.99	0.53	0.83	0.16	0.26	-0.46	-0.34	-0.21	0.21
12	-0.33	-0.33	0.35	0.13	0.19	-0.31	1.60	1.42	0.77	0.95	1.02	-0.49	-0.30	0.00	-1.12	-0.59	-0.62	0.13	-0.38	-0.19	0.03
13	1.80	1.85	0.15	-0.34	-0.03	-0.97	-0.19	-0.06	-0.15	-0.46	-0.38	-0.48	-1.10	-1.00	-0.60	-0.22	-0.40	0.78	-0.20	-0.33	1.01
14	-1.41	-1.68	1.52	-0.85	-0.19	-1.90	0.35	0.25	0.53	0.07	0.03	-0.00	-0.62	-0.58	-0.43	-1.23	-1.20	-0.17	0.33	0.51	0.06
15	0.27	0.63	-1.26	-0.26	-0.49	0.44	-0.90	-0.33	-1.44	-1.12	-1.25	0.34	0.92	1.09	-0.79	-0.83	-0.75	-0.38	0.33	0.27	0.79
16	-2.22	-1.68	-2.03	0.68	0.52	0.27	-0.38	-0.58	0.84	-1.22	-1.07	-0.83	0.37	-0.16	1.01	1.12	1.37	-1.14	-0.83	0.03	-2.05
17	1.55	1.17	1.96	0.56	0.68	-0.49	0.40	0.78	-0.87	-0.00	0.06	-0.44	-1.53	-1.42	-0.61	-0.30	-0.67	1.63	-1.82	-1.02	-1.87
18	-0.55	-0.45	-0.08	-0.16	-0.49	0.71	-1.03	-1.39	1.31	-0.44	-0.60	0.48	0.88	0.74	0.01	0.88	0.78	0.43	-0.19	0.33	-1.02
19	0.71	1.30	-2.24	0.03	-0.70	1.78	-0.06	-0.10	0.36	1.14	0.67	1.77	0.60	0.71	-0.62	0.67	0.49	0.76	-1.40	-1.18	-0.05
20	0.40	0.53	-0.21	1.01	1.21	-0.69	-0.48	-0.24	-0.43	0.74	0.52	0.70	0.96	0.55	0.73	-0.27	-0.24	-0.12	-1.68	-0.40	-3.37
21	-0.01	-0.01	0.35	-2.05	-1.74	-0.99	0.14	-0.02	0.70	-0.81	-0.90	0.20	0.71	0.16	1.07	-0.23	-0.38	0.67	-0.20	0.35	-1.11
22	-0.44	-0.27	-0.39	-0.60	-1.03	0.98	-0.78	-0.63	-0.22	1.00	0.47	2.00	0.95	0.83	-0.01	-0.60	-0.60	0.00	0.77	1.12	-0.49

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	3			4			5			6			7			8			11		
Item	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z
23	-0.44	-0.79	1.88	-0.66	-0.35	-0.99	0.99	1.23	-0.47	0.68	0.93	-1.21	0.64	0.36	0.36	0.79	0.83	-0.16	-0.03	0.11	0.18
24	0.45	0.19	1.47	1.32	1.62	-0.94	1.11	1.27	-0.20	0.47	0.23	0.80	1.13	0.56	1.11	0.99	0.44	2.44	0.50	1.22	-1.63
25	0.94	1.12	-0.46	0.85	0.43	0.95	0.51	0.16	1.27	0.75	0.96	-1.03	1.17	1.19	-0.40	0.64	1.11	-2.17	-0.47	-0.23	-0.10
26				-0.06	-0.43	0.83	0.76	0.63	0.63	0.56	-0.09	2.54	-0.18	-0.34	0.07	-0.84	-0.87	0.10	-0.10	0.05	0.16
27				0.21	0.17	-0.03	0.86	0.58	1.07	0.50	0.18	1.15	0.50	0.33	0.10	0.12	0.12	-0.03	0.60	1.18	-1.19
28				1.05	1.03	-0.09	-1.08	-0.37	-1.83	0.80	0.80	-0.15	1.14	0.63	0.97	0.38	0.38	-0.00	0.60	0.70	0.32
29				-0.99	-0.89	-0.40	-1.29	-1.26	0.15	0.52	0.68	-0.85	-0.52	-0.05	-1.56	0.57	0.46	0.48	0.60	0.54	0.80
30				1.10	1.03	0.03	0.51	0.52	0.20	0.47	0.30	0.53	1.45	1.16	0.41	-1.03	-0.69	-1.55	0.77	0.92	0.14
Mean	-0.07	-0.00		0.08	-0.00		-0.08	0.00		0.07	0.00		0.14	-0.00		-0.02	0.00		-0.29	0.00	
Corr	0.961			0.913			0.940			0.939			0.937			0.941			0.900		
SD	0.98	0.95		0.77	0.75		0.83	0.83		0.73	0.69		0.84	0.72		0.75	0.74		0.80	0.75	
Ratio	0.97			0.98			0.99			0.94			0.86			0.99			0.94		

Appendix P: Science Pre- and Post-Equating Summary

The Pre- values were taken from the calibrated item bank. The Post- values were taken directly from unanchored calibration runs. The correlation and SD ratio are from the first linking using all the items, items with large Z were removed from subsequent linking sets until the Robust criteria was met, or other stopping criteria reached.

	5			8			11		
Item	Pre	Post	Z	Pre	Post	Z	Pre	Post	Z
1	-0.70	0.69	-0.54	-1.06	-0.18	0.70	-0.39	0.42	0.51
2	-0.21	0.93	0.15	-0.49	0.75	-0.63	-1.20	-0.09	-0.43
3	-0.90	0.03	0.75	-1.12	0.19	-0.89	-0.55	0.10	1.05
4	-0.87	0.03	0.81	-1.02	0.04	0.00	-1.17	0.16	-1.15
5	-1.70	-0.30	-0.58	-0.89	0.22	-0.18	0.37	1.21	0.43
6	-1.03	0.45	-0.79	-2.54	-1.19	-1.06	-0.47	0.14	1.18
7	-1.45	-0.25	0.00	-1.35	-0.09	-0.76	-0.71	0.03	0.76
8	-0.61	0.21	1.04	-0.75	0.24	0.26	0.07	0.91	0.43
9	-0.13	1.28	-0.61	0.03	1.13	-0.15	-1.14	-0.16	-0.01
10	-1.60	-0.62	0.58	-0.95	-0.07	0.66	-1.66	-0.54	-0.45
11	-1.43	-0.30	0.16	-0.65	0.39	0.07	-0.53	0.36	0.27
12	-1.22	0.95	-2.74	-0.40	0.46	0.73	-0.90	0.16	-0.27
13	-0.17	1.06	-0.10	-1.96	-0.68	-0.83	-0.28	0.44	0.79
14	-1.67	-0.47	-0.04	-0.49	0.36	0.80	-1.37	-0.63	0.75
15	-3.21	-2.33	0.87	-1.18	-0.28	0.59	-2.11	-1.03	-0.34
16	-2.01	-0.72	-0.27	-2.39	-0.75	-2.15	-0.04	0.79	0.44
17	-0.66	0.86	-0.92	-1.40	-0.18	-0.59	-3.20	-1.77	-1.46
18	-1.55	-0.23	-0.35	-1.69	-0.94	1.17	-2.26	-1.53	0.79
19	-0.22	0.54	1.22	-0.37	0.61	0.30	-2.76	-1.48	-0.96
20	-0.18	0.63	1.06	-1.45	-0.52	0.51	-1.31	-0.16	-0.55
21	-2.19	-1.36	0.99	-1.99	-0.48	-1.67	-1.36	-0.04	-1.09
22	-0.33	1.02	-0.44	0.14	1.01	0.71	0.25	1.37	-0.45
23	-2.04	-0.51	-0.93	-0.78	0.24	0.17	-0.07	1.31	-1.31
24	-2.15	-1.01	0.16	-1.99	-0.75	-0.67	-0.79	0.23	-0.13
25	-1.51	-0.56	0.70	-0.78	0.46	-0.66	-1.28	-0.38	0.26
26							-0.09	0.65	0.75
27							0.15	0.59	1.73
28							-0.42	0.75	-0.63
29							-1.46	-0.49	0.01
30							-2.60	-1.32	-0.99
Mean	-1.19	0.00		-1.10	-0.00		-0.97	-0.00	
Corr		0.931			0.953			0.964	
SD	0.80	0.87		0.70	0.60		0.93	0.83	
Ratio		1.08			0.86			0.90	

Appendix Q: Reading Raw-to-Scale Conversion Tables and Distributions of Ability

The charts are simple displays of Scale Score, Raw Score, and percentile rank. The raw score and percentile rank for any Scale Score can be read directly from chart.

The performance levels *Meets Standards* begins at a Scale Score of 85 and *Exceeds Standards* begins at 135. *Below Standards* is a Scale Score of 84 and below.

The table is a traditional table that was used to create the chart. This table would be used to retrieve the Scale Score or percentile rank for a given raw score. It also includes counts and percentages at each score.

Grade 3

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	3	Read	0	30	11.6	30	11.6	6	1	58
Spr 2016	3	Read	1	2	0.8	32	12.4	12	1	32
Spr 2016	3	Read	2	2	0.8	34	13.2	13	3	23
Spr 2016	3	Read	3	1	0.4	35	13.6	13	17	20
Spr 2016	3	Read	4	0	0.0	35	13.6	14	29	18
Spr 2016	3	Read	5	3	1.2	38	14.7	14	38	16
Spr 2016	3	Read	6	2	0.8	40	15.5	15	46	15
Spr 2016	3	Read	7	3	1.2	43	16.7	16	53	15
Spr 2016	3	Read	8	6	2.3	49	19.0	18	59	14
Spr 2016	3	Read	9	9	3.5	58	22.5	21	66	14
Spr 2016	3	Read	10	12	4.7	70	27.1	25	72	14
Spr 2016	3	Read	11	9	3.5	79	30.6	29	77	13
Spr 2016	3	Read	12	13	5.0	92	35.7	33	83	13
Spr 2016	3	Read	13	11	4.3	103	39.9	38	89	13
Spr 2016	3	Read	14	12	4.7	115	44.6	42	94	13
Spr 2016	3	Read	15	13	5.0	128	49.6	47	100	13
Spr 2016	3	Read	16	15	5.8	143	55.4	53	106	14
Spr 2016	3	Read	17	10	3.9	153	59.3	57	112	14
Spr 2016	3	Read	18	7	2.7	160	62.0	61	119	15
Spr 2016	3	Read	19	17	6.6	177	68.6	65	126	15
Spr 2016	3	Read	20	23	8.9	200	77.5	73	134	16
Spr 2016	3	Read	21	11	4.3	211	81.8	80	143	18
Spr 2016	3	Read	22	15	5.8	226	87.6	85	154	20
Spr 2016	3	Read	23	16	6.2	242	93.8	91	168	23
Spr 2016	3	Read	24	12	4.7	254	98.4	96	192	32
Spr 2016	3	Read	25	4	1.6	258	100.0	99	200	58

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Grade 4

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	4	Read	0	20	7.3	20	7.3	4	1	59
Spr 2016	4	Read	1	1	0.4	21	7.7	8	1	33
Spr 2016	4	Read	2	4	1.5	25	9.2	8	1	25
Spr 2016	4	Read	3	1	0.4	26	9.5	9	3	21
Spr 2016	4	Read	4	1	0.4	27	9.9	10	15	18
Spr 2016	4	Read	5	0	0.0	27	9.9	10	25	17
Spr 2016	4	Read	6	4	1.5	31	11.4	11	33	16
Spr 2016	4	Read	7	0	0.0	31	11.4	11	41	15
Spr 2016	4	Read	8	4	1.5	35	12.8	12	48	15
Spr 2016	4	Read	9	6	2.2	41	15.0	14	54	14
Spr 2016	4	Read	10	6	2.2	47	17.2	16	61	14
Spr 2016	4	Read	11	11	4.0	58	21.2	19	67	14
Spr 2016	4	Read	12	9	3.3	67	24.5	23	73	14
Spr 2016	4	Read	13	6	2.2	73	26.7	26	79	14
Spr 2016	4	Read	14	18	6.6	91	33.3	30	84	14
Spr 2016	4	Read	15	11	4.0	102	37.4	35	91	14
Spr 2016	4	Read	16	14	5.1	116	42.5	40	97	14
Spr 2016	4	Read	17	13	4.8	129	47.3	45	103	15
Spr 2016	4	Read	18	16	5.9	145	53.1	50	110	15
Spr 2016	4	Read	19	15	5.5	160	58.6	56	118	16
Spr 2016	4	Read	20	15	5.5	175	64.1	61	126	17
Spr 2016	4	Read	21	23	8.4	198	72.5	68	135	18
Spr 2016	4	Read	22	23	8.4	221	81.0	77	147	20
Spr 2016	4	Read	23	23	8.4	244	89.4	85	162	24
Spr 2016	4	Read	24	19	7.0	263	96.3	93	186	33
Spr 2016	4	Read	25	10	3.7	273	100.0	98	200	59

Grade 5

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	5	Read	0	20	6.4	20	6.4	3	1	72
Spr 2016	5	Read	1	1	0.3	21	6.7	7	1	40
Spr 2016	5	Read	2	1	0.3	22	7.1	7	1	29
Spr 2016	5	Read	3	1	0.3	23	7.4	7	1	25
Spr 2016	5	Read	4	0	0.0	23	7.4	7	10	22
Spr 2016	5	Read	5	2	0.6	25	8.0	8	22	20
Spr 2016	5	Read	6	4	1.3	29	9.3	9	32	19
Spr 2016	5	Read	7	3	1.0	32	10.3	10	41	18
Spr 2016	5	Read	8	4	1.3	36	11.5	11	49	18
Spr 2016	5	Read	9	11	3.5	47	15.1	13	57	17
Spr 2016	5	Read	10	14	4.5	61	19.6	17	65	17
Spr 2016	5	Read	11	13	4.2	74	23.7	22	72	17
Spr 2016	5	Read	12	19	6.1	93	29.8	27	79	17
Spr 2016	5	Read	13	9	2.9	102	32.7	31	87	17
Spr 2016	5	Read	14	17	5.4	119	38.1	35	94	17
Spr 2016	5	Read	15	24	7.7	143	45.8	42	101	17
Spr 2016	5	Read	16	19	6.1	162	51.9	49	109	17
Spr 2016	5	Read	17	27	8.7	189	60.6	56	117	18
Spr 2016	5	Read	18	10	3.2	199	63.8	62	125	18
Spr 2016	5	Read	19	13	4.2	212	67.9	66	134	19
Spr 2016	5	Read	20	24	7.7	236	75.6	72	144	20
Spr 2016	5	Read	21	21	6.7	257	82.4	79	156	22
Spr 2016	5	Read	22	15	4.8	272	87.2	85	170	25
Spr 2016	5	Read	23	25	8.0	297	95.2	91	188	29
Spr 2016	5	Read	24	11	3.5	308	98.7	97	200	40
Spr 2016	5	Read	25	4	1.3	312	100.0	99	200	72

Grade 6

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	6	Read	0	11	3.3	11	3.3	2	1	55
Spr 2016	6	Read	1	3	0.9	14	4.2	4	1	31
Spr 2016	6	Read	2	0	0.0	14	4.2	4	1	23
Spr 2016	6	Read	3	2	0.6	16	4.8	5	14	19
Spr 2016	6	Read	4	3	0.9	19	5.7	5	25	17
Spr 2016	6	Read	5	1	0.3	20	6.0	6	34	16
Spr 2016	6	Read	6	8	2.4	28	8.5	7	42	15
Spr 2016	6	Read	7	5	1.5	33	10.0	9	49	14
Spr 2016	6	Read	8	5	1.5	38	11.5	11	55	14
Spr 2016	6	Read	9	13	3.9	51	15.4	13	61	13
Spr 2016	6	Read	10	21	6.3	72	21.8	19	67	13
Spr 2016	6	Read	11	15	4.5	87	26.3	24	72	13
Spr 2016	6	Read	12	19	5.7	106	32.0	29	78	13
Spr 2016	6	Read	13	10	3.0	116	35.0	34	84	13
Spr 2016	6	Read	14	17	5.1	133	40.2	38	89	13
Spr 2016	6	Read	15	11	3.3	144	43.5	42	95	13
Spr 2016	6	Read	16	22	6.6	166	50.2	47	100	13
Spr 2016	6	Read	17	13	3.9	179	54.1	52	106	14
Spr 2016	6	Read	18	18	5.4	197	59.5	57	113	14
Spr 2016	6	Read	19	20	6.0	217	65.6	63	120	15
Spr 2016	6	Read	20	20	6.0	237	71.6	69	127	16
Spr 2016	6	Read	21	22	6.6	259	78.2	75	136	17
Spr 2016	6	Read	22	20	6.0	279	84.3	81	147	19
Spr 2016	6	Read	23	28	8.5	307	92.7	89	161	22
Spr 2016	6	Read	24	18	5.4	325	98.2	95	184	31
Spr 2016	6	Read	25	6	1.8	331	100.0	99	200	55

Grade 7

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	7	Read	0	18	5.5	18	5.5	3	1	69
Spr 2016	7	Read	1	2	0.6	20	6.1	6	1	39
Spr 2016	7	Read	2	1	0.3	21	6.4	6	1	28
Spr 2016	7	Read	3	0	0.0	21	6.4	6	1	24
Spr 2016	7	Read	4	1	0.3	22	6.7	7	11	21
Spr 2016	7	Read	5	0	0.0	22	6.7	7	22	20
Spr 2016	7	Read	6	2	0.6	24	7.3	7	32	19
Spr 2016	7	Read	7	5	1.5	29	8.8	8	40	18
Spr 2016	7	Read	8	9	2.7	38	11.5	10	48	17
Spr 2016	7	Read	9	21	6.4	59	17.9	15	56	17
Spr 2016	7	Read	10	17	5.2	76	23.0	20	63	16
Spr 2016	7	Read	11	8	2.4	84	25.5	24	70	16
Spr 2016	7	Read	12	14	4.2	98	29.7	28	77	16
Spr 2016	7	Read	13	22	6.7	120	36.4	33	84	16
Spr 2016	7	Read	14	16	4.8	136	41.2	39	91	16
Spr 2016	7	Read	15	14	4.2	150	45.5	43	98	16
Spr 2016	7	Read	16	15	4.5	165	50.0	48	106	17
Spr 2016	7	Read	17	17	5.2	182	55.2	53	114	17
Spr 2016	7	Read	18	16	4.8	198	60.0	58	122	18
Spr 2016	7	Read	19	29	8.8	227	68.8	64	131	19
Spr 2016	7	Read	20	22	6.7	249	75.5	72	140	20
Spr 2016	7	Read	21	16	4.8	265	80.3	78	152	21
Spr 2016	7	Read	22	22	6.7	287	87.0	84	165	24
Spr 2016	7	Read	23	17	5.2	304	92.1	90	183	29
Spr 2016	7	Read	24	17	5.2	321	97.3	95	200	39
Spr 2016	7	Read	25	9	2.7	330	100.0	99	200	69

Grade 8

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	8	Read	0	9	2.8	9	2.8	1	1	56
Spr 2016	8	Read	1	0	0.0	9	2.8	3	1	32
Spr 2016	8	Read	2	0	0.0	9	2.8	3	7	23
Spr 2016	8	Read	3	1	0.3	10	3.2	3	21	19
Spr 2016	8	Read	4	0	0.0	10	3.2	3	32	17
Spr 2016	8	Read	5	2	0.6	12	3.8	3	41	16
Spr 2016	8	Read	6	3	0.9	15	4.7	4	49	15
Spr 2016	8	Read	7	13	4.1	28	8.8	7	56	14
Spr 2016	8	Read	8	11	3.5	39	12.3	11	63	14
Spr 2016	8	Read	9	13	4.1	52	16.4	14	69	14
Spr 2016	8	Read	10	14	4.4	66	20.8	19	75	13
Spr 2016	8	Read	11	15	4.7	81	25.6	23	81	13
Spr 2016	8	Read	12	12	3.8	93	29.3	27	87	13
Spr 2016	8	Read	13	21	6.6	114	36.0	33	93	13
Spr 2016	8	Read	14	16	5.0	130	41.0	38	98	13
Spr 2016	8	Read	15	16	5.0	146	46.1	44	104	13
Spr 2016	8	Read	16	12	3.8	158	49.8	48	110	14
Spr 2016	8	Read	17	13	4.1	171	53.9	52	116	14
Spr 2016	8	Read	18	19	6.0	190	59.9	57	123	15
Spr 2016	8	Read	19	23	7.3	213	67.2	64	130	15
Spr 2016	8	Read	20	22	6.9	235	74.1	71	138	16
Spr 2016	8	Read	21	26	8.2	261	82.3	78	147	17
Spr 2016	8	Read	22	21	6.6	282	89.0	86	159	19
Spr 2016	8	Read	23	20	6.3	302	95.3	92	173	23
Spr 2016	8	Read	24	13	4.1	315	99.4	97	197	32
Spr 2016	8	Read	25	2	0.6	317	100.0	99	200	56

Grade 11

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	11	Read	0	21	7.2	21	7.2	4	1	58
Spr 2016	11	Read	1	1	0.3	22	7.5	7	1	33
Spr 2016	11	Read	2	1	0.3	23	7.9	8	2	24
Spr 2016	11	Read	3	1	0.3	24	8.2	8	16	20
Spr 2016	11	Read	4	1	0.3	25	8.6	8	27	18
Spr 2016	11	Read	5	2	0.7	27	9.2	9	37	16
Spr 2016	11	Read	6	4	1.4	31	10.6	10	45	15
Spr 2016	11	Read	7	7	2.4	38	13.0	12	52	15
Spr 2016	11	Read	8	3	1.0	41	14.0	14	58	14
Spr 2016	11	Read	9	8	2.7	49	16.8	15	64	14
Spr 2016	11	Read	10	8	2.7	57	19.5	18	70	14
Spr 2016	11	Read	11	10	3.4	67	22.9	21	76	13
Spr 2016	11	Read	12	12	4.1	79	27.1	25	82	13
Spr 2016	11	Read	13	8	2.7	87	29.8	28	87	13
Spr 2016	11	Read	14	18	6.2	105	36.0	33	93	13
Spr 2016	11	Read	15	10	3.4	115	39.4	38	99	14
Spr 2016	11	Read	16	17	5.8	132	45.2	42	105	14
Spr 2016	11	Read	17	12	4.1	144	49.3	47	111	14
Spr 2016	11	Read	18	17	5.8	161	55.1	52	118	15
Spr 2016	11	Read	19	17	5.8	178	61.0	58	125	15
Spr 2016	11	Read	20	26	8.9	204	69.9	65	133	16
Spr 2016	11	Read	21	18	6.2	222	76.0	73	142	18
Spr 2016	11	Read	22	25	8.6	247	84.6	80	153	20
Spr 2016	11	Read	23	29	9.9	276	94.5	90	168	24
Spr 2016	11	Read	24	13	4.5	289	99.0	97	192	33
Spr 2016	11	Read	25	3	1.0	292	100.0	99	200	58

Appendix R: Mathematics Raw-to-Scale Conversion Tables and Distributions of Ability

The charts are simple displays of Scale Score, Raw Score, and percentile rank. The raw score and percentile rank for any Scale Score can be read directly from chart.

The performance levels *Meets Standards* begins at a Scale Score of 85 and *Exceeds Standards* begins at 135. *Below Standards* is a Scale Score of 84 and below.

The table is a traditional table that was used to create the chart. This table would be used to retrieve the Scale Score or percentile rank for a given raw score. It also includes counts and percentages at each score.

Grade 3

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	3	Math	0	34	13.8	34	13.8	7	1	55
Spr 2016	3	Math	1	3	1.2	37	15.0	14	1	31
Spr 2016	3	Math	2	2	0.8	39	15.9	15	1	23
Spr 2016	3	Math	3	1	0.4	40	16.3	16	16	19
Spr 2016	3	Math	4	3	1.2	43	17.5	17	27	17
Spr 2016	3	Math	5	0	0.0	43	17.5	17	36	16
Spr 2016	3	Math	6	1	0.4	44	17.9	18	44	15
Spr 2016	3	Math	7	4	1.6	48	19.5	19	52	14
Spr 2016	3	Math	8	6	2.4	54	22.0	21	59	14
Spr 2016	3	Math	9	9	3.7	63	25.6	24	65	14
Spr 2016	3	Math	10	7	2.8	70	28.5	27	71	13
Spr 2016	3	Math	11	9	3.7	79	32.1	30	77	13
Spr 2016	3	Math	12	10	4.1	89	36.2	34	83	13
Spr 2016	3	Math	13	10	4.1	99	40.2	38	88	13
Spr 2016	3	Math	14	13	5.3	112	45.5	43	94	13
Spr 2016	3	Math	15	11	4.5	123	50.0	48	100	13
Spr 2016	3	Math	16	11	4.5	134	54.5	52	106	13
Spr 2016	3	Math	17	10	4.1	144	58.5	57	112	14
Spr 2016	3	Math	18	12	4.9	156	63.4	61	118	14
Spr 2016	3	Math	19	10	4.1	166	67.5	65	125	15
Spr 2016	3	Math	20	14	5.7	180	73.2	70	133	16
Spr 2016	3	Math	21	22	8.9	202	82.1	78	142	17
Spr 2016	3	Math	22	13	5.3	215	87.4	85	153	19
Spr 2016	3	Math	23	13	5.3	228	92.7	90	168	23
Spr 2016	3	Math	24	14	5.7	242	98.4	96	190	31
Spr 2016	3	Math	25	4	1.6	246	100.0	99	200	55

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Grade 4

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	4	Math	0	24	9.2	24	9.2	5	1	68
Spr 2016	4	Math	1	0	0.0	24	9.2	9	1	38
Spr 2016	4	Math	2	0	0.0	24	9.2	9	1	28
Spr 2016	4	Math	3	2	0.8	26	10.0	10	1	23
Spr 2016	4	Math	4	0	0.0	26	10.0	10	1	20
Spr 2016	4	Math	5	1	0.4	27	10.4	10	6	19
Spr 2016	4	Math	6	0	0.0	27	10.4	10	15	18
Spr 2016	4	Math	7	2	0.8	29	11.2	11	23	17
Spr 2016	4	Math	8	0	0.0	29	11.2	11	30	16
Spr 2016	4	Math	9	4	1.5	33	12.7	12	37	15
Spr 2016	4	Math	10	5	1.9	38	14.6	14	43	15
Spr 2016	4	Math	11	9	3.5	47	18.1	16	49	15
Spr 2016	4	Math	12	14	5.4	61	23.5	21	55	15
Spr 2016	4	Math	13	6	2.3	67	25.8	25	60	14
Spr 2016	4	Math	14	12	4.6	79	30.4	28	66	14
Spr 2016	4	Math	15	8	3.1	87	33.5	32	72	14
Spr 2016	4	Math	16	5	1.9	92	35.4	34	77	14
Spr 2016	4	Math	17	11	4.2	103	39.6	38	83	14
Spr 2016	4	Math	18	13	5.0	116	44.6	42	89	15
Spr 2016	4	Math	19	8	3.1	124	47.7	46	95	15
Spr 2016	4	Math	20	13	5.0	137	52.7	50	101	15
Spr 2016	4	Math	21	9	3.5	146	56.2	54	107	16
Spr 2016	4	Math	22	12	4.6	158	60.8	58	114	16
Spr 2016	4	Math	23	4	1.5	162	62.3	62	121	17
Spr 2016	4	Math	24	16	6.2	178	68.5	65	129	18
Spr 2016	4	Math	25	17	6.5	195	75.0	72	138	19
Spr 2016	4	Math	26	14	5.4	209	80.4	78	149	21
Spr 2016	4	Math	27	17	6.5	226	86.9	84	162	23
Spr 2016	4	Math	28	11	4.2	237	91.2	89	179	28
Spr 2016	4	Math	29	13	5.0	250	96.2	94	200	38
Spr 2016	4	Math	30	10	3.8	260	100.0	98	200	68

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Grade 5

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	5	Math	0	20	6.4	20	6.4	3	1	68
Spr 2016	5	Math	1	1	0.3	21	6.8	7	1	38
Spr 2016	5	Math	2	1	0.3	22	7.1	7	1	27
Spr 2016	5	Math	3	0	0.0	22	7.1	7	1	23
Spr 2016	5	Math	4	2	0.6	24	7.7	7	6	20
Spr 2016	5	Math	5	0	0.0	24	7.7	8	16	19
Spr 2016	5	Math	6	1	0.3	25	8.0	8	25	18
Spr 2016	5	Math	7	3	1.0	28	9.0	9	33	17
Spr 2016	5	Math	8	2	0.6	30	9.6	9	40	16
Spr 2016	5	Math	9	5	1.6	35	11.3	10	47	16
Spr 2016	5	Math	10	4	1.3	39	12.5	12	54	15
Spr 2016	5	Math	11	8	2.6	47	15.1	14	60	15
Spr 2016	5	Math	12	11	3.5	58	18.6	17	66	15
Spr 2016	5	Math	13	15	4.8	73	23.5	21	72	15
Spr 2016	5	Math	14	11	3.5	84	27.0	25	77	14
Spr 2016	5	Math	15	15	4.8	99	31.8	29	83	14
Spr 2016	5	Math	16	21	6.8	120	38.6	35	89	15
Spr 2016	5	Math	17	11	3.5	131	42.1	40	95	15
Spr 2016	5	Math	18	14	4.5	145	46.6	44	101	15
Spr 2016	5	Math	19	12	3.9	157	50.5	49	107	15
Spr 2016	5	Math	20	13	4.2	170	54.7	53	113	15
Spr 2016	5	Math	21	9	2.9	179	57.6	56	119	16
Spr 2016	5	Math	22	14	4.5	193	62.1	60	126	16
Spr 2016	5	Math	23	9	2.9	202	65.0	64	134	17
Spr 2016	5	Math	24	14	4.5	216	69.5	67	142	18
Spr 2016	5	Math	25	16	5.1	232	74.6	72	151	19
Spr 2016	5	Math	26	21	6.8	253	81.4	78	161	21
Spr 2016	5	Math	27	16	5.1	269	86.5	84	174	23
Spr 2016	5	Math	28	17	5.5	286	92.0	89	191	27
Spr 2016	5	Math	29	17	5.5	303	97.4	95	200	38
Spr 2016	5	Math	30	8	2.6	311	100.0	99	200	68

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Grade 6

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	6	Math	0	14	4.2	14	4.2	2	1	52
Spr 2016	6	Math	1	1	0.3	15	4.5	4	1	29
Spr 2016	6	Math	2	1	0.3	16	4.8	5	1	21
Spr 2016	6	Math	3	0	0.0	16	4.8	5	10	18
Spr 2016	6	Math	4	1	0.3	17	5.1	5	20	16
Spr 2016	6	Math	5	1	0.3	18	5.4	5	28	14
Spr 2016	6	Math	6	4	1.2	22	6.6	6	35	13
Spr 2016	6	Math	7	3	0.9	25	7.6	7	41	13
Spr 2016	6	Math	8	4	1.2	29	8.8	8	46	12
Spr 2016	6	Math	9	8	2.4	37	11.2	10	51	12
Spr 2016	6	Math	10	9	2.7	46	13.9	13	56	12
Spr 2016	6	Math	11	10	3.0	56	16.9	15	61	11
Spr 2016	6	Math	12	12	3.6	68	20.5	19	65	11
Spr 2016	6	Math	13	12	3.6	80	24.2	22	70	11
Spr 2016	6	Math	14	9	2.7	89	26.9	26	74	11
Spr 2016	6	Math	15	19	5.7	108	32.6	30	78	11
Spr 2016	6	Math	16	12	3.6	120	36.3	34	82	11
Spr 2016	6	Math	17	18	5.4	138	41.7	39	87	11
Spr 2016	6	Math	18	12	3.6	150	45.3	44	91	11
Spr 2016	6	Math	19	16	4.8	166	50.2	48	95	11
Spr 2016	6	Math	20	23	6.9	189	57.1	54	100	11
Spr 2016	6	Math	21	12	3.6	201	60.7	59	105	12
Spr 2016	6	Math	22	14	4.2	215	65.0	63	110	12
Spr 2016	6	Math	23	15	4.5	230	69.5	67	115	13
Spr 2016	6	Math	24	23	6.9	253	76.4	73	121	13
Spr 2016	6	Math	25	13	3.9	266	80.4	78	128	14
Spr 2016	6	Math	26	18	5.4	284	85.8	83	136	16
Spr 2016	6	Math	27	17	5.1	301	90.9	88	145	18
Spr 2016	6	Math	28	14	4.2	315	95.2	93	158	21
Spr 2016	6	Math	29	9	2.7	324	97.9	97	179	29
Spr 2016	6	Math	30	7	2.1	331	100.0	99	200	52

Grade 7

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	7	Math	0	20	5.9	20	5.9	3	1	63
Spr 2016	7	Math	1	1	0.3	21	6.2	6	1	35
Spr 2016	7	Math	2	0	0.0	21	6.2	6	1	26
Spr 2016	7	Math	3	1	0.3	22	6.5	6	1	21
Spr 2016	7	Math	4	1	0.3	23	6.8	7	9	19
Spr 2016	7	Math	5	0	0.0	23	6.8	7	18	17
Spr 2016	7	Math	6	1	0.3	24	7.1	7	26	16
Spr 2016	7	Math	7	3	0.9	27	8.0	8	34	15
Spr 2016	7	Math	8	8	2.4	35	10.4	9	40	15
Spr 2016	7	Math	9	8	2.4	43	12.7	12	47	14
Spr 2016	7	Math	10	14	4.1	57	16.9	15	53	14
Spr 2016	7	Math	11	10	3.0	67	19.8	18	58	14
Spr 2016	7	Math	12	11	3.3	78	23.1	21	64	14
Spr 2016	7	Math	13	16	4.7	94	27.8	25	69	13
Spr 2016	7	Math	14	18	5.3	112	33.1	30	74	13
Spr 2016	7	Math	15	14	4.1	126	37.3	35	79	13
Spr 2016	7	Math	16	7	2.1	133	39.3	38	84	13
Spr 2016	7	Math	17	11	3.3	144	42.6	41	90	13
Spr 2016	7	Math	18	15	4.4	159	47.0	45	95	14
Spr 2016	7	Math	19	8	2.4	167	49.4	48	100	14
Spr 2016	7	Math	20	14	4.1	181	53.6	51	106	14
Spr 2016	7	Math	21	12	3.6	193	57.1	55	112	14
Spr 2016	7	Math	22	18	5.3	211	62.4	60	118	15
Spr 2016	7	Math	23	18	5.3	229	67.8	65	125	15
Spr 2016	7	Math	24	17	5.0	246	72.8	70	132	16
Spr 2016	7	Math	25	19	5.6	265	78.4	76	140	17
Spr 2016	7	Math	26	22	6.5	287	84.9	82	150	19
Spr 2016	7	Math	27	17	5.0	304	89.9	87	162	21
Spr 2016	7	Math	28	17	5.0	321	95.0	92	177	26
Spr 2016	7	Math	29	15	4.4	336	99.4	97	200	35
Spr 2016	7	Math	30	2	0.6	338	100.0	99	200	63

Grade 8

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	8	Math	0	10	3.1	10	3.1	2	1	70
Spr 2016	8	Math	1	0	0.0	10	3.1	3	1	39
Spr 2016	8	Math	2	0	0.0	10	3.1	3	1	28
Spr 2016	8	Math	3	1	0.3	11	3.4	3	1	24
Spr 2016	8	Math	4	1	0.3	12	3.7	4	1	21
Spr 2016	8	Math	5	0	0.0	12	3.7	4	1	19
Spr 2016	8	Math	6	2	0.6	14	4.3	4	8	18
Spr 2016	8	Math	7	1	0.3	15	4.6	4	16	17
Spr 2016	8	Math	8	7	2.2	22	6.8	6	23	16
Spr 2016	8	Math	9	8	2.5	30	9.2	8	30	16
Spr 2016	8	Math	10	10	3.1	40	12.3	11	37	16
Spr 2016	8	Math	11	11	3.4	51	15.7	14	43	15
Spr 2016	8	Math	12	13	4.0	64	19.7	18	49	15
Spr 2016	8	Math	13	10	3.1	74	22.8	21	55	15
Spr 2016	8	Math	14	14	4.3	88	27.1	25	60	15
Spr 2016	8	Math	15	12	3.7	100	30.8	29	66	15
Spr 2016	8	Math	16	10	3.1	110	33.8	32	72	15
Spr 2016	8	Math	17	13	4.0	123	37.8	36	78	15
Spr 2016	8	Math	18	16	4.9	139	42.8	40	84	15
Spr 2016	8	Math	19	13	4.0	152	46.8	45	90	15
Spr 2016	8	Math	20	16	4.9	168	51.7	49	96	16
Spr 2016	8	Math	21	14	4.3	182	56.0	54	103	16
Spr 2016	8	Math	22	12	3.7	194	59.7	58	110	17
Spr 2016	8	Math	23	20	6.2	214	65.8	63	117	17
Spr 2016	8	Math	24	18	5.5	232	71.4	69	126	18
Spr 2016	8	Math	25	20	6.2	252	77.5	74	135	19
Spr 2016	8	Math	26	14	4.3	266	81.8	80	146	21
Spr 2016	8	Math	27	28	8.6	294	90.5	86	159	24
Spr 2016	8	Math	28	13	4.0	307	94.5	92	176	28
Spr 2016	8	Math	29	12	3.7	319	98.2	96	200	39
Spr 2016	8	Math	30	6	1.8	325	100.0	99	200	70

Grade 11

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	11	Math	0	22	7.1	22	7.1	4	1	93
Spr 2016	11	Math	1	4	1.3	26	8.4	8	1	52
Spr 2016	11	Math	2	1	0.3	27	8.7	9	1	38
Spr 2016	11	Math	3	0	0.0	27	8.7	9	1	32
Spr 2016	11	Math	4	0	0.0	27	8.7	9	1	28
Spr 2016	11	Math	5	0	0.0	27	8.7	9	1	26
Spr 2016	11	Math	6	3	1.0	30	9.6	9	1	24
Spr 2016	11	Math	7	0	0.0	30	9.6	10	1	23
Spr 2016	11	Math	8	1	0.3	31	10.0	10	1	22
Spr 2016	11	Math	9	10	3.2	41	13.2	12	10	21
Spr 2016	11	Math	10	10	3.2	51	16.4	15	19	21
Spr 2016	11	Math	11	5	1.6	56	18.0	17	27	20
Spr 2016	11	Math	12	9	2.9	65	20.9	19	35	20
Spr 2016	11	Math	13	3	1.0	68	21.9	21	43	20
Spr 2016	11	Math	14	15	4.8	83	26.7	24	51	20
Spr 2016	11	Math	15	7	2.3	90	28.9	28	59	20
Spr 2016	11	Math	16	9	2.9	99	31.8	30	66	20
Spr 2016	11	Math	17	10	3.2	109	35.0	33	74	20
Spr 2016	11	Math	18	14	4.5	123	39.5	37	82	20
Spr 2016	11	Math	19	9	2.9	132	42.4	41	90	20
Spr 2016	11	Math	20	17	5.5	149	47.9	45	98	21
Spr 2016	11	Math	21	13	4.2	162	52.1	50	107	21
Spr 2016	11	Math	22	11	3.5	173	55.6	54	116	22
Spr 2016	11	Math	23	18	5.8	191	61.4	59	126	23
Spr 2016	11	Math	24	22	7.1	213	68.5	65	137	24
Spr 2016	11	Math	25	17	5.5	230	74.0	71	149	26
Spr 2016	11	Math	26	21	6.8	251	80.7	77	163	28
Spr 2016	11	Math	27	15	4.8	266	85.5	83	181	32
Spr 2016	11	Math	28	21	6.8	287	92.3	89	200	38
Spr 2016	11	Math	29	15	4.8	302	97.1	95	200	52
Spr 2016	11	Math	30	9	2.9	311	100.0	99	200	93

Appendix S: Science Raw-to-Scale Conversion Tables and Distributions of Ability

The charts are simple displays of Scale Score, Raw Score, and percentile rank. The raw score and percentile rank for any Scale Score can be read directly from chart.

The performance levels *Meets Standards* begins at a Scale Score of 85 and *Exceeds Standards* begins at 135. *Below Standards* is a Scale Score of 84 and below.

The table is a traditional table that was used to create the chart. This table would be used to retrieve the Scale Score or percentile rank for a given raw score. It also includes counts and percentages at each score.

Grade 5

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	5	Science	0	21	6.8	21	6.8	3	1	65
Spr 2016	5	Science	1	1	0.3	22	7.1	7	1	37
Spr 2016	5	Science	2	2	0.6	24	7.8	7	1	27
Spr 2016	5	Science	3	1	0.3	25	8.1	8	2	23
Spr 2016	5	Science	4	1	0.3	26	8.4	8	15	20
Spr 2016	5	Science	5	2	0.6	28	9.1	9	26	19
Spr 2016	5	Science	6	1	0.3	29	9.4	9	35	18
Spr 2016	5	Science	7	2	0.6	31	10.1	10	44	17
Spr 2016	5	Science	8	8	2.6	39	12.7	11	51	16
Spr 2016	5	Science	9	10	3.2	49	15.9	14	59	16
Spr 2016	5	Science	10	11	3.6	60	19.5	18	66	15
Spr 2016	5	Science	11	11	3.6	71	23.1	21	72	15
Spr 2016	5	Science	12	12	3.9	83	26.9	25	79	15
Spr 2016	5	Science	13	17	5.5	100	32.5	30	86	15
Spr 2016	5	Science	14	8	2.6	108	35.1	34	92	15
Spr 2016	5	Science	15	12	3.9	120	39.0	37	99	15
Spr 2016	5	Science	16	16	5.2	136	44.2	42	106	16
Spr 2016	5	Science	17	13	4.2	149	48.4	46	113	16
Spr 2016	5	Science	18	21	6.8	170	55.2	52	120	17
Spr 2016	5	Science	19	21	6.8	191	62.0	59	129	17
Spr 2016	5	Science	20	32	10.4	223	72.4	67	138	18
Spr 2016	5	Science	21	16	5.2	239	77.6	75	148	20
Spr 2016	5	Science	22	16	5.2	255	82.8	80	160	22
Spr 2016	5	Science	23	25	8.1	280	90.9	87	177	26
Spr 2016	5	Science	24	20	6.5	300	97.4	94	200	36
Spr 2016	5	Science	25	8	2.6	308	100.0	99	200	65

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Grade 8

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	8	Science	0	10	3.2	10	3.2	2	1	72
Spr 2016	8	Science	1	1	0.3	11	3.5	3	1	40
Spr 2016	8	Science	2	0	0.0	11	3.5	4	1	29
Spr 2016	8	Science	3	1	0.3	12	3.8	4	1	24
Spr 2016	8	Science	4	0	0.0	12	3.8	4	2	22
Spr 2016	8	Science	5	1	0.3	13	4.2	4	13	20
Spr 2016	8	Science	6	4	1.3	17	5.4	5	23	19
Spr 2016	8	Science	7	3	1.0	20	6.4	6	32	18
Spr 2016	8	Science	8	11	3.5	31	9.9	8	40	17
Spr 2016	8	Science	9	18	5.8	49	15.7	13	47	17
Spr 2016	8	Science	10	11	3.5	60	19.2	17	54	17
Spr 2016	8	Science	11	12	3.8	72	23.0	21	61	16
Spr 2016	8	Science	12	13	4.2	85	27.2	25	68	16
Spr 2016	8	Science	13	14	4.5	99	31.6	29	75	16
Spr 2016	8	Science	14	13	4.2	112	35.8	34	82	16
Spr 2016	8	Science	15	12	3.8	124	39.6	38	89	17
Spr 2016	8	Science	16	19	6.1	143	45.7	43	96	17
Spr 2016	8	Science	17	20	6.4	163	52.1	49	103	17
Spr 2016	8	Science	18	13	4.2	176	56.2	54	111	18
Spr 2016	8	Science	19	23	7.3	199	63.6	60	120	19
Spr 2016	8	Science	20	25	8.0	224	71.6	68	130	20
Spr 2016	8	Science	21	23	7.3	247	78.9	75	141	22
Spr 2016	8	Science	22	28	8.9	275	87.9	83	154	24
Spr 2016	8	Science	23	17	5.4	292	93.3	91	172	29
Spr 2016	8	Science	24	15	4.8	307	98.1	96	200	40
Spr 2016	8	Science	25	6	1.9	313	100.0	99	200	72

Grade 11

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	S.E.
Spr 2016	11	Science	0	21	7.2	21	7.2	4	1	62
Spr 2016	11	Science	1	1	0.3	22	7.5	7	1	35
Spr 2016	11	Science	2	0	0.0	22	7.5	8	1	25
Spr 2016	11	Science	3	2	0.7	24	8.2	8	1	21
Spr 2016	11	Science	4	1	0.3	25	8.6	8	7	19
Spr 2016	11	Science	5	1	0.3	26	8.9	9	16	17
Spr 2016	11	Science	6	1	0.3	27	9.2	9	25	16
Spr 2016	11	Science	7	4	1.4	31	10.6	10	32	16
Spr 2016	11	Science	8	4	1.4	35	12.0	11	39	15
Spr 2016	11	Science	9	3	1.0	38	13.0	13	46	14
Spr 2016	11	Science	10	9	3.1	47	16.1	15	52	14
Spr 2016	11	Science	11	8	2.7	55	18.8	17	57	14
Spr 2016	11	Science	12	6	2.1	61	20.9	20	63	14
Spr 2016	11	Science	13	11	3.8	72	24.7	23	68	13
Spr 2016	11	Science	14	8	2.7	80	27.4	26	74	13
Spr 2016	11	Science	15	6	2.1	86	29.5	28	79	13
Spr 2016	11	Science	16	5	1.7	91	31.2	30	84	13
Spr 2016	11	Science	17	12	4.1	103	35.3	33	89	13
Spr 2016	11	Science	18	8	2.7	111	38.0	37	94	13
Spr 2016	11	Science	19	11	3.8	122	41.8	40	100	14
Spr 2016	11	Science	20	11	3.8	133	45.5	44	105	14
Spr 2016	11	Science	21	13	4.5	146	50.0	48	111	14
Spr 2016	11	Science	22	15	5.1	161	55.1	53	117	15
Spr 2016	11	Science	23	12	4.1	173	59.2	57	124	15
Spr 2016	11	Science	24	18	6.2	191	65.4	62	131	16
Spr 2016	11	Science	25	25	8.6	216	74.0	70	139	17
Spr 2016	11	Science	26	20	6.8	236	80.8	77	149	19
Spr 2016	11	Science	27	19	6.5	255	87.3	84	160	21
Spr 2016	11	Science	28	14	4.8	269	92.1	90	176	25
Spr 2016	11	Science	29	17	5.8	286	97.9	95	200	34
Spr 2016	11	Science	30	6	2.1	292	100.0	99	200	62

Appendix T: Reading, Mathematics, and Science Demographic Summary Sheets

Reading : Grade 3

Group	Subgroup	Valid N	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	SD	Mean	SD	Below	Meets	Exceeds
Overall		262	14.4	7.3	100.2	52.9	35.5	42.4	22.1
Gender	Male	182	14.3	7.2	100.0	51.9	37.4	41.8	20.9
	Female	80	14.5	7.7	100.6	55.4	31.3	43.8	25.0
Ethnicity*	AM	5	14.0	8.5	95.0	57.7	20.0	60.0	20.0
	AS	6	10.3	5.4	71.3	35.8	50.0	50.0	0.0
	BL	24	15.0	6.3	101.8	42.8	29.2	54.2	16.7
	PI	1	12.0	-	83.0	-	100.0	0.0	0.0
	WH	170	14.7	7.7	103.8	56.7	35.3	36.5	28.2
	HI	44	13.3	6.6	90.8	43.4	40.9	52.3	6.8
	MU	12	14.0	7.5	97.1	54.5	25.0	58.3	16.7
Special Ed	No	6	18.2	5.1	125.7	36.4	16.7	50.0	33.3
	Yes	256	14.3	7.4	99.6	53.1	35.9	42.2	21.9
ELL	No	255	14.3	7.4	100.1	53.5	36.1	41.2	22.7
	Yes	7	15.1	3.1	101.4	18.2	14.3	85.7	0.0
FLS	No	126	14.3	7.4	100.4	53.8	34.1	42.1	23.8
	Yes	136	14.4	7.3	100.0	52.2	36.8	42.6	20.6

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 4

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		275	16.3	6.9	107.3	52.4	33.5	30.9	35.6
Gender	Male	186	16.6	6.4	108.4	48.8	32.8	33.9	33.3
	Female	89	15.8	8.0	104.9	59.3	34.8	24.7	40.4
Ethnicity*	AM	5	20.4	4.1	140.8	41.4	0.0	40.0	60.0
	AS	6	14.2	5.3	88.0	35.1	66.7	16.7	16.7
	BL	31	14.8	6.5	93.0	43.6	41.9	35.5	22.6
	PI	0							
	WH	171	16.3	7.1	107.7	54.7	35.1	29.2	35.7
	HI	51	16.5	7.1	108.0	51.5	27.5	33.3	39.2
	MU	11	19.4	4.7	131.6	43.7	9.1	36.4	54.5
Special Ed	No	2	20.0	4.2	132.5	41.7	0.0	50.0	50.0
	Yes	273	16.3	7.0	107.1	52.4	33.7	30.8	35.5
ELL	No	270	16.2	7.0	106.6	52.4	34.1	30.4	35.6
	Yes	5	21.0	2.9	143.2	37.5	0.0	60.0	40.0
FLS	No	117	15.5	6.9	100.9	51.1	41.9	28.2	29.9
	Yes	158	16.9	7.0	112.0	52.9	27.2	32.9	39.9

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 5

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		314	15.4	6.3	110.4	52.5	29.9	38.2	31.8
Gender	Male	196	15.7	6.1	113.6	51.8	27.6	37.2	35.2
	Female	118	14.8	6.6	105.2	53.4	33.9	39.8	26.3
Ethnicity*	AM	11	15.7	6.0	111.0	53.5	27.3	45.5	27.3
	AS	6	15.2	8.5	110.7	65.0	33.3	16.7	50.0
	BL	28	15.6	6.1	111.3	48.3	25.0	39.3	35.7
	PI	1	14.0	14.0	94.0	94.0	0.0	100.0	0.0
	WH	183	15.6	6.1	112.3	51.7	29.5	37.7	32.8
	HI	68	14.3	7.4	102.6	59.1	38.2	32.4	29.4
	MU	16	17.1	3.8	122.1	36.6	12.5	62.5	25.0
Special Ed	No	6	13.3	7.7	92.8	55.5	33.3	50.0	16.7
	Yes	308	15.4	6.3	110.8	52.4	29.9	38.0	32.1
ELL	No	311	15.3	6.3	110.1	52.5	30.2	38.3	31.5
	Yes	3	20.3	2.1	150.3	23.0	33.3	66.7	100.0
FLS	No	123	14.6	6.4	104.0	52.4	35.0	39.8	25.2
	Yes	191	15.8	6.2	114.6	52.2	26.7	37.2	36.1

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 6

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		331	15.8	6.2	104.9	44.9	35.0	36.6	28.4
Gender	Male	220	16.0	6.0	106.2	43.7	32.3	40.5	27.3
	Female	111	15.3	6.6	102.5	47.4	40.5	28.8	30.6
Ethnicity*	AM	11	16.3	5.6	105.5	36.1	27.3	54.5	18.2
	AS	4	12.5	2.4	80.8	13.4	50.0	50.0	0.0
	BL	32	18.9	4.1	125.1	31.4	12.5	43.8	43.8
	PI	0							
	WH	205	15.8	6.4	105.7	46.7	35.1	35.6	29.3
	HI	70	13.8	6.3	91.7	44.3	48.6	32.9	18.6
	MU	8	20.0	3.6	134.4	31.6	0.0	37.5	62.5
Special Ed	No	7	18.1	5.3	123.7	45.7	28.6	28.6	42.9
	Yes	324	15.7	6.3	104.5	44.9	35.2	36.7	28.1
ELL	No	327	15.8	6.2	105.0	44.9	34.9	36.7	28.4
	Yes	4	14.3	6.8	100.3	57.1	50.0	25.0	25.0
FLS	No	144	15.2	6.2	101.2	44.6	38.9	36.8	24.3
	Yes	187	16.2	6.2	107.8	45.2	32.1	36.4	31.6

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 7

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		334	15.5	6.4	109.2	52.4	36.2	32.6	31.1
Gender	Male	220	15.2	6.2	106.3	50.9	36.8	37.3	25.9
	Female	114	16.1	6.6	114.7	55.2	35.1	23.7	41.2
Ethnicity*	AM	4	12.3	9.8	86.0	72.3	50.0	25.0	25.0
	AS	4	14.8	10.1	107.3	76.7	25.0	50.0	25.0
	BL	37	14.6	5.7	100.4	46.1	40.5	37.8	21.6
	PI	0							
	WH	211	15.5	6.6	109.9	54.6	36.0	31.3	32.7
	HI	65	16.2	5.9	113.8	48.7	35.4	29.2	35.4
	MU	13	15.6	4.9	106.5	41.4	30.8	53.8	15.4
Special Ed	No	3	14.0	3.6	92.0	26.9	66.7	33.3	0.0
	Yes	331	15.5	6.4	109.3	52.6	36.0	32.6	31.4
ELL	No	329	15.4	6.3	108.5	52.2	36.5	33.1	30.4
	Yes	5	20.2	5.4	155.0	53.9	20.0	0.0	80.0
FLS	No	137	14.5	6.8	101.7	54.7	43.8	27.7	28.5
	Yes	197	16.2	5.9	114.4	50.3	31.0	36.0	33.0

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 8

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		320	15.7	5.8	113.2	42.4	25.3	42.2	32.5
Gender	Male	198	15.8	5.7	113.4	41.4	24.7	41.9	33.3
	Female	122	15.7	6.0	112.9	44.1	26.2	42.6	31.1
Ethnicity*	AM	5	11.0	10.4	77.0	71.8	40.0	20.0	40.0
	AS	6	15.2	7.4	108.2	53.7	33.3	16.7	50.0
	BL	37	14.8	6.1	106.9	44.9	27.0	45.9	27.0
	PI	1	16.0	-	110.0	-	0.0	100.0	0.0
	WH	209	16.0	5.6	114.9	40.5	23.9	44.0	32.1
	HI	50	16.0	5.4	116.3	40.5	24.0	44.0	32.0
	MU	12	15.0	8.0	108.9	55.8	41.7	8.3	50.0
Special Ed	No	4	16.5	6.1	123.8	53.5	25.0	50.0	25.0
	Yes	316	15.7	5.8	113.1	42.3	25.3	42.1	32.6
ELL	No	316	15.7	5.8	113.0	42.5	25.6	42.1	32.3
	Yes	4	18.0	4.2	126.0	28.4	0.0	50.0	50.0
FLS	No	156	15.4	5.8	110.8	41.0	29.5	40.4	30.1
	Yes	164	16.0	5.9	115.5	43.6	21.3	43.9	34.8

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 11

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		293	15.8	6.8	109.5	49.5	27.3	42.7	30.0
Gender	Male	183	16.1	6.7	111.2	49.0	23.5	46.4	30.1
	Female	110	15.4	7.0	106.8	50.4	33.6	36.4	30.0
Ethnicity*	AM	12	20.0	3.4	139.4	32.3	8.3	58.3	33.3
	AS	4	20.0	3.6	139.8	33.0	0.0	50.0	50.0
	BL	30	15.3	5.7	104.1	39.7	23.3	60.0	16.7
	PI	1	0.0	-	1.0	-	100.0	0.0	0.0
	WH	191	15.9	6.8	110.3	49.9	28.3	37.7	34.0
	HI	48	14.7	7.6	101.5	54.2	31.3	47.9	20.8
	MU	7	16.0	5.9	112.7	46.8	28.6	42.9	28.6
Special Ed	No	9	19.0	5.8	129.9	41.2	11.1	33.3	55.6
	Yes	284	15.7	6.8	108.9	49.6	27.8	43.0	29.2
ELL	No	291	15.9	6.8	109.9	49.4	26.8	43.0	30.2
	Yes	2	7.5	2.1	54.5	13.4	100.0	0.0	0.0
FLS	No	130	14.9	7.2	103.4	51.3	33.1	40.8	26.2
	Yes	163	16.5	6.5	114.4	47.5	22.7	44.2	33.1

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Mathematics**Grade 3**

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		250	14.1	7.8	98.5	56.1	36.0	37.2	26.8
Gender	Male	173	14.0	7.7	97.6	55.8	37.6	35.8	26.6
	Female	77	14.4	7.9	100.6	56.9	32.5	40.3	27.3
Ethnicity*	AM	5	14.0	8.6	94.6	57.7	20.0	40.0	40.0
	AS	7	12.4	7.6	86.6	55.2	57.1	14.3	28.6
	BL	24	14.9	7.0	102.0	50.3	29.2	41.7	29.2
	PI	1	14.0	-	94.0	-	0.0	100.0	0.0
	WH	157	14.1	8.1	98.9	59.4	37.6	34.4	28.0
	HI	44	14.3	7.3	99.6	52.1	36.4	38.6	25.0
	MU	12	13.7	6.8	91.6	45.6	25.0	66.7	8.3
Special Ed	No	7	18.9	5.0	133.3	40.9	14.3	42.9	42.9
	Yes	243	14.0	7.8	97.5	56.2	36.6	37.0	26.3
ELL	No	243	14.0	7.8	97.9	56.6	36.6	37.0	26.3
	Yes	7	17.6	4.5	118.6	29.1	14.3	42.9	42.9
FLS	No	121	14.1	7.9	98.3	56.6	35.5	37.2	27.3
	Yes	129	14.2	7.7	98.8	55.7	36.4	37.2	26.4

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 4

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		262	18.5	8.5	102.1	56.6	39.7	29.0	31.3
Gender	Male	175	19.0	8.0	104.5	54.3	40.6	26.3	33.1
	Female	87	17.5	9.4	97.2	61.0	37.9	34.5	27.6
Ethnicity*	AM	5	25.6	5.1	155.8	46.5	20.0	0.0	80.0
	AS	5	17.0	6.9	82.2	43.7	20.0	80.0	0.0
	BL	30	17.4	8.1	91.8	49.7	46.7	30.0	23.3
	PI	0							
	WH	163	18.4	8.6	101.3	57.9	41.7	28.8	29.4
	HI	48	18.5	9.1	101.8	57.2	39.6	20.8	39.6
	MU	11	22.3	5.5	127.6	49.4	9.1	54.5	36.4
Special Ed	No	2	21.0	9.9	122.5	79.9	50.0	0.0	50.0
	Yes	260	18.5	8.5	101.9	56.6	39.6	29.2	31.2
ELL	No	258	18.5	8.5	101.8	56.9	39.9	28.7	31.4
	Yes	4	22.3	4.3	120.3	33.6	25.0	50.0	25.0
FLS	No	115	17.4	7.9	92.3	50.9	47.8	32.2	20.0
	Yes	147	19.5	8.9	109.7	59.8	33.3	26.5	40.1

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 5

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		313	18.7	7.9	112.3	54.8	32.3	32.9	34.8
Gender	Male	195	19.5	7.8	117.8	54.8	30.8	27.7	41.5
	Female	118	17.4	8.0	103.1	53.6	34.7	41.5	23.7
Ethnicity*	AM	11	18.1	8.7	109.2	61.6	36.4	36.4	27.3
	AS	6	19.3	11.3	123.3	78.5	33.3	16.7	50.0
	BL	28	18.7	7.9	112.5	53.9	28.6	35.7	35.7
	PI	1	14.0	-	77.0	-	100.0	0.0	0.0
	WH	183	18.9	7.6	113.6	52.9	30.6	35.0	34.4
	HI	67	17.7	9.1	106.2	60.0	38.8	25.4	35.8
	MU	16	20.8	6.0	125.5	45.8	18.8	43.8	37.5
Special Ed	No	6	16.2	9.9	95.0	60.5	50.0	16.7	33.3
	Yes	307	18.7	7.9	112.6	54.7	31.9	33.2	34.9
ELL	No	310	18.6	7.9	111.7	54.5	32.6	32.9	34.5
	Yes	3	27.0	3.5	178.0	38.1	0.0	33.3	66.7
FLS	No	122	17.3	7.9	102.4	54.2	37.7	36.9	25.4
	Yes	191	19.6	7.9	118.6	54.3	28.8	30.4	40.8

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 6

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		332	18.5	7.3	97.8	41.3	36.1	44.3	19.6
Gender	Male	215	18.6	7.3	98.4	41.3	35.3	43.3	21.4
	Female	117	18.3	7.4	96.7	41.3	37.6	46.2	16.2
Ethnicity*	AM	10	18.8	5.5	96.4	26.1	30.0	60.0	10.0
	AS	4	16.5	6.4	86.3	30.6	50.0	50.0	0.0
	BL	33	20.4	5.5	105.9	30.7	18.2	60.6	21.2
	PI	0							
	WH	205	18.4	7.6	98.3	43.6	38.0	41.0	21.0
	HI	70	17.1	7.5	89.8	40.8	42.9	42.9	14.3
	MU	9	24.0	4.2	126.8	27.0	11.1	44.4	44.4
Special Ed	No	7	21.3	5.5	110.6	29.6	14.3	42.9	42.9
	Yes	325	18.4	7.4	97.5	41.5	36.6	44.3	19.1
ELL	No	328	18.5	7.3	98.0	41.3	35.7	44.8	19.5
	Yes	4	14.5	8.3	77.8	41.7	75.0	25.0	0.0
FLS	No	145	17.9	7.4	94.8	42.0	40.0	44.1	15.9
	Yes	187	18.9	7.3	100.0	40.6	33.2	44.4	22.5

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 7

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		342	18.3	7.8	103.0	50.0	39.2	33.6	27.2
Gender	Male	222	18.0	7.8	100.6	49.5	41.9	33.8	24.3
	Female	120	18.9	7.8	107.3	50.7	34.2	33.3	32.5
Ethnicity*	AM	5	17.0	11.7	97.6	69.9	40.0	40.0	20.0
	AS	4	13.0	9.3	69.3	48.8	50.0	50.0	0.0
	BL	38	17.0	6.9	92.7	41.0	50.0	31.6	18.4
	PI	0							
	WH	218	18.4	8.1	104.3	52.2	38.5	33.0	28.4
	HI	66	19.1	7.4	108.2	48.3	33.3	33.3	33.3
	MU	11	17.7	4.7	95.5	28.0	45.5	45.5	9.1
Special Ed	No	3	16.7	2.3	88.0	12.1	33.3	66.7	0.0
	Yes	339	18.3	7.9	103.1	50.2	39.2	33.3	27.4
ELL	No	337	18.2	7.8	102.3	49.7	39.8	33.5	26.7
	Yes	5	24.4	4.9	149.4	48.9	0.0	40.0	60.0
FLS	No	143	17.5	8.4	98.0	52.3	42.0	33.6	24.5
	Yes	199	18.9	7.4	106.5	48.0	37.2	33.7	29.1

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 8

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		328	19.2	7.1	99.7	50.8	42.7	28.7	28.7
Gender	Male	200	19.3	7.0	100.8	50.5	43.5	28.0	28.5
	Female	128	19.0	7.3	98.0	51.5	41.4	29.7	28.9
Ethnicity*	AM	5	13.4	12.4	68.8	63.9	40.0	40.0	20.0
	AS	6	19.2	10.5	107.5	78.0	33.3	16.7	50.0
	BL	37	17.9	7.8	91.1	52.1	51.4	21.6	27.0
	PI	1	18.0	-	84.0	-	100.0	0.0	0.0
	WH	218	19.6	6.8	102.5	50.4	41.3	29.4	29.4
	HI	49	18.9	6.6	95.8	46.2	42.9	34.7	22.4
	MU	12	19.1	8.9	101.9	58.0	41.7	16.7	41.7
Special Ed	No	4	19.3	7.1	104.0	66.2	50.0	25.0	25.0
	Yes	324	19.2	7.2	99.6	50.8	42.6	28.7	28.7
ELL	No	324	19.2	7.2	99.7	51.1	42.9	28.4	28.7
	Yes	4	20.0	4.7	98.8	31.7	25.0	50.0	25.0
FLS	No	164	19.2	6.9	99.5	50.1	43.9	26.8	29.3
	Yes	164	19.2	7.4	99.8	51.7	41.5	30.5	28.0

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 11

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		312	19.0	8.4	104.7	65.1	39.7	21.8	38.5
Gender	Male	193	19.6	8.4	110.5	65.3	36.3	22.8	40.9
	Female	119	18.1	8.3	95.3	63.9	45.4	20.2	34.5
Ethnicity*	AM	12	22.7	5.5	131.0	55.7	33.3	16.7	50.0
	AS	4	24.8	4.7	157.8	55.9	0.0	25.0	75.0
	BL	31	18.9	6.7	96.7	54.0	35.5	35.5	29.0
	PI	1	1.0	-	1.0	-	100.0	0.0	0.0
	WH	209	19.1	8.7	106.6	68.5	40.7	17.2	42.1
	HI	48	17.7	8.6	93.8	58.0	39.6	33.3	27.1
	MU	7	19.4	4.8	97.0	43.0	42.9	42.9	14.3
Special Ed	No	9	22.1	8.9	134.7	62.8	11.1	33.3	55.6
	Yes	303	19.0	8.3	103.8	65.0	40.6	21.5	38.0
ELL	No	310	19.1	8.4	105.1	65.0	39.4	21.9	38.7
	Yes	2	12.0	0.0	35.0	0.0	100.0	0.0	0.0
FLS	No	140	17.9	9.0	95.9	68.3	45.7	19.3	35.0
	Yes	172	20.0	7.7	111.8	61.6	34.9	23.8	41.3

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Science

Grade 5

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		309	16.0	6.7	113.0	53.6	26.9	35.3	37.9
Gender	Male	190	16.4	6.5	116.8	53.5	25.8	33.7	40.5
	Female	119	15.2	6.9	106.9	53.5	28.6	37.8	33.6
Ethnicity*	AM	11	16.1	6.8	111.6	49.8	27.3	45.5	27.3
	AS	6	14.5	8.9	104.7	69.2	50.0	16.7	33.3
	BL	28	15.9	6.7	113.4	54.4	32.1	25.0	42.9
	PI	1	15.0	-	99.0	-	0.0	100.0	0.0
	WH	179	16.4	6.3	115.9	51.9	24.0	39.1	36.9
	HI	67	14.6	7.8	103.4	60.3	32.8	29.9	37.3
	MU	16	17.9	4.7	126.7	41.1	18.8	25.0	56.3
Special Ed	No	6	13.2	10.1	94.2	80.9	33.3	33.3	33.3
	Yes	303	16.0	6.6	113.4	53.1	26.7	35.3	38.0
ELL	No	306	15.9	6.7	112.9	53.8	27.1	35.3	37.6
	Yes	3	18.3	2.9	125.0	22.5	0.0	33.3	66.7
FLS	No	121	14.8	6.7	102.4	52.3	30.6	40.5	28.9
	Yes	188	16.7	6.6	119.8	53.5	24.5	31.9	43.6

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 8

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		316	16.2	5.9	105.3	49.4	35.4	36.1	28.5
Gender	Male	194	16.4	5.8	107.1	48.3	33.0	39.2	27.8
	Female	122	15.8	6.1	102.4	51.2	39.3	31.1	29.5
Ethnicity*	AM	5	10.6	9.7	65.8	59.8	40.0	60.0	0.0
	AS	6	14.8	7.8	92.5	61.1	33.3	33.3	33.3
	BL	37	15.2	6.0	96.3	46.3	43.2	40.5	16.2
	PI	1	17.0	-	103.0	-	0.0	100.0	0.0
	WH	206	16.5	5.8	107.9	49.7	35.4	33.0	31.6
	HI	49	16.4	5.4	106.5	46.6	30.6	40.8	28.6
	MU	12	16.2	7.1	106.4	56.0	33.3	41.7	25.0
Special Ed	No	4	16.5	5.3	105.0	44.2	50.0	25.0	25.0
	Yes	312	16.2	5.9	105.3	49.5	35.3	36.2	28.5
ELL	No	312	16.2	5.9	105.2	49.5	35.3	36.5	28.2
	Yes	4	16.8	5.6	107.8	46.6	0.0	50.0	50.0
FLS	No	156	16.0	5.9	103.8	50.1	35.9	37.8	26.3
	Yes	160	16.4	5.9	106.7	48.8	35.0	34.4	30.6

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Grade 11

Group	Subgroup	Valid <i>N</i>	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	<i>SD</i>	Mean	<i>SD</i>	Below	Meets	Exceeds
Overall		293	19.1	8.4	108.2	54.0	31.4	34.1	34.5
Gender	Male	183	19.6	8.5	112.2	54.8	27.9	32.8	39.3
	Female	110	18.2	8.2	101.7	52.2	37.3	36.4	26.4
Ethnicity*	AM	12	22.3	5.7	131.2	48.2	25.0	41.7	33.3
	AS	4	24.3	1.3	133.8	10.7	75.0	25.0	100.0
	BL	30	19.0	6.1	102.5	34.3	33.3	50.0	16.7
	PI	1	5.0	-	16.0	-	100.0	0.0	0.0
	WH	193	19.3	8.7	110.6	56.6	30.6	28.5	40.9
	HI	46	16.9	9.1	94.9	56.3	39.1	39.1	21.7
	MU	7	21.1	4.6	114.4	27.6	14.3	57.1	28.6
Special Ed	No	9	23.3	9.2	142.7	62.9	11.1	22.2	66.7
	Yes	284	19.0	8.3	107.1	53.4	32.0	34.5	33.5
ELL	No	291	19.1	8.4	108.4	54.1	30.9	34.4	34.7
	Yes	2	14.5	2.1	76.0	11.3	100.0	0.0	0.0
FLS	No	130	17.7	8.7	99.6	54.7	37.7	33.8	28.5
	Yes	163	20.2	8.0	115.1	52.6	26.4	34.4	39.3

* AM=American Indian, AS=Asian, BL=African American/Black, PI=Native Hawaiian or other Pacific Islander, WH=White, HI= Hispanic, MU=Multiple Ethnicities

Appendix U: Reading, Mathematics, and Science Strand Reliability and SEM

* L =Total Number of Items per Strand, Reliability=Coefficient Alpha, SEM = Standard Error of Measurement in raw score metric

Content	Code	Strand
Reading	R.1	Vocabulary
	R.2	Comprehension
Mathematics	M.1	Number Sense
	M.2	Geometric/Measurement
	M.3	Algebraic
	M.4	Data Analysis/Probability
Science	S.1	Inquiry, the Nature of Science, and Technology
	S.2	Physical Science
	S.3	Life Science
	S.4	Earth and Space Science

Grade 3:

Grade 3	L	Reliability	SEM
R.1	7	0.87	0.88
R.2	18	0.90	1.72
M.1	10	0.86	1.20
M.2	6	0.84	0.85
M.3	5	0.78	0.85
M.4	4	0.76	0.74

Grade 4:

Grade 4	L	Reliability	SEM
R.1	7	0.84	0.88
R.2	18	0.89	1.69
M.1	14	0.88	1.47
M.2	8	0.84	1.00
M.3	5	0.66	0.92
M.4	3	0.58	0.69

Grade 5:

Grade 5	<i>L</i>	Reliability	<i>SEM</i>
R.1	9	0.78	1.20
R.2	16	0.84	1.63
M.1	14	0.87	1.47
M.2	6	0.79	0.85
M.3	5	0.60	0.96
M.4	5	0.67	0.88
S.1	4	0.57	0.82
S.2	7	0.80	1.00
S.3	7	0.71	1.07
S.4	7	0.77	0.98

Grade 6:

Grade 6	<i>L</i>	Reliability	<i>SEM</i>
R.1	9	0.76	1.22
R.2	16	0.85	1.61
M.1	10	0.75	1.34
M.2	6	0.67	0.97
M.3	10	0.77	1.33
M.4	4	0.62	0.76

Grade 7:

Grade 7	<i>L</i>	Reliability	<i>SEM</i>
R.1	9	0.79	1.16
R.2	16	0.86	1.64
M.1	9	0.78	1.21
M.2	6	0.76	0.94
M.3	9	0.78	1.24
M.4	6	0.70	0.97

Grade 8:

Grade 8	<i>L</i>	Reliability	<i>SEM</i>
R.1	9	0.77	1.23
R.2	16	0.82	1.61
M.1	11	0.74	1.38
M.2	8	0.75	1.08
M.3	5	0.63	0.93
M.4	6	0.74	0.96
S.1	4	0.51	0.82
S.2	6	0.71	0.98
S.3	8	0.74	1.15
S.4	7	0.57	1.14

Grade 11:

Grade 11	<i>L</i>	Reliability	<i>SEM</i>
R.1	8	0.78	1.09
R.2	17	0.88	1.64
M.1	5	0.71	0.90
M.2	12	0.88	1.27
M.3	7	0.84	0.90
M.4	6	0.63	1.07
S.1	4	0.68	0.79
S.2	10	0.84	1.18
S.3	7	0.87	0.84
S.4	9	0.74	1.28

