Spring 2017

Nebraska State Accountability (NeSA)

ELA, Mathematics, and Science

Alternate Assessment

Technical Report Appendices

October 2017

Prepared by Data Recognition Corporation


DATA RECOGNITION
DRC
CORPORATION

Appendix A: NeSA_AAELA Test Blueprint

Nebraska State Accountability - 2017 ELA Alternate Assessment Draft Table of Specifications						
LA 3.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 3 Reading Vocabulary				
LA 3.1.5	Vocabulary: Students will build and use conversational, academic, and content-specific grade-level vocabulary.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 3.1.5.a	General: Determine meaning of words through the knowledge of word structure elements, known words, and word patterns (e.g., contractions, plurals, possessives, parts of speech, syllables, affixes, base and root words, abbreviations). *Extended: Use word structure to determine meaning of words (singular and/or plural words paired with illustrations; possessives, possessive pronouns).*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 3.1.5.b	General: Apply context clues (e.g., word, phrase, and sentence clues) and text features to help infer meaning of unknown words. *Extended: Determine the meaning of words by using context clues (e.g., word, sentence clues) and text features (e.g., titles, illustrations).*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 3.1.5.d	General: Identify semantic relationships (e.g., synonyms, antonyms, homographs, homophones, multiple-meaning words) to determine the meaning of words, aid in comprehension, and improve writing. *Extended: Identify semantic relationships (synonyms, antonyms).*	3	0 – 1	0 – 2	1 – 2	0 – 3

LA 3.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 3 Reading Comprehension				
LA 3.1.6	Comprehension: Students will construct meaning by applying prior knowledge, using text information, and monitoring comprehension while reading increasingly complex grade-level literary and informational text.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 3.1.6.a	General: Identify author's purpose(s) (e.g., explain, entertain, inform, persuade) to support text comprehension. *Extended: Determine if an author's purpose is to entertain or inform.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 3.1.6.b	General: Identify and describe elements of literary text (e.g., characters, setting, plot, point of view). *Extended: Identify and describe elements of literary text (main character, setting).*	4	0 – 1	1 – 2	1 – 2	2 – 4

LA 3.1.6.c	General: Identify and explain why authors use literary devices (e.g., simile, alliteration, onomatopoeia, imagery, rhythm, personification, hyperbole, idioms). *Extended: Recognize how literary devices are used purposefully in literary text (e.g., onomatopoeia, personification).*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 3.1.6.d	General: Summarize a literary text and/or media, using key details to identify the theme. *Extended: Summarize a literary text using key details.*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 3.1.6.e	General: Determine main ideas and supporting details from informational text and/or media. *Extended: Identify the main idea from an informational text.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 3.1.6.f	General: Use text features to locate information and explain how the information contributes to an understanding of print and digital text. *Extended: Use text features to locate information (e.g., title, illustrations, table of contents).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 3.1.6.g	General: Compare and contrast the characteristics that distinguish a variety of literary and informational texts. *Extended: Identify a variety of informational and literary texts (e.g., calendar, schedules, lunch menus, text books, signs, stories, poems, drama).*	4	0 – 1	1 – 2	0 – 2	1 – 3
LA 3.1.6.h	General: Compare and contrast similar themes, topics, and/or patterns of events in literary and informational texts to develop a multicultural perspective. *Extended:Identify similar topics in literary text (e.g., character traits, events)*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 3.1.6.i	General: Construct and/or answer literal and inferential questions and support answers with specific evidence from the text or additional sources. *Extended: Answer literal questions using specific evidence from the text.*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 3.1.6.j	General: Identify and apply knowledge of organizational patterns to comprehend informational text (e.g., sequence, description, cause and effect, compare/contrast). *Extended: Identify organizational patterns in informational text (three-step sequence; first, next, last).*	4	0 – 1	0 – 2	0 – 2	1 – 3

LA 3.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 3 Writing Writing Process				
LA 3.2.1	Writing Process: Students will apply the writing process to plan, draft, revise, edit, and publish writing using correct spelling, grammar, punctuation, and other conventions of standard English appropriate for grade-level.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 3.2.1.c	General: Gather and use relevant information and evidence from one or more authoritative print and/or digital sources to support claims or theses. *Extended: Use relevant evidence to support a claim or theses.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 3.2.1.h	General: Proofread and edit writing recursively for format and conventions of standard English (e.g., spelling, capitalization, grammar, punctuation, syntax, semantics). *Extended: Edit writing for conventions of standard English (e.g., initial capitalization and proper nouns, and punctuation limited to period and question mark).*	4	0 – 1	0 – 1	1 – 2	2 – 3

LA 3.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 3 Writing Writing Mode				
LA 3.2.2	Writing Modes: Student will write in multiple modes for a variety of purposes and audiences across disciplines.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 3.2.2.b	General: Provide evidence from literary or informational text to support ideas or opinions. *Extended: Identify evidence from the text that supports an idea found in literary or informational text.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 3.2.2.d	General: Use precise word choice and domain-specific vocabulary to write in a variety of modes. *Extended: Identify precise word choice in a variety of modes .*	4	0 – 1	1 – 2	1 – 2	1 – 3

Nebraska State Accountability - 2017 ELA Alternate Assessment Draft Table of Specifications						
LA 4.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 4 Reading Vocabulary				
LA 4.1.5	Vocabulary: Students will build and use conversational, academic, and content-specific grade-level vocabulary.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 4.1.5.a	General: Apply knowledge of word structure elements, known words, and word patterns to determine meaning (e.g., plurals, possessives, parts of speech, affixes, base and root words). *Extended: Use word structure to determine meaning of words (singular and plural paired with illustrations; possessives, possessive pronouns)*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 4.1.5.b	General: Apply context clues (e.g., word, phrase, and sentence, and paragraph clues) and text features to infer meaning of unknown words. *Extended: Determine the meaning of words using context clues (e.g., words paired with pictures, phrase, sentence clues) and text features (e.g., titles, illustrations, maps, charts).*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 4.1.5.d	General: Identify semantic relationships (e.g., synonyms, antonyms, homographs, homophones, multiple-meaning words) to determine the meaning of words, aid in comprehension, and improve writing. *Extended: Identify semantic relationships (synonyms, antonyms).*	3	0 – 1	0 – 2	1 – 2	0 – 3

LA 4.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 4 Reading Comprehension				
LA 4.1.6	Comprehension: Students will construct meaning by applying prior knowledge, using text information, and monitoring comprehension while reading increasingly complex grade-level literary and informational text.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 4.1.6.a	General: Examine text to determine author's purpose(s) and describe how author's perspective (e.g., beliefs, assumptions, biases) influences text. *Extended: Determine if an author's purpose is to entertain or inform.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 4.1.6.b	General: Identify and describe elements of literary text (e.g., characters, setting, plot, point of view, theme). *Extended: Identify and describe elements of literary text (character(s), setting) .*	4	0 – 1	1 – 2	1 – 2	2 – 4

LA 4.1.6.c	General: Identify and explain why authors use literary devices (e.g., simile, metaphor, alliteration, onomatopoeia, imagery, rhythm, personification, hyperbole, idioms). *Extended: Recognize how literary devices are used purposefully in literary text (onomatopoeia, personification).*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 4.1.6.d	General: Summarize a literary text and/or media, using key details to identify the theme. *Extended: Summarize a literary text using key details.*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 4.1.6.e	General: Determine main ideas and supporting details from informational text and/or media. *Extended: Identify the main idea of an informational text.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 4.1.6.f	General: Use text features to locate information and explain how the information contributes to an understanding of print and digital text. *Extended: Use text features to locate information (e.g., table of contents, illustrations, maps, lists, charts).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 4.1.6.g	General: Compare and contrast the characteristics that distinguish a variety of literary and informational texts. *Extended: Identify a variety of literary and informational texts (e.g., stories, poems, drama, schedules, calendar, lunch menu, signs, reference texts).*	4	0 – 1	1 – 2	0 – 2	1 – 3
LA 4.1.6.h	General: Compare and contrast similar themes, topics, and/or patterns of events in literary and informational texts to develop a multicultural perspective. *Extended: Identify similar topics in literary text (e.g., themes, events, character traits).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 4.1.6.i	General: Construct and/or answer literal, inferential, and critical questions and support answers with explicit evidence from the text or additional sources. *Extended: Answer literal questions using explicit evidence from the text*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 4.1.6.j	General: Identify and apply knowledge of organizational patterns to comprehend informational text (e.g., sequence, description, cause and effect, compare/contrast, fact/opinion). *Extended: Identify organizational patterns in informational text (three-step sequence; first, next, last).*	4	0 – 1	0 – 2	0 – 2	1 – 3

LA 4.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 4 Writing Writing Process				
LA 4.2.1	Writing Process: Students will apply the writing process to plan, draft, revise, edit, and publish writing using correct spelling, grammar, punctuation, and other conventions of standard English appropriate for grade-level.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 4.2.1.c	General: Gather and use relevant information and evidence from multiple authoritative print and/or digital sources to support claims or theses. *Extended: Use relevant evidence to support a claim or theses.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 4.2.1.h	General: Proofread and edit writing recursively for format and conventions of standard English (e.g., spelling, capitalization, grammar, punctuation, syntax, semantics). *Extended: Edit writing for conventions of standard English (e.g., initial capitalization and proper nouns, and punctuation limited to period and question mark) .*	4	0 – 1	0 – 1	1 – 2	2 – 3

LA 4.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 4 Writing Writing Mode				
LA 4.2.2	Writing Modes: Student will write in multiple modes for a variety of purposes and audiences across disciplines.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 4.2.2.b	General: Provide evidence from literary or informational text to support analysis, reflection, and research. *Extended: Identify evidence from the text that supports an idea found in literary or informational text.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 4.2.2.d	General: Use precise word choice and domain-specific vocabulary to write in a variety of modes. *Extended: Identify precise word choice in a variety of modes.*	4	0 – 1	1 – 2	1 – 2	1 – 3

Nebraska State Accountability - 2017 ELA Alternate Assessment Draft Table of Specifications						
LA 5.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 5 Reading Vocabulary				
LA 5.1.5	Vocabulary: Students will build and use conversational, academic, and content-specific grade-level vocabulary.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 5.1.5.a	General: Apply knowledge of word structure elements, known words, and word patterns to determine meaning (e.g., parts of speech, Greek, Latin, and Anglo-Saxon affixes and roots). *Extended: Determine the meaning of words using word structure and known words (e.g., compound words, parts of speech limited to nouns and action verbs, roots and affixes).*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 5.1.5.b	General: Select and apply knowledge of context clues (e.g., word, phrase, sentence, and paragraph clues) and text features to determine meaning of unknown words. *Extended: Determine the meaning of words using context clues (e.g., word, phrase, sentence clues) and text features (e.g., titles, illustrations, maps, tables, captions).*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 5.1.5.d	General: Identify semantic relationships (e.g., synonyms, antonyms, homographs, homophones, multiple-meaning words) to determine the meaning of words, aid in comprehension, and improve writing. *Extended: Identify semantic relationships (synonyms, antonyms, homophones, homographs).*	3	0 – 1	0 – 2	1 – 2	0 – 3

LA 5.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 5 Reading Comprehension				
LA 5.1.6	Comprehension: Students will construct meaning by applying prior knowledge, using text information, and monitoring comprehension while reading increasingly complex grade-level literary and informational text.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 5.1.6.a	General: Examine text to determine author's purpose(s) and describe how author's perspective (e.g., beliefs, assumptions, biases) influences text. *Extended: Determine if an author's purpose is to entertain or inform.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 5.1.6.b	General: Analyze and describe elements of literary text (e.g., characters, setting, plot, point of view, theme). *Extended: Identify and describe elements of literary text (e.g., character(s), setting).*	4	0 – 1	1 – 2	1 – 2	2 – 4

LA 5.1.6.c	General: Identify and explain why authors use literary devices (e.g., simile, metaphor, alliteration, onomatopoeia, imagery, rhythm, personification, hyperbole, idioms). *Extended: Recognize how literary devices are used purposefully in literary text (e.g., onomatopoeia, personification, alliteration).*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 5.1.6.d	General: Summarize and analyze a literary text and/or media, using key details to explain the theme. *Extended: Summarize a literary text using key details.*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 5.1.6.e	General: Summarize and analyze an informational text and/or media, using supporting details to explain the main idea. *Extended: a)Summarize an informational text using key details. b)Identify the main idea of an informational text using key details.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 5.1.6.f	General: Use text features to locate information and explain how the information contributes to an understanding of print and digital text. *Extended: Use text features to locate information (e.g., titles, table on contents, charts, maps, schedules, index).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 5.1.6.g	General: Use textual evidence to compare and contrast the characteristics that distinguish a variety of literary and informational texts. *Extended: Use textual characteristics to identify a variety of literary and informational texts (e.g., text books, story books, poems, how-to manuals, newspapers, magazines).*	4	0 – 1	1 – 2	0 – 2	1 – 3
LA 5.1.6.h	General: Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in literary and informational texts, citing textual evidence to develop a national and international multicultural perspective. *Extended: Identify the relationship between two elements in literary or informational text (e.g., two characters, two events).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 5.1.6.i	General: Construct and/or answer literal, inferential, and critical questions and support answers with explicit evidence from the text or additional sources. *Extended: Answer literal and inferential questions using explicit evidence from the text.*	4	0 – 1	1 – 2	0 – 1	2 – 3
LA 5.1.6.j	General: Identify and apply knowledge of organizational patterns to comprehend informational text(s) (e.g., sequence, description, cause and effect, compare/contrast, fact/opinion). *Extended: Identify organizational patterns in informational text (e.g., sequence/chronological, cause/effect).*	4	0 – 1	0 – 2	0 – 2	1 – 3

LA 5.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 5 Writing Writing Process				
LA 5.2.1	Writing Process: Students will apply the writing process to plan, draft, revise, edit, and publish writing using correct spelling, grammar, punctuation, and other conventions of standard English appropriate for grade-level.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 5.2.1.c	General: Gather and use relevant information and evidence from multiple authoritative print and/or digital sources to support claims or theses. *Extended: Use relevant evidence to support a claim or theses.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 5.2.1.h	General: Proofread and edit writing recursively for format and conventions of standard English (e.g., spelling, capitalization, grammar, punctuation, syntax, semantics). *Extended: Edit writing for conventions of standard English (e.g., initial capitalization and proper nouns, and punctuation limited to period and question mark).*	4	0 – 1	0 – 1	1 – 2	2 – 3

LA 5.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 5 Writing Writing Mode				
LA 5.2.2	Writing Modes: Students will write in multiple modes for a variety of purposes and audiences across disciplines.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 5.2.2.b	General: Provide evidence from literary or informational text to support analysis, reflection, and research. *Extended: Identify evidence from the text that supports an idea found in literary or informational text.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 5.2.2.d	General: Use precise word choice and domain-specific vocabulary to write in a variety of modes. *Extended: Identify precise word choice in a variety of modes.*	4	0 – 1	1 – 2	1 – 2	1 – 3

Nebraska State Accountability - 2017 ELA Alternate Assessment Draft Table of Specifications						
LA 6.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 6 Reading Vocabulary				
LA 6.1.5	Vocabulary: Students will build and use conversational, academic, and content-specific grade-level vocabulary.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 6.1.5.a	General: Apply knowledge of Greek, Latin, and Anglo-Saxon roots, prefixes, and suffixes to understand complex words, including words across content areas. *Extended: Determine the meaning of words using roots and the words that result when affixes are added.*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 6.1.5.b	General: Select and apply knowledge of context clues (e.g., word, phrase, sentence, and paragraph clues) and text features to determine meaning of unknown words. *Extended: Determine the meaning of words using context clues (e.g., word, phrase, and/or sentence clues) and text features (e.g., titles, illustrations, table of contents, charts, calendar).*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 6.1.5.d	General: Identify and use semantic relationships (e.g., multiple meanings, metaphors, similes, idioms, analogies, synonyms, antonyms) to determine the meaning of words, aid in comprehension, and improve writing. *Extended: Identify semantic relationships (synonyms, antonyms, homophones, homographs).*	3	0 – 1	0 – 2	1 – 2	1 – 3

LA 6.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 6 Reading Comprehension				
LA 6.1.6	Comprehension: Students will construct meaning by applying prior knowledge, using text information, and monitoring comprehension while reading increasingly complex grade-level literary and informational text.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 6.1.6.a	General: Analyze text to determine author's purpose(s) and describe how author's perspective influences text. *Extended: Determine if an author's purpose is to entertain or inform.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 6.1.6.b	General: Analyze and explain the relationships between elements of literary text (e.g., character development, setting, plot, conflict, point of view, theme). *Extended: Identify and describe elements of literary text (e.g., character(s), setting, conflict).*	4	0 – 1	1 – 2	1 – 2	2 – 4

LA 6.1.6.c	General: Identify and explain why authors use literary devices (e.g., simile, metaphor, alliteration, onomatopoeia, imagery, rhythm, personification, hyperbole, idioms, analogy, tone, mood). *Extended: Recognize how literary devices are used purposefully in literary text (onomatopoeia, personification, alliteration, simile).*	4	0 – 1	0 – 2	0 – 1	0 – 3
LA 6.1.6.d	General: Summarize and analyze a literary text and/or media, using key details to explain the theme. *Extended: Summarize a literary text using key details.*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 6.1.6.e	General: Summarize and analyze an informational text and/or media, using supporting details to explain the main idea. *Extended: a)Summarize an informational text using key details. b) Identify the main idea of an informational text using key details.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 6.1.6.f	General: Apply knowledge of text features to locate information and explain how the information contributes to an understanding of print and digital text. *Extended: Use text features to locate information (e.g., titles, table of contents, index, tables, headings, graphs, lists, illustrations).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 6.1.6.g	General: Use textual evidence to compare and contrast the characteristics that distinguish a variety of literary and informational texts. *Extended: Use textual characteristics to identify a variety of literary and informational texts (e.g., stories, poems, text books, magazines, newspapers, schedules).*	4	0 – 1	1 – 2	0 – 2	1 – 3
LA 6.1.6.h	General: Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in literary and informational texts, citing textual evidence to develop a regional, national, and international multicultural perspective. *Extended: Identify the relationship between two elements in literary or informational text (e.g., two characters, two events).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 6.1.6.i	General: Construct and/or answer literal, inferential, critical, and interpretive questions and support answers with explicit evidence from the text or additional sources. *Extended: Answer literal and inferential questions using explicit evidence from the text.*	4	0 – 1	1 – 2	0 – 1	2 – 3
LA 6.1.6.j	General: Apply knowledge of organizational patterns to comprehend informational text (e.g., sequence/chronological, description, cause and effect, compare/contrast, fact/opinion). *Extended: Identify organizational patterns in informational text (e.g., sequence/chronological, cause/effect, compare/contrast).*	4	0 – 1	0 – 2	0 – 2	1 – 3

LA 6.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 6 Writing Writing Process				
LA 6.2.1	Writing Process: Students will apply the writing process to plan, draft, revise, edit, and publish writing using correct spelling, grammar, punctuation, and other conventions of standard English appropriate for grade-level.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 6.2.1.c	General: Gather and use relevant information and evidence from multiple authoritative print and/or digital sources including primary and secondary sources to support claims or theses. *Extended: Use relevant evidence to support a claim or theses.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 6.2.1.h	General: Proofread and edit writing recursively for format and conventions of standard English (e.g., spelling, capitalization, grammar, punctuation, syntax, semantics). *Extended: Edit writing for conventions of standard English (e.g., initial capitalization and proper nouns, and punctuation limited to period and question mark).*	4	0 – 1	0 – 1	1 – 2	2 – 3

LA 6.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 6 Writing Writing Mode				
LA 6.2.2	Writing Modes: Students will write in multiple modes for a variety of purposes and audiences across disciplines.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 6.2.2.b	General: Provide evidence from literary or informational text to support analysis, reflection, and research. *Extended: Identify evidence from the text that supports an idea found in literary or informational text.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 6.2.2.d	General: Use precise word choice and domain-specific vocabulary to write in a variety of modes. *Extended: Identify precise word choice in a variety of modes.*	4	0 – 1	1 – 2	1 – 2	1 – 3

Nebraska State Accountability - 2017 ELA Alternate Assessment Draft Table of Specifications						
LA 7.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 7 Reading Vocabulary				
LA 7.1.5	Vocabulary: Students will build and use conversational, academic, and content-specific grade-level vocabulary.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
L.A. 7.1.5.a	General: Apply knowledge of Greek, Latin, and Anglo-Saxon roots, prefixes, and suffixes to understand complex words, including words across content areas. *Extended: Determine the meaning of words using roots and the words that result when affixes are added.*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 7.1.5.b	General: Select and apply knowledge of context clues (e.g., word, phrase, sentence, and paragraph clues) and text features to determine meaning of unknown words. *Extended: Determine the meaning of words using context clues (e.g., word, phrase, and/or sentence clues) and text features (e.g., titles, illustrations, table of contents, captions, glossary, schedules).*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 7.1.5.d	General: Analyze and use semantic relationships (e.g., multiple meanings, synonyms, antonyms, figurative language, connotations, subtle distinctions) to determine the meaning of words, aid in comprehension, and improve writing. *Extended: Identify semantic relationships (synonyms, antonyms, homophones, homographs)*	3	0 – 1	0 – 2	1 – 2	1 – 3

LA 7.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 7 Reading Comprehension				
LA 7.1.6	Comprehension: Students will construct meaning by applying prior knowledge, using text information, and monitoring comprehension while reading increasingly complex grade-level literary and informational text.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 7.1.6.a	General: Analyze the meaning, reliability, and validity of the text considering author's purpose and perspective. *Extended: Determine if an author's purpose is to entertain, inform, or persuade.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 7.1.6.b	General: Analyze and explain the relationships between elements of literary text (e.g., character development, setting, plot, conflict, point of view, theme). *Extended: Identify and describe elements of literary text (e.g., character(s), setting, conflict, story sequence).*	4	0 – 1	1 – 2	1 – 2	2 – 4

LA 7.1.6.c	General: Analyze the author's use of literary devices (e.g., simile, metaphor, personification, idiom, oxymoron, hyperbole, alliteration, onomatopoeia, analogy, tone, mood). *Extended: Recognize how literary devices are used purposefully in literary text (onomatopoeia, personification, alliteration, simile, metaphor).*	4	0 – 1	0 – 2	0 – 1	0 – 3
LA 7.1.6.d	General: Summarize, analyze, and synthesize a literary text and/or media, using key details to support interpretation of the theme. *Extended: Summarize a literary text using key details.*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 7.1.6.e	General: Summarize, analyze, and synthesize an informational text and/or media, using supporting details to formulate the main idea. *Extended: a)Summarize an informational text using key details. b)Identify the main idea of an informational text using key details.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 7.1.6.f	General: Apply knowledge of text features to locate information and explain how the information contributes to an understanding of print and digital text. *Extended: Use text features to locate information (e.g., titles, table of contents, index, illustrations, graphs, headings).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 7.1.6.g	General: Cite specific textual evidence to analyze and make inferences based on the characteristics of a variety of literary and informational texts. *Extended: Use textual characteristics to identify a variety of literary and informational texts (e.g., text books, periodicals, schedules, menus, calendars, stories, poems, drama).*	4	0 – 1	1 – 2	0 – 2	1 – 3
LA 7.1.6.i	General: Construct and/or answer literal, inferential, critical, and interpretive questions and support answers with explicit evidence from the text or additional sources. international multicultural perspective. *Extended: Answer literal and inferential questions using explicit evidence from text.*	4	0 – 1	1 – 2	0 – 1	2 – 3
LA 7.1.6.j	General: Apply knowledge of organizational patterns to comprehend informational text (e.g., sequence/ chronological, description, spatial, cause and effect, compare/contrast, fact/opinion, proposition/support). *Extended: Identify organizational patterns in informational text (e.g., compare/ contrast, cause/effect, problem/solution, sequence/chronological).*	4	0 – 1	1 – 2	0 – 1	1 – 3

LA 7.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 7 Writing Writing Process				
LA 7.2.1	Writing Process: Students will apply the writing process to plan, draft, revise, edit, and publish writing using correct spelling, grammar, punctuation, and other conventions of standard English appropriate for grade-level.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 7.2.1.c	General: Gather and use relevant information and evidence from multiple authoritative print and/or digital sources including primary and secondary sources to support claims or theses. *Extended: Use relevant evidence to support a claim or theses.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 7.2.1.h	General: Proofread and edit writing recursively for format and conventions of standard English (e.g., spelling, capitalization, grammar, punctuation, syntax, semantics). *Extended: Edit writing for conventions of standard English (e.g., initial capitalization and proper nouns, and punctuation limited to period and question mark).*	4	0 – 1	0 – 1	1 – 2	2 – 3

LA 7.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 7 Writing Writing Mode				
LA 7.2.2	Writing Modes: Students will write in multiple modes for a variety of purposes and audiences across disciplines.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 7.2.2.b	General: Provide evidence from literary or informational text to support analysis, reflection, and research. *Extended: Identify evidence from the text that supports an idea found in literary or informational text.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 7.2.2.d	General: Use precise word choice and domain-specific vocabulary to write in a variety of modes. *Extended: Identify precise word choice in a variety of modes.*	4	0 – 1	1 – 2	1 – 2	1 – 3

Nebraska State Accountability - 2017 ELA Alternate Assessment Draft Table of Specifications						
LA 8.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 8 Reading Vocabulary				
LA 8.1.5	Vocabulary: Students will build and use conversational, academic, and content-specific grade-level vocabulary.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 8.1.5.a	General: Apply knowledge of Greek, Latin, and Anglo-Saxon roots, prefixes, and suffixes to understand complex words, including words across content areas. *Extended: Determine the meaning of words using roots and the words that result when affixes are added.*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 8.1.5.b	General: Select and apply knowledge of context clues (e.g., word, phrase, sentence, and paragraph clues) and text features to determine meaning of unknown words. *Extended: Determine the meaning of words using context clues (e.g., word, phrase, sentence, and/or paragraph clues) and text features (e.g., titles, illustrations, headings, captions, tables, timelines, maps).*	4	0 – 1	1 – 3	1 – 2	2 – 4
LA 8.1.5.d	General: Analyze and use semantic relationships (e.g., multiple meanings, synonyms, antonyms, figurative language, connotations, subtle distinctions) to determine the meaning of words, aid in comprehension, and improve writing. *Extended: Identify semantic relationships (synonyms, antonyms, homophones, homographs).*	3	0 – 1	0 – 2	1 – 2	1 – 3

LA 8.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 8 Reading Comprehension				
LA 8.1.6	Comprehension: Students will construct meaning by applying prior knowledge, using text information, and monitoring comprehension while reading increasingly complex grade-level literary and informational text.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 8.1.6.a	General: Analyze the meaning, reliability, and validity of text considering author's purpose and perspective. *Extended: Determine if an author's purpose is to entertain, inform, or persuade.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 8.1.6.b	General: Analyze and explain the relationships between elements of literary text (e.g., character development, setting, plot, conflict, point of view, inferred and recurring themes). *Extended: Identify and describe elements of literary text (e.g., character(s), setting, conflict, story sequence, point of view).*	4	0 – 1	1 – 2	1 – 2	2 – 4

LA 8.1.6.c	General: Analyze the author's use of literary devices (e.g., simile, metaphor, personification, idiom, oxymoron, hyperbole, alliteration, onomatopoeia, analogy, tone, mood). *Extended: Recognize how literary devices are used purposefully in a literary text (onomatopoeia, personification, alliteration, simile, metaphor, idiom).*	4	0 – 1	0 – 2	0 – 1	0 – 3
LA 8.1.6.d	General: Summarize, analyze and synthesize the development of a common theme between two literary text and/or media. *Extended: Identify the theme of a literary text using key details.*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 8.1.6.e	General: Summarize, analyze, and synthesize the connection between the main ideas of two informational texts *and/or media.* *Extended: Determine a main idea that is common in two informational texts.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 8.1.6.f	General: Analyze and evaluate information from print and digital text features to support comprehension. *Extended: Use text features to locate information (e.g., titles, headings, illustrations, index, glossary, charts, graphs, maps, timelines).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 8.1.6.g	General: Cite specific textual evidence to analyze and make inferences based on the characteristics of a variety of literary and informational texts. *Extended: Use textual characteristics to identify a variety of literary and informational texts (e.g., stories, poems, drama, text books, newspapers, magazines, reference books, schedules).*	4	0 – 1	1 – 2	0 – 2	1 – 3
LA 8.1.6.i	General: Construct and/or answer literal, inferential, critical, and interpretive questions and support answers with explicit evidence from the text or additional sources. *Extended: Answer literal and inferential questions using explicit evidence from the text.*	4	0 – 1	1 – 2	0 – 1	2 – 3
LA 8.1.6.j	General: Apply knowledge of organizational patterns to comprehend informational text (e.g., sequence/chronological, description, spatial, cause and effect, compare/ contrast, fact/opinion, proposition/support). *Extended: Identify organizational patterns in informational text (e.g., sequence/ chronological, fact/opinion, cause/effect, compare/contrast, problem/solution).*	4	0 – 1	1 – 2	0 – 1	1 – 3

LA 8.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 8 Writing Writing Process				
LA 8.2.1	Writing Process: Students will apply the writing process to plan, draft, revise, edit, and publish writing using correct spelling, grammar, punctuation, and other conventions of standard English appropriate for grade-level.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 8.2.1.c	General: Gather and use relevant information and evidence from multiple authoritative print and/or digital sources including primary and secondary sources to support claims or theses. *Extended: Use relevant evidence to support a claim or theses.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 8.2.1.h	General: Proofread and edit writing recursively for format and conventions of standard English (e.g., spelling, capitalization, grammar, punctuation, syntax, semantics). *Extended: Edit writing for conventions of standard English (e.g., initial capitalization and proper nouns, and punctuation limited to period and question mark).*	4	0 – 1	0 – 1	1 – 2	2 – 3

LA 8.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 8 Writing Writing Mode				
LA 8.2.2	Writing Modes: Students will write in multiple modes for a variety of purposes and audiences across disciplines.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 8.2.2.b	General: Provide evidence from literary or informational text to support analysis, reflection, and research. *Extended: Identify evidence from the text that supports an idea found in literary or informational text.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 8.2.2.d	General: Use precise word choice and domain-specific vocabulary to write in a variety of modes. *Extended: Identify precise word choice in a variety of modes.*	4	0 – 1	1 – 2	1 – 2	1 – 3

Nebraska State Accountability - 2017 ELA Alternate Assessment Draft Table of Specifications						
LA 12.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 11 Reading Vocabulary				
LA 12.1.5	Vocabulary: Students will build and use conversational, academic, and content-specific grade-level vocabulary.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 12.1.5.a	General: Apply word analysis strategies to determine the meaning of unknown and multiple-meaning words across content areas to aid in comprehension and improve writing. *Extended: Use roots and affixes to determine the meaning of words, as well as context clues (e.g., word, phrase, sentence and/or paragraph clues).*	4	0 – 1	1 – 3	1 – 3	2 – 4
LA 12.1.5.b	Skills blended with 12.1.5.a at this level.					
LA 12.1.5.d	General: Use semantic relationships (e.g., figurative language, connotations, technical and multiple-meaning words, and key terms or phrases) to analyze the impact of specific word choices on meaning and tone, aid in comprehension, and improve writing. *Extended: Identify semantic relationships (synonyms, antonyms, homophones, homographs).*	4	0 – 1	0 – 2	1 – 2	1 – 3

LA 12.1	Reading: Students will learn and apply reading skills and strategies to comprehend text.	Grade 11 Reading Comprehension				
LA 12.1.6	Comprehension: Students will construct meaning by applying prior knowledge, using text information, and monitoring comprehension while reading increasingly complex grade-level literary and informational text.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 12.1.6.a	General: Evaluate the meaning, reliability, and validity of text considering author's purpose, perspective, rhetorical style, and contextual influences. *Extended: Determine if an author's purpose is to entertain, inform, or persuade.*	4	0 – 1	0 – 2	0 – 1	1 – 3
LA 12.1.6.b	General: Analyze and evaluate literary text (e.g., characterization, setting, plot development, internal and external conflict, inferred and recurring themes, point of view, tone, mood). *Extended: Identify and describe elements of literary text (e.g., character(s), setting, conflict, theme, story sequence, point of view).*	4	0 – 1	1 – 2	1 – 2	2 – 4

LA 12.1.6.c	General: Analyze the function and critique the effects of the author's use of literary devices (e.g., allusion, symbolism, metaphor, personification, epiphany, oxymoron, dialect, tone, mood). *Extended: Recognize how literary devices are used purposefully in literary text (onomatopoeia, personification, alliteration, hyperbole, simile, metaphor, idiom).*	4	0 – 1	0 – 2	0 – 1	0 – 3
LA 12.1.6.d	General: Summarize, analyze, and synthesize the themes and main ideas between multiple literary and informational works (print, digital, and/or other media). *Extended: Identify a theme in one literary text or a main idea that is common across two informational texts.*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 12.1.6.e	Skills blended with 12.1.6.d at this level.					
LA 12.1.6.f	General: Interpret and evaluate information from print and digital text features to support comprehension. *Extended: Use text features to locate information (e.g., titles, illustrations, headings, index, glossary, graphs, charts, timeline, maps).*	4	0 – 1	1 – 2	0 – 1	1 – 3
LA 12.1.6.i	General: Construct and/or answer literal, inferential, critical, and interpretive questions, analyzing and synthesizing evidence from the text and additional sources to support answers. *Extended: Answer literal and inferential questions using explicit evidence from text.*	4	0 – 1	1 – 2	0 – 1	2 – 3
LA 12.1.6.j	General: Apply knowledge of organizational patterns to comprehend informational text (e.g., sequence, description, cause and effect, compare/contrast, fact/opinion, proposition/support, concept definition, question/answer). *Extended: Identify organizational patterns in informational text (e.g., sequence/chronological, cause/effect, compare/contrast, fact/opinion, problem/solution).*	4	0 – 1	1 – 2	0 – 1	1 – 3

LA 12.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 11 Writing Writing Process				
LA 12.2.1	Writing Process: Students will apply the writing process to plan, draft, revise, edit, and publish writing using correct spelling, grammar, punctuation, and other conventions of standard English appropriate for grade-level.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 12.2.1.c	General: Gather and use relevant information and evidence from multiple authoritative print and/or digital sources including primary and secondary sources to support claims or theses. *Extended: Use relevant evidence to support a claim or theses.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 12.2.1.h	General: Proofread and edit writing recursively for format and conventions of standard English (e.g., spelling, capitalization, grammar, punctuation, syntax, semantics). *Extended: Edit writing for conventions of standard English (e.g., initial capitalization and proper nouns, and punctuation limited to period and question mark).*	4	0 – 1	0 – 1	1 – 2	2 – 3

LA 12.2	Writing: Students will learn and apply writing skills and strategies to communicate.	Grade 11 Writing Writing Mode				
LA 12.2.2	Writing Modes: Students will write in multiple modes for a variety of purposes and audiences across disciplines.	Max DOK Tested	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
LA 12.2.2.b	General: Provide evidence from literary or informational text to support analysis, reflection, and research. *Extended: Identify evidence from the text that supports an idea found in literary or informational text.*	4	0 – 1	0 – 1	1 – 2	1 – 3
LA 12.2.2.d	General: Use precise word choice and domain-specific vocabulary to write in a variety of modes. *Extended: Identify precise word choice in a variety of modes.*	4	0 – 1	1 – 2	1 – 2	1 – 3

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 General Demonstrate multiple equivalent representations for numbers up to 10,000 Extended ***Identify representations of whole numbers 0-10***	3	0-1	0-1	0-2	0	1-3
MA 3.1.1.g General Compare and order whole numbers through the thousands Extended ***Compare and order whole numbers 0-10***	4	0	0-2	0-2	0-2	1-4
MA 3.1.1.h General Use visual models to represent fractions of halves, thirds, and fourths as parts of a whole and parts of a set Extended ***Use models to represent halves as parts of a whole and parts of a set***	3	0-1	1-2	0-1	0	1-4
MA 3.1.1.i General Round a given number to tens or hundreds Extended ***Recognize basic numerical concepts of closer and farther***	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 General Represent multiplication as repeated addition using objects, drawings, words, and symbols Extended ***Represent a number up to 10 in equal sized groups***	4	0	0-1	0-2	0-1	1-3
MA 3.1.2.d General Use drawings, words, and symbols to explain the meaning of multiplication using an array Extended ***Use drawings, words, and symbols to explain the meaning of multiplication***	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.						

MA 3.2.1.a General Identify the number of sides, angles, and vertices of two-dimensional shapes Extended ***Identify two dimensional shapes (circle, square)***	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 General Determine the distance between two whole number points on a number line Extended ***Identify a point on a number line***	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 General Identify the appropriate customary unit for measuring length, weight, and capacity/volume Extended ***Identify the purpose of basic tools for measuring time***	3	0-1	0-1	0-1	0	1-2
MA 3.2.5.g General Compare and order objects according to length using centimeters and meters Extended ***Compare and order objects by length***	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 General Identify, describe, and extend numeric and non-numeric patterns Extended ***Extend non-numeric AB patterns***	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 General Model situations that involve the addition and subtraction of whole numbers using objects, number lines, and symbols Extended ***Model situations that involve addition and subtraction of whole numbers 0-10 using objects and symbols***	4	0	0-2	0-3	0-2	1-3

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 General Solve simple one-step whole number equations involving addition and subtraction Extended ***Solve simple one-step single digit equations involving addition and subtraction with sums and differences 0-9***	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 General Represent data using horizontal and vertical bar graphs Extended ***Represent data using vertical bar graphs***	4	0	0-1	0-3	0-2	1-3
MA 3.4.1.c General Interpret data using horizontal and vertical bar graphs Extended ***Interpret data on vertical bar graphs***	4	0	0	0-2	0-2	1-3

Nebraska State Accountability - Alternate Assessment of Mathematics (NeSA-AAM) Tables of Specification						
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 General Demonstrate multiple equivalent representations for decimal numbers through the hundredths place Extended ***Identify representations of whole numbers from 0-20***	3	0-1	0-1	0-2	0	1-3
MA 4.1.1.c General Compare and order whole numbers and decimals through the hundredths place Extended ***Compare and order whole numbers 0-20***	4	0	0-2	0-2	0-2	1-4
MA 4.1.1.e General Represent a fraction as parts of a whole and/or parts of a set Extended ***Use models to represent halves and fourths as parts of a whole and parts of a set***	3	0-1	1-2	0-1	0	1-3
MA 4.1.1.f General Use visual models to find equivalent fractions Extended ***Use models to identify equivalent fractions 1/2 and whole***	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 General Use drawings, words, and symbols to explain the meaning of division Extended ***Represent a number up to 20 in equal sized groups***	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 General Add and subtract decimals to the hundredths place Extended ***Add and subtract single digit numbers***	4	0	0	0-2	0-2	1-2

MA 4.1.3.c General Multiply two-digit whole numbers Extended ***Add equal groups with sums up to 20***	4	0	0-1	0-2	0-1	1-2
MA 4.1.3.e General Mentally compute multiplication and division involving powers of 10 Extended ***Use groups of 10 for computation up to 50***	4	0	0-1	0-2	0-1	1-2
MA 4.1.3.f General Select and apply the appropriate method of computation when problem solving Extended ***Select the appropriate method of computation (addition and subtraction) when problem solving***	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 General Identify two- and three- dimensional shapes according to their sides and angle properties Extended ***Identify two dimensional shapes (triangle, rectangle)***	3	0-1	0-1	0-2	0	1-2
MA 4.2.1.b General Classify an angle as acute, obtuse, or right Extended ***Identify the number of angles/corners of a given shape***	3	0	0-1	0-2	0	1-2
MA 4.2.1.c General Identify parallel, perpendicular, and intersecting lines Extended ***Recognize parallel and intersecting lines***	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 General Identify the ordered pair of a plotted point in the first quadrant by its location Extended ***Determine the distance between two points on a number line***	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 General Identify time to the minute on an analog clock Extended ***Identify time to the hour on an analog clock***	3	0	0-2	0-1	0	1-2

MA 4.2.5.c General Solve problems involving elapsed time Extended ***Solve problems involving elapsed time to the hour***	3	0	0-1	0-3	0	1-3
MA 4.2.5.d General Identify the appropriate metric unit for measuring length, weight, and capacity/volume Extended ***Determine the appropriate tool for measuring length, capacity/volume, and weight***	3	0-1	0-2	0-2	0	1-3
MA 4.2.5.g General Compute simple unit conversions for length within a system of measurement Extended ***Identify the length of an object using non-standard units***	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 General Use symbols to compare quantities Extended ***Use objects and symbols (<, >, =) to compare quantities***	3	0-1	0-2	0-3	0	1-3
MA 4.3.1.d General Select appropriate operational and relational symbols to make a number sentence true Extended ***Select appropriate operational symbols (addition and subtraction) to make a number sentence true***	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 General Use symbolic representations of the commutative property of multiplication Extended ***Identify the commutative property of addition using pictures and models***	4	0	0-1	0-2	0-2	1-2
MA 4.3.3.d General Solve simple one-step whole number equations Extended ***Solve simple one-step single digit equations involving addition and subtraction with sums and differences 0-20***	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.						

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

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 General Demonstrate multiple equivalent representations for whole numbers and decimal numbers through the thousandths place Extended ***Identify equivalent representations of whole numbers from 0-50***	3	0-1	0-1	0-2	0	1-3
MA 5.1.1.b General Compare and order whole numbers, fractions, and decimals through the thousandths place Extended ***Compare and order whole numbers 0-30***	4	0	0-2	0-2	0-2	1-4
MA 5.1.1.c General Identify and name fractions in their simplest form and find common denominators for fractions Extended ***Use models to represent halves, fourths, and thirds as parts of a whole and parts of a set***	3	0-1	1-2	0-2	0	1-3
MA 5.1.1.d General Recognize and generate equivalent forms of commonly used fractions, decimals, and percents Extended ***Use models to identify equivalent fractions 1/4, 1/2, and whole***	3	0-1	0-2	0-2	0	1-3
MA 5.1.1.e General Classify a number as prime or composite Extended ***Classify a number as even or odd***	3	0-1	0-2	0-2	0	1-3
MA 5.1.1.f General Identify factors and multiples of any whole number Extended ***Identify groups of 2, 5s, and 10s***	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 General Add and subtract positive rational numbers Extended ***Add and subtract 2-digit by 2-digit whole numbers without regrouping***	4	0	0	0-3	0-2	1-3
MA 5.1.3.b General Select, apply, and explain the appropriate method of computation when problem solving Extended ***Select the appropriate method of computation (addition, subtraction, and multiplication) when problem solving***	4	0	0	0-2	0-2	1-3

MA 5.1.3.c General Multiply decimals Extended ***Multiply single-digit numbers (0 to 5)***	4	0	0	0-3	0-2	1-3
MA 5.1.3.d General Divide a decimal by a whole number Extended ***Divide single digit numbers by single digit numbers resulting in a quotient that is a whole number***	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 General Estimate the sums and differences of positive rational numbers to check the reasonableness of such results Extended ***Apply estimation to the nearest 10 on addition results***	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 General Identify the number of edges, faces, and vertices of triangular and rectangular prisms Extended ***Identify the number of sides of a given polygon***	3	0	0-2	0-3	0	1-3
MA 5.2.1.d General Identify degrees on a circle Extended ***Identify the radius and diameter of a circle***	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 General Plot the location of an ordered pair in the first quadrant Extended ***Determine the location of a number on a number line***	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.						

MA 5.2.5.b General Identify correct unit (customary or metric) to the measurement situation Extended ***Identify the customary units for measuring length***	3	0	0-1	0-3	0	1-3
MA 5.2.5.f General Determine the area of rectangles and squares Extended ***Identify the perimeter of an object***	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 General Model situations that involve the addition, subtraction, and multiplication of positive rational numbers using words, graphs, and tables Extended ***Model situations that involve addition and subtraction of numbers up to 50***	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 General Use symbolic representations of the associative property Extended ***Identify the associative property of addition using pictures and models***	4	0	0-1	0-3	0-2	1-3
MA 5.3.3.c General Evaluate numerical expressions by using parentheses with respect to order of operations Extended ***Demonstrate understanding of order of operations involving one- digit addition with parentheses***	4	0	0	0-2	0-3	1-3
MA 5.3.3.d General Evaluate simple algebraic expressions involving addition and subtraction Extended ***Evaluate simple algebraic expressions involving addition***	4	0	0	0-2	0-2	1-3
MA 5.3.3.e General Solve one-step addition and subtraction equations involving common positive rational numbers Extended ***Solve simple one-step equations involving addition***	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 General Represent data using line graphs Extended ***Identify data on a line graph***	3	0-1	0-2	0-3	0	1-3

MA 5.4.1.b General Represent the same set of data in different formats Extended ***Identify the same data in different formats***	4	0	0	0	0-3	1-3
MA 5.4.1.c General Draw conclusions based on a set of data Extended ***Interpret data on a line graph***	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 General Generate a list of possible outcomes for a simple event Extended ***Identify a possible outcome***	4	0	0-2	0-2	0-1	1-3

Nebraska State Accountability - Alternate Assessment of Mathematics (NeSA-AAM) Tables of Specification						
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 General Compare and order positive and negative integers Extended ***Compare and order whole numbers up to 40***	4	0	0-2	0-2	0-2	1-4
MA 6.1.1.e General Identify the prime factorization of numbers Extended ***Identify factorization of a number up to 20***	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 General Use drawings, words, and symbols to explain the meaning of addition and subtraction of fractions Extended ***Use drawings to subtract halves, thirds, and fourths from a whole***	3	0	0-2	0-3	0	1-3
MA 6.1.2.b General Use drawings, words, and symbols to explain the meaning of addition and subtraction of decimals Extended ***Recognize decimal representation of money***	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 General Multiply and divide positive rational numbers Extended ***Multiply positive single digit numbers***	4	0	0	0-3	0-2	1-3
MA 6.1.3.b General Select and apply the appropriate method of computation when problem solving Extended ***Select the appropriate method of computation (addition, subtraction, multiplication, and division) when problem solving***	4	0	0	0-2	0-2	1-3

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 General Use appropriate estimate methods to check the reasonableness of solutions for problems involving positive rational numbers Extended ***Apply estimation to the nearest 10 on addition and subtraction results***	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 General Identify the ordered pair of a plotted point in the coordinate plane Extended ***Identify the plotted point on a 4 x 4 grid***	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 General Identify two-dimensional drawings of three-dimensional objects Extended ***Identify a two-dimensional shape and match it to a three- dimensional object***	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 General Determine the perimeter of polygons Extended ***Determine the perimeter of polygons (triangle, rectangle, square)***	4	0	0	0-3	0-2	1-3
MA 6.2.5.e General Determine the area of parallelograms and triangles Extended ***Determine the area of a square***	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**

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 ***Match a simple algebraic expression involving addition to given tables***	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 ***Use a symbol to represent a numeric value in a simple equation***	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 ***Model representations of coin combinations up to $1.00***	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 ***Demonstrate understanding of order of operations involving one- digit addition, subtraction, and multiplication with parentheses with parentheses***	4	0	0	0-2	0-3	1-3
MA 6.3.3.c General Evaluate simple algebraic expressions involving multiplication and division Extended ***Evaluate simple algebraic expressions involving addition and subtraction***	4	0	0	0-2	0-2	1-3
MA 6.3.3.d General Solve one-step equations involving positive rational numbers Extended ***Solve simple one-step equations involving addition and subtraction***	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 ***Solve an addition problem demonstrating the commutative property of equality***	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.						

MA 6.4.1.b General Compare and interpret data sets and their graphical representations Extended ***Interpret data on a circle graph***	4	0	0	0-2	0-3	1-3
MA 6.4.1.c General Find the mean, median, mode, and range for a set of data Extended ***Find the mode for a set of data***	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 General Compute theoretical probabilities for independent events Extended ***Determine the theoretical probability of an event using given data***	4	0	0-2	0-2	0-2	1-3

Nebraska State Accountability - Alternate Assessment of Mathematics (NeSA-AAM) Tables of Specification						
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 General Show equivalence among fractions, decimals, and percents Extended ***Use models to identify equivalents between fractions and percents (1 and 100%, 1/2 and 50%, 1/4 and 25%)***	4	0-1	0-3	0-2	0-1	1-3
MA 7.1.1.b General Compare and order rational numbers (fractions, decimals, percents) Extended ***Compare and order numbers up to 50***	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 General Compute accurately with integers Extended ***Divide a positive two digit number by a single digit number***	4	0	0-1	0-3	0-2	1-3
MA 7.1.3.b General Select, apply, and explain the method of computation when problem solving using integers and positive rational numbers Extended ***Select and apply the appropriate method of computation (addition, subtraction, and multiplication) when problem solving***	4	0	0	0-2	0-2	1-3
MA 7.1.3.c General Solve problems involving percent of numbers Extended ***Compare given percents (greater than, less than, equal to)***	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 General Use estimation methods to check the reasonableness of solutions for problems involving integers and positive rational numbers Extended ***Apply estimation to the nearest 10 on addition and subtraction results***	4	0	0	0-3	0-2	1-3
GEOMETRIC/MEASUREMENT CONCEPTS						

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 General Plot the location of an ordered pair in the coordinate plane Extended ***Plot the location of an ordered pair on a 4 x 4 grid***	3	0	0-1	0-3	0	1-3
MA 7.2.2.c General Find the distance between points along horizontal and vertical lines of a coordinate plane Extended ***Identify the distance between two given points along horizontal and vertical lines of a grid***	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 General Perform and describe positions and orientation of shapes under a single transformation on an coordinate plane Extended ***Identify congruent shapes***	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 General Determine the area of trapezoids and circles, and the circumference of circles Extended ***Determine the area of a rectangle (not a square)***	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 General Describe and create algebraic expressions from words, tables, and graphs Extended ***Match a simple algebraic expression involving addition and subtraction to a given table, chart, or illustration***	4	0	0-1	0-2	0-3	1-3
MA 7.3.1.b General Use a variable to describe a situation with an inequality Extended ***Identify a correct inequality***	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**

MA 7.3.2 Students will create, use, and interpret models of quantitative relationships.						
MA 7.3.2.a General Model contextualized problems using various representations Extended ***Recognize addition number sentences using various representations***	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 General Given the value of the variable(s), evaluate algebraic expressions with respect to order of operations Extended ***Evaluate variable expressions with respect to order of operations in addition, subtraction, and multiplication with parentheses***	4	0	0	0-2	0-2	1-3
MA 7.3.3.d General Solve two-step equations involving integers and positive numbers Extended ***Solve one-step equations involving addition or subtraction***	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 General Analyze data sets and interest their graphical representations Extended ***Identify and interpret a data set***	4	0	0-2	0-3	0-2	1-3
MA 7.4.1.b General Find and interpret mean, median, mode, and range for a set of data Extended ***Find the median for a set of data***	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 General Find the probability of independent compound events Extended ***Determine the probability of a given event (always, sometimes, never)***	3	0	0-1	0-3	0	1-3
MA 7.4.3.b General Compare and contracts theoretical and experimental probabilities Extended ***Compare theoretical probabilities***	4	0	0-1	0-2	0-2	1-3

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 ***Compare and order positive and negative integers (-50 to 50)***	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 ***Classify numbers as natural or whole***	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 ***Add and subtract decimals without regrouping***	4	0	0-1	0-2	0-2	1-3
MA 8.1.3.b General Evaluate expressions involving absolute value of integers Extended ***Determine the absolute value of a given situation***	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 ***Select and apply method of computation (addition, subtraction, multiplication, division) when problem solving***	4	0	0	0-2	0-2	1-3
MA 8.1.3.e General Solve problems involving ratios and proportions Extended ***Solve problems involving ratios***	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 ***Apply estimation to the nearest 10 on situations (story problems) involving addition and subtraction***	4	0	0	0-2	0-3	1-3

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 General Identify geometric properties of parallel lines cut by a transversal and related angles Extended ***Identify geometric properties of parallel lines cut by a perpendicular transversal that creates right angles***	4	0-1	0-2	0-3	0-1	1-3
MA 8.2.1.d General Identify pairs of angles Extended ***Identify pairs of right angles***	4	0-1	0-2	0-3	0-1	1-3
MA 8.2.1.e General Examine the relationships of the interior angles to a triangle Extended ***Match congruent triangles based on interior angles***	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 General Use coordinate geometry to represent and examine the properties of rectangles and squares using horizontal and vertical segments Extended ***Use coordinate geometry to determine the measurement of a side (rectangle, square)***	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 General Apply the Pythagorean theorem to find missing lengths in right triangles and to solve problems Extended ***Find the missing length and/or height in a right triangle***	4	0	0-1	0-2	0-2	1-3
MA 8.2.5.d General Use scale factors to find missing lengths in similar shapes Extended ***Match similar geometric shapes represented in different scales***	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**

MA 8.3.1 Students will represent and analyze relationships using algebraic symbols.						
MA 8.3.1.b General Describe relationships using algebraic expressions, equations, and inequalities Extended ***Identify relationships using algebraic expressions***	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 General Model contextualized problems using various representations Extended ***Recognize addition and subtraction number sentences using various representations***	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 General Evaluate numerical expressions containing whole number exponents Extended ***Identify representations of numbers squared***	3	0	0-2	0-2	0	1-3
MA 8.3.3.c General Solve multi-step equations involving rational numbers Extended ***Solve one-step equations involving addition, subtraction, and multiplication***	4	0	0-1	0-3	0-1	1-3
MA 8.3.3.d General Solve two-step inequalities involving rational numbers Extended ***Identify values that make inequalities true***	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 General Compare characteristics between sets of data or within a given set of data Extended ***Compare characteristics in a set of data***	4	0	0-2	0-3	0-2	1-3
MA 8.4.1.d General Select the most appropriate unit of central tendency for sets of data Extended ***Find the median for a set of data***	4	0	0-1	0-2	0-2	1-3

MA 8.4.1.e General Identify misrepresentation and misinterpretation of data represented in circle graphs and box plots Extended ***Recognize accurate representation of data in a circle graph***	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 General Identify complementary events and calculate their probabilities Extended ***Determine complementary events***	3	0	0-1	0-3	0	1-3
MA 8.4.3.b General Compute probabilities for independent compound events Extended ***Determine the probability for an independent event***	4	0	0-1	0-2	0-2	1-3

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 ***Add and subtract two-digit by two-digit numbers with regrouping***	4	0	0-1	0-2	0-2	1-3
MA 12.1.3.b General Simplify exponential expressions Extended ***Recognize expanded forms of exponents (powers)***	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 ***Apply estimation to the nearest 10 on situations (story problems)involving addition, subtraction, and multiplication***	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 ***Apply the geometric property, length times width, to find the area of a rectangle***	4	0	0-1	0-2	0-2	1-3
MA 12.2.1.e General Identify and apply right triangle relationships Extended ***Identify a right triangle***	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**

MA 12.2.2 Students will use coordinate geometry to analyze and describe relationships in the coordinate plane.						
MA 12.2.2.a General Use coordinate geometry to analyze geometric situations Extended ***Determine the coordinates for a point on a 7 x 7 or larger grid***	3	0	0-1	0-3	0	1-3
MA 12.2.2.d General Prove special types of triangles and quadrilaterals Extended ***Identify the properties of equilateral triangles***	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 General Use geometric models to visualize, describe, and solve problems Extended ***Use geometric models to solve problems***	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 General Convert between various units of area and volume, such as square feet to square yards Extended ***Find the missing length and/or height in a right triangle***	4	0	0-1	0-2	0-2	1-3
MA 12.2.5.d General Convert equivalent rates Extended ***Convert equivalent rates using money***	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 General Represent, interpret, and analyze functions with graphs, tables, and algebraic notation, and convert among these representations Extended ***Interpret values of a function in a table***	4	0	0-1	0-2	0-2	1-3
MA 12.3.1.c General Identify the slope and intercepts of a linear relationship from an equation or graph Extended ***Identify a linear relationship from a graph***	4	0	0-1	0-3	0-2	1-3
MA 12.3.1.d General Identify characteristics of linear and non-linear functions Extended ***Compare linear and non-linear segments and graphs***	4	0-1	0-1	0-3	0-2	1-3

MA 12.3.1.f General Compare and analyze the rate of change by using ordered pairs, tables, graphs, and equations Extended ***Analyze the effect of the rate of change in a table or graph***	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 General Represent a variety of quantitative relationships using linear equations and one variable inequalities Extended ***Solve the quantitative relationship of one variable inequalities using addition and subtraction***	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 General Describe the shape and determine the center, spread, and outliers of a data set Extended ***Determine the range of a data set***	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 General Identify dependent and independent events and calculate their probabilities Extended ***Differentiate between a dependent and independent event***	4	0	0-1	0-3	0-3	1-3
MA 12.4.3.c General Use the appropriate counting techniques to determine the probability of an event Extended ***Use the appropriate counting principle to determine the combinations for an event***	4	0	0-1	0-3	0-3	1-3
MA 12.4.3.d General Analyze events to determine if they are mutually exclusive Extended ***Determine if two events are mutually exclusive***	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 General Students will plan and conduct investigations that lead to the development of explanations. **Extended *Students will conduct investigations that lead to a final product.***	**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 General Students will describe how scientists go about their work. **Extended *Students will observe how scientists go about their work.***	**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						

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

Grade 5 Energy	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.2.3 General Students will observe and identify signs of energy transfer. **Extended** ***Students will observe and identify signs of energy transfer.***	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 General Students will investigate and compare the characteristics of living things. **Extended** ***Students will recognize that living things grow.***	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 General Students will identify variations of inherited characteristics and life cycles. **Extended** ***Students will observe inherited characteristics and life cycles.***	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					

SCE 5.3.3 General Students will describe relationships within an ecosystem. **Extended** ***Students will recognize relationships within an ecosystem.***	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 General Students will describe changes in organisms over time. **Extended** ***Students will identify changes in organisms over time.***	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 General Students will observe and describe characteristics, patterns, and changes in the sky. **Extended** ***Students will observe and recognize changes in the sky.***		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					

Grade 5 Earth Structures and Processes	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 5.4.2 General Students will observe and describe Earth's materials, structure, and processes. **Extended *Students will observe and recognize Earth's materials and processes.***	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 General Students will observe and describe the effects of energy changes on Earth. **Extended *Students will observe and recognize the effects of energy changes on Earth.***	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 General Students will describe changes in Earth. **Extended *Students will recognize changes occur on Earth.***	**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					

Nebraska State Accountability - Alternate Assessment of Science (NeSA-AAS) 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 General Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations. **Extended** ***Students will conduct investigations that lead to a final product.***		**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 General Students will apply the nature of science to their own investigations. **Extended** ***Students will describe how scientists go about their work.***	**Assessed at the local level**					

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 General 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 General 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					

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					

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 General Students will investigate and describe the structure and function of living organisms. **Extended** ***Students will explore and identify the structure and function of living things.***		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 General Students will investigate and describe the relationship between reproduction and heredity. **Extended** ***Students will explore and identify the relationship between reproduction and heredity.***		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**

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					

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 General 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 General 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**

SCE 8.4.4 General Students will use evidence to draw conclusions about changes in Earth. **Extended** ***Students will recognize that the surface of Earth changes today, in similar ways as in the past.***		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					

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** ***Students will conduct an investigation that leads to an answer.***		**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					

Grade 11 Nature of Science	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.1.2 General Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations. **Extended *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 General Students will solve a complex design problem. **Extended *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						

PHYSICAL SCIENCE						
Grade 11 Matter	**Highest DOK Stage Tested**	**Stage 1**	**Stage 2**	**Stage 3**	**Stage 4**	**Item Total**
SCE 12.2.1 General 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 General 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					

SC 12.2.e Describe how Newton's 3rd law of motion is evident in a real-world event	4					
SC 12.2.2.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 12.2.2.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 General Students will describe and investigate energy systems relating to the conservation and interaction of energy and matter. **Extended** ***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					

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 General Students will investigate and describe the chemical basis of the growth, development, and maintenance of cells. **Extended** ***Students will investigate and identify the factors needed for life and growth.***		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 General Students will describe the molecular basis of reproduction and heredity. **Extended** ***Students will investigate and identify features of living organisms that come from their parents.***		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 General Students will describe, on a molecular level, the cycling of matter and the flow of energy between organisms and their environment. **Extended** ***Students will investigate and identify the cycling of matter between organisms and their environment.***		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					

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 General Students will describe the theory of biological evolution. **Extended** ***Students will explore and identify elements of evolution.***		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 General Students will investigate and describe the known universe. **Extended** ***Students will identify the difference between man-made and natural objects in space.***		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					

Grade 11 Earth Structures and Processes	Highest DOK Stage Tested	Stage 1	Stage 2	Stage 3	Stage 4	Item Total
SCE 12.4.2 General Students will investigate the relationships among Earth's structure, systems, and processes. **Extended** ***Students will recognize that various processes cause changes on Earth.***		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 General Students will investigate and describe the relationships among the sources of energy and their efforts on Earth's systems. **Extended** ***Students will identify sources of energy in Earth's systems.***		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 General Students will explain the history and evolution of Earth. **Extended** ***Students will identify changes in Earth over time.***		**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.

LEGAL FIRST NAME *MI* *LEGAL LAST NAME*

SCHOOL

SIGNATURE *DATE*

Appendix E: Fairness in Testing Manual

FAIRNESS IN TESTING

Guidelines for Training

Bias, Fairness, and Sensitivity Issues

Table of Contents

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.

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 phases 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.

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.

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
  - 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?

Appendix E References

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Appendix F: ELA Key Verification and Foil Analysis

Grade 3

Grade 3 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	650589	C	236	0.83	0.06	0.11	0.83	0.00	0.00	0.44	-0.19	-0.36	0.44
OP	650617	C	236	0.74	0.06	0.19	0.74	0.01	0.00	0.46	-0.19	-0.35	0.46
OP	691033	A	236	0.78	0.78	0.10	0.12	0.00	0.00	0.47	0.47	-0.29	-0.30
OP	691044	B	236	0.69	0.12	0.69	0.18	0.00	0.00	0.38	-0.18	0.38	-0.29
OP	691048	C	236	0.86	0.05	0.08	0.86	0.01	0.00	0.42	-0.33	-0.20	0.42
OP	707757	B	236	0.60	0.14	0.60	0.25	0.00	0.00	0.42	-0.23	0.42	-0.27
OP	707759	A	236	0.70	0.70	0.12	0.18	0.00	0.00	0.57	0.57	-0.37	-0.35
OP	707761	C	236	0.60	0.22	0.17	0.60	0.01	0.00	0.36	-0.19	-0.18	0.36
OP	707767	C	236	0.78	0.05	0.16	0.78	0.01	0.00	0.37	-0.19	-0.25	0.37
OP	707768	B	236	0.77	0.08	0.77	0.14	0.00	0.00	0.40	-0.20	0.40	-0.29
OP	707770	A	236	0.77	0.77	0.05	0.16	0.02	0.00	0.58	0.58	-0.28	-0.38
OP	707772	B	236	0.63	0.32	0.63	0.05	0.01	0.00	0.57	-0.43	0.57	-0.28
OP	749136	B	236	0.45	0.23	0.45	0.31	0.00	0.00	0.11	-0.01	0.11	-0.09
OP	749138	A	236	0.69	0.69	0.11	0.19	0.00	0.00	0.34	0.34	-0.20	-0.24
OP	749140	C	236	0.77	0.12	0.10	0.77	0.01	0.00	0.33	-0.27	-0.07	0.33
OP	749141	A	236	0.54	0.54	0.21	0.25	0.00	0.00	0.30	0.30	-0.19	-0.13
OP	749142	C	236	0.70	0.16	0.14	0.70	0.01	0.00	0.35	-0.17	-0.22	0.35
OP	749143	B	236	0.79	0.18	0.79	0.01	0.01	0.00	0.26	-0.14	0.26	-0.18
OP	749144	B	236	0.57	0.09	0.57	0.33	0.01	0.00	0.53	-0.14	0.53	-0.40
OP	749221	A	236	0.43	0.43	0.15	0.42	0.00	0.00	0.28	0.28	-0.14	-0.17
OP	749223	C	236	0.57	0.15	0.27	0.57	0.01	0.00	0.13	-0.23	0.09	0.13
OP	749224	C	236	0.70	0.11	0.17	0.70	0.01	0.00	0.42	-0.26	-0.19	0.42
OP	749225	B	236	0.44	0.18	0.44	0.36	0.01	0.00	0.40	-0.09	0.40	-0.29
OP	750257	C	236	0.86	0.07	0.05	0.86	0.02	0.00	0.33	-0.15	-0.15	0.33
OP	750258	A	236	0.37	0.37	0.20	0.42	0.01	0.00	0.17	0.17	0.02	-0.14
FT	826881	A	110	0.40	0.40	0.27	0.31	0.02	0.00	0.18	0.18	0.08	-0.18
FT	826883	C	110	0.65	0.24	0.10	0.65	0.02	0.00	0.20	-0.07	-0.08	0.20
FT	826887	A	110	0.61	0.61	0.15	0.22	0.02	0.00	0.54	0.54	-0.20	-0.36
FT	826890	B	110	0.57	0.11	0.57	0.30	0.02	0.00	0.45	-0.24	0.45	-0.24
FT	826891	C	110	0.76	0.17	0.05	0.76	0.02	0.00	0.30	-0.24	0.01	0.30
FT	826892	B	110	0.34	0.22	0.34	0.43	0.02	0.00	0.36	-0.22	0.36	-0.08
FT	826895	B	110	0.82	0.05	0.82	0.11	0.02	0.00	0.37	-0.07	0.37	-0.27
FT	826897	B	110	0.45	0.18	0.45	0.35	0.02	0.00	0.28	-0.27	0.28	0.01
FT	826882	C	126	0.86	0.03	0.11	0.86	0.00	0.00	0.44	-0.25	-0.35	0.44

Grade 3 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
FT	826884	C	126	0.67	0.17	0.13	0.67	0.02	0.00	0.26	-0.01	-0.24	0.26
FT	826885	B	126	0.59	0.16	0.59	0.25	0.00	0.00	0.25	-0.10	0.25	-0.19
FT	826886	A	126	0.48	0.48	0.23	0.29	0.01	0.00	0.27	0.27	0.04	-0.29
FT	826888	A	126	0.51	0.51	0.27	0.22	0.00	0.00	0.33	0.33	-0.12	-0.27
FT	826893	B	126	0.41	0.19	0.41	0.39	0.01	0.00	0.32	-0.03	0.32	-0.26
FT	826896	C	126	0.58	0.10	0.31	0.58	0.01	0.00	0.10	0.09	-0.13	0.10
FT	826898	A	126	0.50	0.50	0.17	0.33	0.01	0.00	0.61	0.61	-0.43	-0.27

Grade 4

Grade 4 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	650970	A	237	0.68	0.68	0.08	0.22	0.01	0.00	0.45	0.45	-0.20	-0.32
OP	650980	A	237	0.45	0.45	0.15	0.40	0.00	0.00	0.36	0.36	-0.15	-0.23
OP	650990	B	237	0.76	0.12	0.76	0.12	0.00	0.00	0.55	-0.32	0.55	-0.37
OP	691057	B	237	0.52	0.18	0.52	0.29	0.01	0.00	0.46	-0.18	0.46	-0.31
OP	691061	C	237	0.77	0.13	0.09	0.77	0.01	0.00	0.46	-0.36	-0.18	0.46
OP	691063	B	237	0.62	0.18	0.62	0.19	0.01	0.00	0.49	-0.27	0.49	-0.29
OP	707781	C	237	0.61	0.18	0.20	0.61	0.01	0.00	0.39	-0.12	-0.30	0.39
OP	707782	A	237	0.50	0.50	0.44	0.05	0.01	0.00	0.29	0.29	-0.18	-0.17
OP	707786	C	237	0.85	0.04	0.11	0.85	0.00	0.00	0.34	-0.19	-0.26	0.34
OP	749148	C	237	0.74	0.13	0.13	0.74	0.00	0.00	0.37	-0.19	-0.26	0.37
OP	749149	C	237	0.80	0.09	0.10	0.80	0.01	0.00	0.34	-0.26	-0.14	0.34
OP	749150	B	237	0.65	0.18	0.65	0.17	0.00	0.00	0.41	-0.14	0.41	-0.36
OP	749151	A	237	0.88	0.88	0.09	0.03	0.00	0.00	0.25	0.25	-0.18	-0.19
OP	749152	C	237	0.73	0.16	0.10	0.73	0.00	0.00	0.33	-0.16	-0.25	0.33
OP	749153	B	237	0.52	0.15	0.52	0.32	0.00	0.00	0.44	-0.25	0.44	-0.26
OP	749154	A	237	0.76	0.76	0.11	0.12	0.01	0.00	0.49	0.49	-0.28	-0.31
OP	749226	A	237	0.72	0.72	0.14	0.14	0.01	0.00	0.48	0.48	-0.21	-0.36
OP	749227	B	237	0.61	0.13	0.61	0.26	0.01	0.00	0.41	-0.24	0.41	-0.22
OP	749228	B	237	0.32	0.29	0.32	0.38	0.01	0.00	0.31	0.02	0.31	-0.27
OP	749229	C	237	0.59	0.23	0.17	0.59	0.01	0.00	0.17	-0.06	-0.10	0.17
OP	749230	B	237	0.50	0.27	0.50	0.22	0.01	0.00	0.30	0.00	0.30	-0.30
OP	749231	B	237	0.61	0.12	0.61	0.26	0.01	0.00	0.46	-0.09	0.46	-0.40
OP	749719	A	237	0.60	0.60	0.15	0.23	0.02	0.00	0.29	0.29	0.06	-0.30

Grade 4 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	749720	A	237	0.70	0.70	0.10	0.20	0.00	0.00	0.42	0.42	-0.27	-0.28
OP	749721	C	237	0.67	0.14	0.18	0.67	0.01	0.00	0.26	-0.28	-0.02	0.26
FT	827082	C	96	0.71	0.17	0.13	0.71	0.00	0.00	0.22	-0.09	-0.21	0.22
FT	827083	A	96	0.40	0.40	0.30	0.30	0.00	0.00	0.39	0.39	-0.10	-0.31
FT	827084	B	96	0.41	0.19	0.41	0.41	0.00	0.00	0.30	-0.24	0.30	-0.11
FT	827085	C	96	0.65	0.18	0.18	0.65	0.00	0.00	0.17	0.07	-0.28	0.17
FT	827087	C	96	0.61	0.17	0.22	0.61	0.00	0.00	0.09	-0.02	-0.09	0.09
FT	827091	A	96	0.42	0.42	0.14	0.45	0.00	0.00	0.41	0.41	-0.16	-0.29
FT	827092	B	96	0.82	0.04	0.82	0.14	0.00	0.00	0.37	-0.07	0.37	-0.38
FT	827097	A	96	0.85	0.85	0.08	0.06	0.00	0.00	0.38	0.38	-0.26	-0.26
FT	827081	B	141	0.21	0.32	0.21	0.45	0.02	0.00	0.29	0.10	0.29	-0.24
FT	827086	C	141	0.71	0.06	0.21	0.71	0.01	0.00	0.58	-0.31	-0.38	0.58
FT	827089	A	141	0.46	0.46	0.20	0.32	0.02	0.00	0.48	0.48	-0.28	-0.22
FT	827093	B	141	0.65	0.17	0.65	0.16	0.02	0.00	0.52	-0.38	0.52	-0.17
FT	827094	A	141	0.49	0.49	0.13	0.37	0.01	0.00	0.31	0.31	-0.13	-0.17
FT	827096	B	141	0.57	0.17	0.57	0.23	0.02	0.00	0.54	-0.26	0.54	-0.30
FT	827098	A	141	0.55	0.55	0.14	0.29	0.01	0.00	0.56	0.56	-0.27	-0.33
FT	827100	C	141	0.64	0.17	0.18	0.64	0.01	0.00	0.38	-0.03	-0.36	0.38

Grade 5

Grade 5 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	651139	C	250	0.58	0.13	0.27	0.58	0.02	0.00	0.14	-0.19	0.10	0.14
OP	651154	A	250	0.70	0.70	0.14	0.16	0.00	0.00	0.49	0.49	-0.27	-0.32
OP	673823	A	250	0.49	0.49	0.13	0.36	0.02	0.00	0.44	0.44	-0.14	-0.24
OP	675877	C	250	0.83	0.10	0.05	0.83	0.02	0.00	0.42	-0.18	-0.22	0.42
OP	691070	B	250	0.48	0.14	0.48	0.36	0.02	0.00	0.41	-0.19	0.41	-0.17
OP	691073	C	250	0.76	0.12	0.11	0.76	0.00	0.00	0.34	-0.21	-0.23	0.34
OP	691075	B	250	0.68	0.12	0.68	0.20	0.01	0.00	0.44	-0.27	0.44	-0.21
OP	691077	B	250	0.85	0.09	0.85	0.04	0.02	0.00	0.28	-0.08	0.28	-0.15
OP	691078	C	250	0.83	0.10	0.05	0.83	0.02	0.00	0.36	-0.09	-0.23	0.36
OP	691080	B	250	0.76	0.10	0.76	0.14	0.00	0.00	0.50	-0.30	0.50	-0.35
OP	707801	A	250	0.68	0.68	0.17	0.12	0.02	0.00	0.53	0.53	-0.35	-0.17
OP	707802	B	250	0.71	0.09	0.71	0.20	0.00	0.00	0.38	-0.19	0.38	-0.29

Grade 5 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	707803	C	250	0.63	0.16	0.20	0.63	0.01	0.00	0.10	0.07	-0.09	0.10
OP	707806	A	250	0.41	0.41	0.13	0.44	0.02	0.00	0.54	0.54	-0.32	-0.22
OP	707807	C	250	0.90	0.05	0.05	0.90	0.00	0.00	0.36	-0.22	-0.28	0.36
OP	749158	B	250	0.65	0.14	0.65	0.20	0.02	0.00	0.45	-0.02	0.45	-0.37
OP	749163	A	250	0.86	0.86	0.04	0.08	0.02	0.00	0.53	0.53	-0.26	-0.30
OP	749164	A	250	0.45	0.45	0.18	0.35	0.02	0.00	0.43	0.43	-0.03	-0.30
OP	749240	A	250	0.46	0.46	0.30	0.22	0.02	0.00	0.37	0.37	-0.05	-0.24
OP	749241	C	250	0.54	0.21	0.24	0.54	0.02	0.00	0.12	0.00	-0.03	0.12
OP	749247	C	250	0.64	0.17	0.18	0.64	0.02	0.00	0.32	-0.11	-0.17	0.32
OP	749251	A	250	0.61	0.61	0.12	0.26	0.01	0.00	0.53	0.53	-0.41	-0.23
OP	751398	B	250	0.62	0.14	0.62	0.22	0.02	0.00	0.60	-0.21	0.60	-0.40
OP	751399	C	250	0.44	0.33	0.21	0.44	0.02	0.00	0.05	0.08	-0.06	0.05
OP	755215	B	250	0.41	0.25	0.41	0.33	0.01	0.00	0.22	0.06	0.22	-0.23
FT	827102	C	135	0.59	0.19	0.20	0.59	0.02	0.00	0.31	-0.06	-0.14	0.31
FT	827104	A	135	0.81	0.81	0.16	0.01	0.02	0.00	0.34	0.34	-0.17	-0.04
FT	827106	B	135	0.52	0.16	0.52	0.30	0.02	0.00	0.35	-0.12	0.35	-0.14
FT	827107	B	135	0.58	0.21	0.58	0.19	0.02	0.00	0.41	-0.05	0.41	-0.28
FT	827108	A	135	0.56	0.56	0.19	0.23	0.02	0.00	0.51	0.51	-0.14	-0.30
FT	827110	C	135	0.73	0.13	0.12	0.73	0.02	0.00	0.43	-0.17	-0.19	0.43
FT	827111	C	135	0.67	0.17	0.14	0.67	0.02	0.00	0.25	-0.01	-0.13	0.25
FT	827113	A	135	0.50	0.50	0.27	0.21	0.02	0.00	0.28	0.28	0.00	-0.17
FT	827103	C	115	0.74	0.11	0.13	0.74	0.02	0.00	0.40	-0.20	-0.20	0.40
FT	827105	B	115	0.63	0.11	0.63	0.23	0.02	0.00	0.47	-0.07	0.47	-0.37
FT	827112	B	115	0.38	0.19	0.38	0.41	0.02	0.00	0.37	-0.18	0.37	-0.13
FT	827114	A	115	0.30	0.30	0.21	0.47	0.02	0.00	0.09	0.09	-0.11	0.10
FT	827115	C	115	0.63	0.16	0.20	0.63	0.02	0.00	0.21	-0.06	-0.09	0.21
FT	827118	A	115	0.67	0.67	0.13	0.18	0.02	0.00	0.44	0.44	-0.18	-0.26
FT	827119	C	115	0.72	0.10	0.16	0.72	0.02	0.00	0.56	-0.26	-0.35	0.56
FT	831557	A	115	0.36	0.36	0.14	0.49	0.02	0.00	0.42	0.42	-0.26	-0.13

Grade 6

Grade 6 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	651278	C	285	0.66	0.19	0.14	0.66	0.01	0.00	0.51	-0.32	-0.24	0.51
OP	675933	C	285	0.78	0.06	0.14	0.78	0.01	0.00	0.45	-0.18	-0.29	0.45
OP	691089	A	285	0.86	0.86	0.07	0.06	0.00	0.00	0.12	0.12	-0.06	-0.10
OP	691091	B	285	0.68	0.11	0.68	0.20	0.01	0.00	0.47	-0.24	0.47	-0.29
OP	691096	A	285	0.73	0.73	0.12	0.13	0.01	0.00	0.39	0.39	-0.15	-0.24
OP	707809	A	285	0.66	0.66	0.12	0.21	0.01	0.00	0.50	0.50	-0.24	-0.31
OP	707812	C	285	0.59	0.21	0.18	0.59	0.01	0.00	0.30	-0.18	-0.09	0.30
OP	707817	B	285	0.88	0.05	0.88	0.07	0.00	0.00	0.41	-0.25	0.41	-0.28
OP	707821	B	285	0.51	0.19	0.51	0.29	0.01	0.00	0.40	-0.19	0.40	-0.19
OP	707822	C	285	0.64	0.08	0.27	0.64	0.01	0.00	0.44	-0.27	-0.23	0.44
OP	749166	B	285	0.54	0.21	0.54	0.23	0.01	0.00	0.39	-0.03	0.39	-0.36
OP	749167	B	285	0.73	0.08	0.73	0.18	0.01	0.00	0.53	-0.29	0.53	-0.30
OP	749169	B	285	0.73	0.09	0.73	0.17	0.01	0.00	0.55	-0.29	0.55	-0.34
OP	749170	B	285	0.31	0.24	0.31	0.44	0.01	0.00	0.17	-0.04	0.17	-0.04
OP	749218	A	285	0.54	0.54	0.13	0.31	0.02	0.00	0.39	0.39	-0.20	-0.15
OP	749219	C	285	0.59	0.22	0.18	0.59	0.01	0.00	0.22	-0.07	-0.10	0.22
OP	749220	B	285	0.71	0.17	0.71	0.11	0.01	0.00	0.50	-0.34	0.50	-0.22
OP	749233	C	285	0.73	0.15	0.12	0.73	0.00	0.00	0.18	-0.12	-0.09	0.18
OP	749234	A	285	0.53	0.53	0.26	0.19	0.01	0.00	0.35	0.35	-0.06	-0.27
OP	749250	C	285	0.61	0.17	0.21	0.61	0.01	0.00	0.20	-0.10	-0.04	0.20
OP	751420	C	285	0.67	0.24	0.07	0.67	0.02	0.00	0.16	-0.10	0.06	0.16
OP	751421	A	285	0.60	0.60	0.16	0.22	0.02	0.00	0.46	0.46	-0.10	-0.33
OP	751422	B	285	0.71	0.16	0.71	0.12	0.01	0.00	0.39	-0.23	0.39	-0.17
OP	751423	A	285	0.36	0.36	0.15	0.47	0.01	0.00	0.29	0.29	-0.12	-0.13
OP	751424	B	285	0.72	0.07	0.72	0.20	0.01	0.00	0.56	-0.27	0.56	-0.36
FT	827121	A	128	0.26	0.26	0.44	0.28	0.02	0.00	-0.09	-0.09	0.40	-0.20
FT	827125	A	128	0.57	0.57	0.26	0.14	0.02	0.01	0.50	0.50	-0.27	-0.16
FT	827129	B	128	0.37	0.40	0.37	0.21	0.02	0.00	0.06	0.21	0.06	-0.16
FT	827130	C	128	0.55	0.22	0.21	0.55	0.02	0.00	0.12	-0.05	0.08	0.12
FT	827133	C	128	0.64	0.13	0.20	0.64	0.02	0.00	0.29	-0.16	-0.04	0.29
FT	827135	C	128	0.63	0.14	0.21	0.63	0.02	0.00	0.32	-0.18	-0.06	0.32
FT	827138	B	128	0.44	0.26	0.44	0.28	0.02	0.00	0.45	-0.17	0.45	-0.17
FT	827140	B	128	0.49	0.18	0.49	0.30	0.02	0.00	0.50	-0.23	0.50	-0.19
FT	827122	C	157	0.68	0.13	0.18	0.68	0.01	0.00	0.24	-0.04	-0.16	0.24
FT	827123	B	157	0.78	0.06	0.78	0.15	0.01	0.00	0.32	-0.21	0.32	-0.19
FT	827124	A	157	0.47	0.47	0.28	0.24	0.01	0.00	0.40	0.40	-0.09	-0.29

Grade 6 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
FT	827126	B	157	0.53	0.17	0.53	0.29	0.01	0.00	0.34	-0.17	0.34	-0.16
FT	827127	B	157	0.48	0.20	0.48	0.31	0.01	0.00	0.54	-0.19	0.54	-0.39
FT	827131	A	157	0.76	0.76	0.08	0.16	0.01	0.00	0.52	0.52	-0.26	-0.37
FT	827137	C	157	0.43	0.24	0.32	0.43	0.01	0.00	-0.01	-0.17	0.24	-0.01
FT	827139	A	157	0.82	0.82	0.05	0.13	0.01	0.00	0.46	0.46	-0.27	-0.31

Grade 7

Grade 7 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	651374	C	298	0.69	0.13	0.18	0.69	0.00	0.00	0.20	-0.13	-0.13	0.20
OP	651383	C	298	0.78	0.16	0.05	0.78	0.00	0.00	0.34	-0.34	-0.05	0.34
OP	675942	B	298	0.65	0.10	0.65	0.24	0.01	0.00	0.48	-0.19	0.48	-0.36
OP	691099	B	298	0.69	0.06	0.69	0.24	0.00	0.00	0.44	-0.21	0.44	-0.36
OP	691106	A	298	0.80	0.80	0.08	0.12	0.00	0.00	0.40	0.40	-0.21	-0.32
OP	691107	B	298	0.80	0.08	0.80	0.12	0.01	0.00	0.44	-0.19	0.44	-0.34
OP	691112	A	298	0.89	0.89	0.08	0.02	0.01	0.00	0.24	0.24	-0.19	-0.09
OP	707863	A	298	0.74	0.74	0.06	0.19	0.01	0.00	0.47	0.47	-0.18	-0.37
OP	707866	B	298	0.40	0.25	0.40	0.35	0.01	0.00	0.30	-0.12	0.30	-0.16
OP	707867	A	298	0.80	0.80	0.09	0.10	0.01	0.00	0.45	0.45	-0.28	-0.28
OP	707874	C	298	0.50	0.11	0.38	0.50	0.01	0.00	0.13	-0.24	0.06	0.13
OP	749172	C	298	0.68	0.18	0.12	0.68	0.01	0.00	0.33	-0.21	-0.16	0.33
OP	749173	B	298	0.60	0.17	0.60	0.22	0.01	0.00	0.47	-0.21	0.47	-0.33
OP	749174	A	298	0.36	0.36	0.18	0.46	0.01	0.00	0.19	0.19	-0.15	-0.04
OP	749175	B	298	0.62	0.14	0.62	0.23	0.01	0.00	0.47	-0.24	0.47	-0.31
OP	749176	C	298	0.72	0.11	0.16	0.72	0.01	0.00	0.41	-0.23	-0.30	0.41
OP	749222	B	298	0.71	0.16	0.71	0.12	0.00	0.00	0.39	-0.18	0.39	-0.34
OP	749235	C	298	0.60	0.10	0.29	0.60	0.01	0.00	0.22	-0.30	-0.01	0.22
OP	749242	B	298	0.57	0.19	0.57	0.24	0.00	0.00	0.34	-0.09	0.34	-0.31
OP	749243	B	298	0.51	0.28	0.51	0.21	0.00	0.00	0.37	-0.18	0.37	-0.25
OP	749244	C	298	0.60	0.14	0.25	0.60	0.01	0.00	0.26	-0.14	-0.13	0.26
OP	751512	C	298	0.63	0.21	0.15	0.63	0.01	0.00	0.00	0.06	-0.03	0.00
OP	751513	A	298	0.42	0.42	0.20	0.38	0.01	0.00	0.28	0.28	-0.13	-0.14
OP	751516	A	298	0.37	0.37	0.12	0.50	0.01	0.00	0.13	0.13	-0.16	0.00
OP	751517	B	298	0.70	0.08	0.70	0.21	0.01	0.00	0.44	-0.20	0.44	-0.32

Grade 7 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
FT	827142	C	164	0.62	0.23	0.15	0.62	0.01	0.00	0.09	0.01	-0.09	0.09
FT	827144	A	164	0.29	0.29	0.19	0.51	0.00	0.01	0.02	0.02	-0.13	0.07
FT	827145	C	164	0.58	0.18	0.23	0.58	0.01	0.00	0.31	-0.11	-0.23	0.31
FT	827152	B	164	0.74	0.05	0.74	0.20	0.01	0.00	0.50	-0.26	0.50	-0.37
FT	827153	A	164	0.66	0.66	0.07	0.27	0.00	0.00	0.50	0.50	-0.14	-0.46
FT	827154	B	164	0.23	0.23	0.23	0.54	0.01	0.00	0.25	-0.07	0.25	-0.13
FT	827156	B	164	0.57	0.10	0.57	0.32	0.01	0.00	0.41	-0.09	0.41	-0.35
FT	827161	C	164	0.49	0.42	0.08	0.49	0.01	0.00	-0.07	0.16	-0.11	-0.07
FT	827146	B	134	0.57	0.16	0.57	0.26	0.01	0.00	0.57	-0.24	0.57	-0.36
FT	827147	C	134	0.73	0.11	0.13	0.73	0.02	0.00	0.29	-0.11	-0.14	0.29
FT	827150	A	134	0.19	0.19	0.41	0.38	0.01	0.00	-0.13	-0.13	0.44	-0.27
FT	827151	C	134	0.70	0.16	0.12	0.70	0.01	0.00	0.47	-0.28	-0.24	0.47
FT	827155	B	134	0.44	0.23	0.44	0.31	0.01	0.00	0.40	-0.08	0.40	-0.28
FT	827158	A	134	0.57	0.57	0.13	0.28	0.01	0.00	0.37	0.37	-0.12	-0.24
FT	827159	B	134	0.51	0.45	0.51	0.01	0.01	0.01	0.51	-0.41	0.51	-0.09
FT	827160	C	134	0.51	0.20	0.27	0.51	0.01	0.01	0.21	-0.21	0.04	0.21

Grade 8

Grade 8 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	651408	A	304	0.68	0.68	0.18	0.12	0.02	0.00	0.38	0.38	-0.06	-0.33
OP	651418	B	304	0.64	0.17	0.64	0.18	0.01	0.00	0.52	-0.15	0.52	-0.43
OP	651430	C	304	0.71	0.13	0.13	0.71	0.02	0.00	0.48	-0.23	-0.28	0.48
OP	691115	B	304	0.75	0.07	0.75	0.18	0.00	0.00	0.43	-0.24	0.43	-0.33
OP	691116	A	304	0.45	0.45	0.29	0.24	0.01	0.00	0.36	0.36	0.03	-0.39
OP	691118	C	304	0.87	0.06	0.06	0.87	0.02	0.00	0.48	-0.27	-0.25	0.48
OP	691124	C	304	0.80	0.11	0.08	0.80	0.01	0.00	0.43	-0.20	-0.28	0.43
OP	691127	B	304	0.53	0.20	0.53	0.26	0.02	0.00	0.41	-0.21	0.41	-0.17
OP	707828	A	304	0.67	0.67	0.12	0.20	0.02	0.00	0.54	0.54	-0.25	-0.32
OP	707830	B	304	0.71	0.23	0.71	0.05	0.01	0.00	0.34	-0.30	0.34	-0.05
OP	707834	B	304	0.77	0.07	0.77	0.14	0.02	0.00	0.59	-0.26	0.59	-0.39
OP	751448	B	304	0.47	0.26	0.47	0.27	0.00	0.00	0.47	-0.19	0.47	-0.32
OP	751449	C	304	0.77	0.12	0.11	0.77	0.00	0.00	0.38	-0.31	-0.19	0.38
OP	751451	C	304	0.81	0.11	0.07	0.81	0.00	0.00	0.39	-0.30	-0.18	0.39
OP	751452	A	304	0.59	0.59	0.20	0.19	0.02	0.00	0.49	0.49	-0.11	-0.38

Grade 8 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	751453	A	304	0.67	0.67	0.12	0.19	0.02	0.00	0.58	0.58	-0.21	-0.40
OP	751454	C	304	0.77	0.10	0.12	0.77	0.02	0.00	0.49	-0.29	-0.24	0.49
OP	751456	C	304	0.71	0.18	0.10	0.71	0.01	0.00	0.32	-0.18	-0.17	0.32
OP	751458	B	304	0.70	0.13	0.70	0.17	0.00	0.00	0.53	-0.27	0.53	-0.40
OP	751459	C	304	0.54	0.28	0.16	0.54	0.02	0.00	0.17	0.04	-0.16	0.17
OP	751461	B	304	0.59	0.17	0.59	0.23	0.01	0.00	0.53	-0.20	0.53	-0.38
OP	751462	A	304	0.56	0.56	0.13	0.30	0.01	0.00	0.35	0.35	-0.10	-0.24
OP	751463	B	304	0.36	0.23	0.36	0.39	0.02	0.00	0.38	-0.11	0.38	-0.18
OP	751464	A	304	0.72	0.72	0.10	0.18	0.00	0.00	0.55	0.55	-0.33	-0.37
OP	751467	A	304	0.42	0.42	0.23	0.33	0.02	0.00	0.25	0.25	0.09	-0.25
FT	827166	A	170	0.64	0.64	0.13	0.22	0.01	0.00	0.60	0.60	-0.25	-0.42
FT	827168	A	170	0.47	0.47	0.26	0.25	0.01	0.00	0.26	0.26	0.10	-0.34
FT	827171	B	170	0.55	0.15	0.55	0.29	0.01	0.00	0.55	-0.19	0.55	-0.38
FT	827172	A	170	0.65	0.65	0.18	0.16	0.01	0.00	0.55	0.55	-0.19	-0.43
FT	827175	C	170	0.51	0.24	0.24	0.51	0.01	0.00	0.13	-0.02	-0.06	0.13
FT	827177	C	170	0.45	0.31	0.23	0.45	0.01	0.00	-0.04	0.19	-0.09	-0.04
FT	827180	B	170	0.54	0.12	0.54	0.33	0.01	0.00	0.57	-0.25	0.57	-0.37
FT	827181	B	170	0.77	0.10	0.77	0.12	0.01	0.00	0.28	-0.06	0.28	-0.22
FT	827162	C	134	0.66	0.13	0.18	0.66	0.02	0.00	0.43	-0.26	-0.13	0.43
FT	827163	C	134	0.83	0.09	0.06	0.83	0.02	0.00	0.27	0.01	-0.18	0.27
FT	827164	B	134	0.84	0.04	0.84	0.09	0.02	0.00	0.56	-0.22	0.56	-0.34
FT	827165	C	134	0.82	0.10	0.05	0.82	0.02	0.00	0.45	-0.23	-0.17	0.45
FT	827169	A	134	0.51	0.51	0.16	0.30	0.02	0.00	0.47	0.47	-0.06	-0.33
FT	827173	C	134	0.78	0.12	0.07	0.78	0.03	0.00	0.41	-0.26	-0.11	0.41
FT	827176	A	134	0.50	0.50	0.25	0.23	0.02	0.00	0.44	0.44	-0.12	-0.24
FT	827178	A	134	0.22	0.22	0.13	0.63	0.02	0.00	0.15	0.15	-0.22	0.15

Grade 11

Grade 11 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	651429	C	273	0.73	0.16	0.11	0.73	0.01	0.00	0.44	-0.23	-0.30	0.44
OP	651440	A	273	0.39	0.39	0.24	0.37	0.00	0.00	0.39	0.39	-0.04	-0.34
OP	691130	B	273	0.65	0.13	0.65	0.21	0.01	0.00	0.51	-0.25	0.51	-0.33
OP	691140	A	273	0.67	0.67	0.11	0.20	0.01	0.00	0.54	0.54	-0.14	-0.46

Grade 11 ELA													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	691142	C	273	0.84	0.08	0.08	0.84	0.00	0.00	0.36	-0.19	-0.26	0.36
OP	691144	B	273	0.63	0.07	0.63	0.29	0.01	0.00	0.45	-0.28	0.45	-0.27
OP	691145	A	273	0.86	0.86	0.08	0.05	0.01	0.00	0.28	0.28	-0.16	-0.15
OP	707886	C	273	0.81	0.09	0.09	0.81	0.01	0.00	0.45	-0.25	-0.29	0.45
OP	707888	C	273	0.70	0.11	0.19	0.70	0.01	0.00	0.33	-0.23	-0.16	0.33
OP	749178	A	273	0.67	0.67	0.15	0.18	0.00	0.00	0.33	0.33	-0.08	-0.31
OP	749180	C	273	0.79	0.07	0.13	0.79	0.00	0.00	0.46	-0.22	-0.35	0.46
OP	749181	B	273	0.42	0.16	0.42	0.41	0.00	0.00	0.33	-0.06	0.33	-0.26
OP	749182	A	273	0.68	0.68	0.13	0.18	0.00	0.00	0.38	0.38	-0.23	-0.23
OP	749183	C	273	0.83	0.10	0.07	0.83	0.00	0.00	0.49	-0.36	-0.26	0.49
OP	749184	A	273	0.40	0.40	0.17	0.42	0.01	0.00	0.35	0.35	-0.25	-0.12
OP	749236	B	273	0.47	0.15	0.47	0.37	0.01	0.00	0.45	-0.20	0.45	-0.27
OP	749237	B	273	0.57	0.20	0.57	0.23	0.00	0.00	0.46	-0.11	0.46	-0.41
OP	749238	C	273	0.78	0.12	0.08	0.78	0.01	0.00	0.37	-0.19	-0.24	0.37
OP	749248	A	273	0.54	0.54	0.16	0.30	0.00	0.00	0.56	0.56	-0.32	-0.34
OP	749249	C	273	0.43	0.14	0.42	0.43	0.01	0.00	0.08	-0.31	0.18	0.08
OP	749252	C	273	0.78	0.11	0.11	0.78	0.01	0.00	0.38	-0.28	-0.17	0.38
OP	749253	A	273	0.83	0.83	0.05	0.12	0.01	0.00	0.41	0.41	-0.24	-0.29
OP	751400	B	273	0.36	0.23	0.36	0.40	0.01	0.00	0.20	0.07	0.20	-0.22
OP	751634	B	273	0.51	0.16	0.51	0.33	0.00	0.00	0.50	-0.11	0.50	-0.43
OP	751636	C	273	0.65	0.14	0.20	0.65	0.00	0.00	0.23	-0.17	-0.10	0.23
FT	827183	C	152	0.74	0.15	0.11	0.74	0.00	0.00	0.23	-0.09	-0.21	0.23
FT	827184	B	152	0.83	0.07	0.83	0.11	0.00	0.00	0.50	-0.30	0.50	-0.37
FT	827187	B	152	0.49	0.24	0.49	0.26	0.00	0.00	0.49	-0.20	0.49	-0.36
FT	827188	C	152	0.47	0.34	0.19	0.47	0.00	0.00	0.00	0.18	-0.21	0.00
FT	827189	A	152	0.43	0.43	0.38	0.19	0.00	0.00	0.30	0.30	-0.25	-0.07
FT	827192	B	152	0.61	0.14	0.61	0.25	0.00	0.00	0.62	-0.31	0.62	-0.45
FT	827195	C	152	0.74	0.19	0.07	0.74	0.00	0.00	0.30	-0.24	-0.14	0.30
FT	827198	A	152	0.75	0.75	0.11	0.14	0.00	0.00	0.46	0.46	-0.29	-0.30
FT	827182	C	121	0.54	0.21	0.22	0.54	0.02	0.00	0.15	-0.02	-0.04	0.15
FT	827185	C	121	0.78	0.09	0.12	0.78	0.01	0.00	0.40	-0.25	-0.22	0.40
FT	827190	B	121	0.46	0.22	0.46	0.30	0.02	0.00	0.39	-0.17	0.39	-0.17
FT	827191	B	121	0.37	0.25	0.37	0.36	0.02	0.00	0.35	-0.02	0.35	-0.24
FT	827193	A	121	0.47	0.47	0.23	0.28	0.02	0.00	0.51	0.51	-0.25	-0.23
FT	827194	A	121	0.49	0.49	0.07	0.42	0.02	0.00	0.26	0.26	-0.13	-0.11
FT	827197	A	121	0.45	0.45	0.17	0.36	0.02	0.00	0.51	0.51	-0.26	-0.23
FT	827199	C	121	0.52	0.28	0.18	0.52	0.02	0.00	0.05	-0.01	0.05	0.05

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	650592	A	236	0.91	0.91	0.05	0.04	0.00	0.00	0.35	0.35	-0.22	-0.23
OP	650600	C	236	0.80	0.11	0.08	0.80	0.01	0.00	0.41	-0.31	-0.18	0.41
OP	650603	C	236	0.75	0.14	0.11	0.75	0.00	0.00	0.47	-0.25	-0.36	0.47
OP	673355	A	236	0.72	0.72	0.12	0.15	0.00	0.00	0.52	0.52	-0.24	-0.40
OP	676130	C	236	0.76	0.12	0.11	0.76	0.01	0.00	0.45	-0.29	-0.24	0.45
OP	690921	B	236	0.89	0.06	0.89	0.05	0.00	0.00	0.38	-0.26	0.38	-0.22
OP	690924	B	236	0.72	0.12	0.72	0.15	0.01	0.00	0.60	-0.28	0.60	-0.44
OP	707612	A	236	0.72	0.72	0.18	0.09	0.00	0.00	0.46	0.46	-0.27	-0.31
OP	707614	C	236	0.85	0.07	0.08	0.85	0.01	0.00	0.49	-0.32	-0.28	0.49
OP	707624	B	236	0.60	0.14	0.60	0.25	0.01	0.00	0.53	-0.23	0.53	-0.38
OP	707627	C	236	0.80	0.08	0.11	0.80	0.01	0.00	0.42	-0.27	-0.24	0.42
OP	707628	C	236	0.66	0.22	0.10	0.66	0.01	0.00	0.38	-0.23	-0.19	0.38
OP	748785	A	236	0.79	0.79	0.17	0.03	0.00	0.00	0.37	0.37	-0.28	-0.24
OP	748787	C	236	0.76	0.10	0.13	0.76	0.01	0.00	0.33	-0.24	-0.15	0.33
OP	748789	C	236	0.64	0.16	0.18	0.64	0.02	0.00	0.19	-0.10	-0.06	0.19
OP	748791	B	236	0.51	0.20	0.51	0.28	0.01	0.00	0.38	-0.16	0.38	-0.24
OP	748792	B	236	0.71	0.09	0.71	0.19	0.01	0.00	0.60	-0.36	0.60	-0.38
OP	748794	A	236	0.63	0.63	0.15	0.21	0.01	0.00	0.48	0.48	-0.25	-0.30
OP	748795	B	236	0.59	0.20	0.59	0.19	0.01	0.00	0.43	-0.23	0.43	-0.25
OP	748796	A	236	0.61	0.61	0.16	0.22	0.01	0.00	0.48	0.48	-0.35	-0.19
OP	748798	B	236	0.70	0.10	0.70	0.19	0.01	0.00	0.61	-0.37	0.61	-0.36
OP	748800	C	236	0.72	0.14	0.13	0.72	0.01	0.00	0.40	-0.19	-0.26	0.40
OP	748801	B	236	0.47	0.15	0.47	0.37	0.01	0.00	0.43	-0.20	0.43	-0.23
OP	748802	C	236	0.77	0.08	0.15	0.77	0.00	0.00	0.44	-0.34	-0.26	0.44
OP	748803	B	236	0.53	0.19	0.53	0.27	0.00	0.00	0.38	-0.19	0.38	-0.21
FT	829075	B	111	0.49	0.14	0.49	0.36	0.02	0.00	0.64	-0.36	0.64	-0.35
FT	829078	C	111	0.73	0.13	0.13	0.73	0.02	0.00	0.55	-0.29	-0.35	0.55
FT	829081	C	111	0.70	0.14	0.14	0.70	0.02	0.00	0.44	-0.40	-0.08	0.44
FT	829082	B	111	0.63	0.11	0.63	0.24	0.02	0.00	0.45	-0.22	0.45	-0.26
FT	829085	A	111	0.59	0.59	0.09	0.29	0.03	0.00	0.37	0.37	-0.22	-0.16
FT	829088	B	111	0.50	0.08	0.50	0.40	0.02	0.00	0.41	-0.32	0.41	-0.17
FT	829089	C	111	0.62	0.14	0.22	0.62	0.02	0.00	0.33	-0.34	-0.01	0.33
FT	829090	A	111	0.44	0.44	0.14	0.40	0.02	0.00	0.34	0.34	-0.11	-0.20

Grade 3 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
FT	829076	B	125	0.34	0.18	0.34	0.46	0.02	0.00	0.19	-0.13	0.19	-0.01
FT	829077	A	125	0.30	0.30	0.16	0.52	0.02	0.00	0.25	0.25	-0.28	0.04
FT	829079	A	125	0.37	0.37	0.23	0.38	0.02	0.00	0.22	0.22	0.07	-0.17
FT	829080	C	125	0.59	0.16	0.22	0.59	0.02	0.01	0.14	-0.16	0.06	0.14
FT	829083	A	125	0.62	0.62	0.17	0.21	0.01	0.00	0.60	0.60	-0.27	-0.41
FT	829084	C	125	0.47	0.18	0.33	0.47	0.02	0.00	-0.09	0.00	0.20	-0.09
FT	829086	C	125	0.49	0.33	0.18	0.49	0.01	0.00	0.04	0.09	-0.11	0.04
FT	829087	B	125	0.57	0.12	0.57	0.30	0.01	0.00	0.44	-0.16	0.44	-0.31

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	225	0.72	0.14	0.14	0.72	0.00	0.00	0.41	-0.23	-0.31	0.41
OP	650764	B	225	0.75	0.09	0.75	0.16	0.00	0.00	0.47	-0.36	0.47	-0.27
OP	650766	A	225	0.63	0.63	0.18	0.19	0.00	0.00	0.50	0.50	-0.32	-0.30
OP	650770	C	225	0.75	0.15	0.10	0.75	0.00	0.00	0.47	-0.32	-0.30	0.47
OP	650779	A	225	0.78	0.78	0.13	0.09	0.00	0.00	0.52	0.52	-0.36	-0.33
OP	650784	B	225	0.66	0.10	0.66	0.24	0.00	0.00	0.51	-0.14	0.51	-0.45
OP	650785	C	225	0.78	0.09	0.12	0.78	0.00	0.00	0.45	-0.34	-0.24	0.45
OP	650792	A	225	0.75	0.75	0.09	0.16	0.00	0.00	0.43	0.43	-0.40	-0.19
OP	650931	A	225	0.47	0.47	0.31	0.22	0.00	0.00	0.48	0.48	-0.24	-0.30
OP	676143	B	225	0.79	0.09	0.79	0.12	0.00	0.00	0.54	-0.37	0.54	-0.35
OP	676160	A	225	0.64	0.64	0.13	0.22	0.00	0.00	0.66	0.66	-0.36	-0.45
OP	676163	C	225	0.73	0.13	0.12	0.73	0.00	0.00	0.29	-0.10	-0.27	0.29
OP	690946	A	225	0.57	0.57	0.22	0.20	0.00	0.00	0.48	0.48	-0.33	-0.25
OP	707635	A	225	0.44	0.44	0.30	0.26	0.00	0.00	0.42	0.42	-0.12	-0.35
OP	707640	C	225	0.52	0.18	0.29	0.52	0.00	0.00	0.22	-0.09	-0.15	0.22
OP	707641	C	225	0.74	0.08	0.18	0.74	0.00	0.00	0.44	-0.29	-0.30	0.44
OP	707642	A	225	0.56	0.56	0.12	0.31	0.01	0.00	0.54	0.54	-0.25	-0.38
OP	707645	B	225	0.80	0.11	0.80	0.08	0.00	0.00	0.49	-0.32	0.49	-0.34
OP	748805	C	225	0.81	0.08	0.09	0.81	0.01	0.00	0.46	-0.33	-0.23	0.46
OP	748807	B	225	0.69	0.16	0.69	0.14	0.00	0.00	0.49	-0.29	0.49	-0.33
OP	748809	A	225	0.55	0.55	0.24	0.22	0.00	0.00	0.32	0.32	-0.31	-0.08
OP	748811	C	225	0.74	0.16	0.10	0.74	0.00	0.00	0.38	-0.24	-0.25	0.38

Grade 4 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	748812	A	225	0.64	0.64	0.15	0.21	0.00	0.00	0.47	0.47	-0.31	-0.28
OP	748814	C	225	0.88	0.04	0.08	0.88	0.00	0.00	0.43	-0.22	-0.36	0.43
OP	748815	C	225	0.75	0.12	0.13	0.75	0.00	0.00	0.50	-0.30	-0.36	0.50
OP	748816	C	225	0.75	0.14	0.11	0.75	0.00	0.00	0.29	-0.05	-0.35	0.29
OP	748819	B	225	0.64	0.18	0.64	0.19	0.00	0.00	0.45	-0.25	0.45	-0.31
OP	748821	A	225	0.49	0.49	0.24	0.27	0.00	0.00	0.36	0.36	-0.18	-0.23
OP	748822	B	225	0.64	0.16	0.64	0.20	0.00	0.00	0.41	-0.17	0.41	-0.34
OP	748823	A	225	0.54	0.54	0.20	0.26	0.00	0.00	0.50	0.50	-0.23	-0.36
FT	826394	B	94	0.57	0.13	0.57	0.29	0.01	0.00	0.59	-0.10	0.59	-0.52
FT	829092	B	94	0.64	0.09	0.64	0.27	0.01	0.00	0.31	-0.21	0.31	-0.16
FT	829096	A	94	0.62	0.62	0.17	0.21	0.00	0.00	0.36	0.36	-0.10	-0.33
FT	829098	B	94	0.37	0.27	0.37	0.36	0.00	0.00	0.15	0.04	0.15	-0.18
FT	829100	C	94	0.61	0.10	0.30	0.61	0.00	0.00	-0.09	-0.12	0.18	-0.09
FT	829102	A	94	0.50	0.50	0.17	0.33	0.00	0.00	0.44	0.44	0.05	-0.50
FT	829103	C	94	0.84	0.05	0.10	0.84	0.01	0.00	0.48	-0.26	-0.33	0.48
FT	829462	A	94	0.63	0.63	0.07	0.30	0.00	0.00	0.43	0.43	-0.01	-0.44
FT	829091	A	131	0.55	0.55	0.15	0.31	0.00	0.00	0.36	0.36	-0.01	-0.38
FT	829093	C	131	0.70	0.11	0.18	0.70	0.00	0.00	0.34	-0.29	-0.17	0.34
FT	829095	B	131	0.53	0.07	0.53	0.40	0.00	0.00	0.43	-0.17	0.43	-0.35
FT	829097	C	131	0.60	0.25	0.15	0.60	0.00	0.00	0.05	0.02	-0.10	0.05
FT	829099	A	131	0.39	0.39	0.24	0.37	0.00	0.00	0.38	0.38	-0.14	-0.26
FT	829101	A	131	0.35	0.35	0.18	0.47	0.00	0.00	0.29	0.29	-0.15	-0.16
FT	829104	B	131	0.58	0.18	0.58	0.24	0.00	0.00	0.45	-0.14	0.45	-0.39
FT	829105	C	131	0.76	0.10	0.15	0.76	0.00	0.00	0.48	-0.19	-0.42	0.48

Grade 5

Grade 5 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	651002	A	249	0.49	0.49	0.23	0.27	0.01	0.00	0.33	0.33	-0.15	-0.17
OP	651007	C	249	0.79	0.14	0.06	0.79	0.02	0.00	0.34	-0.11	-0.25	0.34
OP	651013	C	249	0.86	0.04	0.10	0.86	0.00	0.00	0.44	-0.20	-0.34	0.44
OP	651017	B	249	0.88	0.04	0.88	0.06	0.01	0.00	0.51	-0.29	0.51	-0.30
OP	651022	A	249	0.54	0.54	0.10	0.36	0.00	0.00	0.44	0.44	-0.27	-0.26
OP	651025	C	249	0.83	0.07	0.09	0.83	0.01	0.00	0.48	-0.29	-0.24	0.48

Grade 5 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	651027	A	249	0.80	0.80	0.08	0.11	0.01	0.00	0.54	0.54	-0.26	-0.35
OP	651030	A	249	0.45	0.45	0.18	0.36	0.01	0.00	0.24	0.24	-0.08	-0.11
OP	651039	B	249	0.79	0.08	0.79	0.13	0.00	0.00	0.51	-0.25	0.51	-0.39
OP	673368	B	249	0.76	0.08	0.76	0.15	0.01	0.00	0.57	-0.27	0.57	-0.41
OP	673369	B	249	0.39	0.23	0.39	0.37	0.01	0.00	0.38	-0.15	0.38	-0.18
OP	676201	A	249	0.80	0.80	0.10	0.10	0.00	0.00	0.51	0.51	-0.29	-0.40
OP	676204	A	249	0.69	0.69	0.12	0.18	0.02	0.00	0.40	0.40	-0.09	-0.29
OP	707649	C	249	0.84	0.06	0.08	0.84	0.02	0.00	0.39	-0.18	-0.19	0.39
OP	707655	C	249	0.51	0.11	0.36	0.51	0.02	0.00	0.18	-0.08	-0.04	0.18
OP	707660	A	249	0.68	0.68	0.12	0.19	0.01	0.00	0.48	0.48	-0.25	-0.31
OP	707664	C	249	0.78	0.07	0.14	0.78	0.01	0.00	0.52	-0.31	-0.29	0.52
OP	707666	B	249	0.61	0.13	0.61	0.24	0.02	0.00	0.40	-0.20	0.40	-0.17
OP	748824	B	249	0.45	0.24	0.45	0.31	0.01	0.00	0.26	-0.12	0.26	-0.12
OP	748825	B	249	0.85	0.13	0.85	0.02	0.01	0.00	0.26	-0.19	0.26	-0.06
OP	748827	B	249	0.60	0.19	0.60	0.20	0.01	0.00	0.43	-0.25	0.43	-0.19
OP	748828	C	249	0.75	0.06	0.19	0.75	0.00	0.00	0.29	-0.26	-0.14	0.29
OP	748829	B	249	0.59	0.15	0.59	0.24	0.01	0.00	0.49	-0.20	0.49	-0.31
OP	748830	B	249	0.64	0.18	0.64	0.18	0.01	0.00	0.43	-0.16	0.43	-0.31
OP	748831	C	249	0.51	0.16	0.33	0.51	0.01	0.00	0.28	-0.21	-0.06	0.28
OP	748836	A	249	0.55	0.55	0.25	0.20	0.01	0.00	0.33	0.33	0.00	-0.35
OP	748839	C	249	0.76	0.12	0.11	0.76	0.01	0.00	0.33	-0.23	-0.14	0.33
OP	748841	B	249	0.54	0.14	0.54	0.30	0.02	0.00	0.47	-0.12	0.47	-0.31
OP	748842	C	249	0.58	0.16	0.24	0.58	0.02	0.00	0.41	-0.27	-0.14	0.41
OP	748843	A	249	0.76	0.76	0.10	0.12	0.02	0.00	0.49	0.49	-0.23	-0.29
FT	829111	B	135	0.43	0.11	0.43	0.44	0.02	0.00	0.36	-0.08	0.36	-0.18
FT	829112	B	135	0.45	0.31	0.45	0.21	0.02	0.00	0.40	-0.05	0.40	-0.28
FT	829114	B	135	0.62	0.21	0.62	0.15	0.02	0.00	0.44	-0.16	0.44	-0.23
FT	829115	C	135	0.46	0.33	0.19	0.46	0.02	0.00	0.14	0.08	-0.12	0.14
FT	829116	A	135	0.42	0.42	0.19	0.36	0.02	0.00	0.37	0.37	-0.09	-0.18
FT	829119	A	135	0.61	0.61	0.19	0.18	0.02	0.00	0.41	0.41	-0.17	-0.18
FT	829122	C	135	0.49	0.33	0.16	0.49	0.02	0.00	0.14	-0.07	0.06	0.14
FT	829124	A	135	0.25	0.25	0.18	0.55	0.02	0.00	0.01	0.01	-0.11	0.19
FT	829106	B	114	0.62	0.14	0.62	0.23	0.01	0.00	0.47	-0.07	0.47	-0.43
FT	829110	C	114	0.75	0.12	0.12	0.75	0.01	0.00	0.50	-0.30	-0.28	0.50
FT	829113	A	114	0.50	0.50	0.14	0.35	0.01	0.00	0.37	0.37	-0.08	-0.28
FT	829118	A	114	0.89	0.89	0.04	0.07	0.01	0.00	0.47	0.47	-0.20	-0.34
FT	829120	C	114	0.45	0.37	0.18	0.45	0.01	0.00	0.15	0.10	-0.26	0.15
FT	829121	B	114	0.57	0.10	0.57	0.32	0.01	0.00	0.35	-0.26	0.35	-0.15

Grade 5 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
FT	829123	C	114	0.82	0.04	0.14	0.82	0.01	0.00	0.60	-0.27	-0.44	0.60
FT	829125	C	114	0.52	0.19	0.28	0.52	0.01	0.00	0.14	-0.15	0.04	0.14

Grade 6

Grade 6 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	651332	C	284	0.65	0.14	0.19	0.65	0.01	0.00	0.32	-0.18	-0.15	0.32
OP	651334	C	284	0.82	0.05	0.13	0.82	0.00	0.00	0.40	-0.27	-0.26	0.40
OP	651340	C	284	0.68	0.18	0.14	0.68	0.01	0.00	0.33	-0.09	-0.29	0.33
OP	651348	B	284	0.78	0.10	0.78	0.12	0.01	0.00	0.48	-0.24	0.48	-0.34
OP	651351	C	284	0.65	0.12	0.23	0.65	0.00	0.00	0.32	-0.20	-0.18	0.32
OP	651353	A	284	0.53	0.53	0.18	0.28	0.01	0.00	0.44	0.44	-0.12	-0.33
OP	651359	B	284	0.68	0.15	0.68	0.16	0.01	0.00	0.57	-0.24	0.57	-0.41
OP	651384	A	284	0.53	0.53	0.29	0.18	0.00	0.00	0.46	0.46	-0.21	-0.32
OP	651392	B	284	0.57	0.17	0.57	0.25	0.00	0.00	0.51	-0.22	0.51	-0.37
OP	651398	A	284	0.56	0.56	0.23	0.20	0.01	0.00	0.34	0.34	-0.20	-0.16
OP	690972	C	284	0.84	0.07	0.09	0.84	0.01	0.00	0.42	-0.24	-0.27	0.42
OP	690974	B	284	0.61	0.13	0.61	0.26	0.01	0.00	0.52	-0.30	0.52	-0.30
OP	690981	A	284	0.84	0.84	0.06	0.10	0.01	0.00	0.44	0.44	-0.28	-0.26
OP	707671	B	284	0.60	0.13	0.60	0.27	0.01	0.00	0.49	-0.21	0.49	-0.34
OP	707672	C	284	0.78	0.08	0.13	0.78	0.00	0.00	0.24	-0.19	-0.10	0.24
OP	707675	A	284	0.53	0.53	0.21	0.24	0.01	0.00	0.45	0.45	-0.24	-0.24
OP	707677	A	284	0.48	0.48	0.24	0.27	0.00	0.00	0.45	0.45	-0.30	-0.20
OP	707678	B	284	0.60	0.19	0.60	0.20	0.01	0.00	0.41	-0.23	0.41	-0.23
OP	707684	B	284	0.57	0.12	0.57	0.30	0.01	0.00	0.43	-0.25	0.43	-0.25
OP	748844	A	284	0.58	0.58	0.19	0.22	0.01	0.00	0.46	0.46	-0.22	-0.32
OP	748845	C	284	0.58	0.18	0.23	0.58	0.01	0.00	0.13	-0.18	0.06	0.13
OP	748848	B	284	0.60	0.11	0.60	0.28	0.01	0.00	0.49	-0.23	0.49	-0.33
OP	748851	B	284	0.52	0.24	0.52	0.24	0.01	0.00	0.22	-0.04	0.22	-0.18
OP	748852	B	284	0.49	0.23	0.49	0.27	0.01	0.00	0.35	-0.09	0.35	-0.25
OP	748855	A	284	0.42	0.42	0.21	0.36	0.00	0.00	0.24	0.24	-0.12	-0.12
OP	748856	B	284	0.43	0.32	0.43	0.25	0.01	0.00	0.41	-0.22	0.41	-0.19
OP	748860	A	284	0.80	0.80	0.07	0.13	0.00	0.00	0.50	0.50	-0.29	-0.37
OP	748861	C	284	0.59	0.20	0.21	0.59	0.00	0.00	0.26	-0.12	-0.17	0.26
OP	748862	C	284	0.90	0.05	0.05	0.90	0.00	0.00	0.38	-0.30	-0.23	0.38
OP	748864	C	284	0.62	0.25	0.12	0.62	0.01	0.00	0.29	-0.05	-0.31	0.29

Grade 6 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
FT	829127	A	125	0.47	0.47	0.21	0.31	0.01	0.00	0.30	0.30	-0.04	-0.24
FT	829128	B	125	0.62	0.17	0.62	0.21	0.01	0.00	0.43	-0.21	0.43	-0.27
FT	829129	A	125	0.31	0.31	0.22	0.46	0.01	0.00	0.21	0.21	-0.15	-0.03
FT	829131	A	125	0.46	0.46	0.18	0.35	0.01	0.00	0.46	0.46	-0.08	-0.36
FT	829132	B	125	0.25	0.36	0.25	0.38	0.01	0.00	0.02	0.21	0.02	-0.18
FT	829134	C	125	0.38	0.22	0.40	0.38	0.01	0.00	-0.11	-0.03	0.19	-0.11
FT	829138	B	125	0.38	0.30	0.38	0.30	0.01	0.00	0.30	-0.02	0.30	-0.24
FT	829141	C	125	0.66	0.10	0.23	0.66	0.01	0.00	0.28	-0.17	-0.13	0.28
FT	829126	B	159	0.63	0.14	0.63	0.22	0.01	0.00	0.49	-0.27	0.49	-0.28
FT	829130	C	159	0.69	0.13	0.17	0.69	0.01	0.00	0.40	-0.23	-0.24	0.40
FT	829133	B	159	0.41	0.18	0.41	0.40	0.01	0.00	0.25	-0.06	0.25	-0.15
FT	829135	C	159	0.55	0.22	0.22	0.55	0.01	0.00	0.19	-0.03	-0.17	0.19
FT	829136	A	159	0.35	0.35	0.30	0.35	0.01	0.00	0.18	0.18	-0.22	0.06
FT	829137	A	159	0.51	0.51	0.19	0.29	0.01	0.00	0.42	0.42	-0.09	-0.35
FT	829139	C	159	0.39	0.23	0.37	0.39	0.01	0.00	-0.08	-0.07	0.20	-0.08
FT	829140	A	159	0.43	0.43	0.24	0.33	0.01	0.00	0.32	0.32	-0.20	-0.13

Grade 7

Grade 7 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	651852	A	305	0.73	0.73	0.10	0.16	0.01	0.00	0.53	0.53	-0.27	-0.34
OP	652112	A	305	0.84	0.84	0.07	0.07	0.01	0.01	0.44	0.44	-0.20	-0.28
OP	652114	C	305	0.60	0.23	0.16	0.60	0.01	0.01	0.38	-0.15	-0.24	0.38
OP	652120	C	305	0.72	0.10	0.17	0.72	0.01	0.00	0.25	-0.25	-0.05	0.25
OP	652131	C	305	0.70	0.14	0.15	0.70	0.01	0.00	0.39	-0.23	-0.21	0.39
OP	652138	B	305	0.79	0.06	0.79	0.15	0.00	0.00	0.50	-0.27	0.50	-0.39
OP	652140	C	305	0.68	0.15	0.15	0.68	0.01	0.00	0.39	-0.21	-0.20	0.39
OP	676308	B	305	0.60	0.20	0.60	0.18	0.01	0.00	0.48	-0.18	0.48	-0.33
OP	676317	A	305	0.75	0.75	0.11	0.12	0.01	0.00	0.49	0.49	-0.15	-0.39
OP	690983	A	305	0.53	0.53	0.19	0.28	0.00	0.00	0.49	0.49	-0.14	-0.41
OP	690984	B	305	0.61	0.12	0.61	0.26	0.00	0.00	0.57	-0.27	0.57	-0.42
OP	690986	B	305	0.61	0.09	0.61	0.29	0.01	0.00	0.50	-0.15	0.50	-0.37
OP	690991	B	305	0.81	0.09	0.81	0.09	0.02	0.00	0.43	-0.19	0.43	-0.26
OP	707690	B	305	0.57	0.12	0.57	0.29	0.01	0.00	0.50	-0.24	0.50	-0.30

Grade 7 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	707693	A	305	0.50	0.50	0.20	0.28	0.02	0.00	0.40	0.40	-0.14	-0.23
OP	707695	C	305	0.68	0.16	0.15	0.68	0.02	0.00	0.35	-0.14	-0.20	0.35
OP	748865	C	305	0.54	0.33	0.12	0.54	0.00	0.00	0.39	-0.22	-0.25	0.39
OP	748866	C	305	0.76	0.11	0.12	0.76	0.01	0.00	0.45	-0.29	-0.25	0.45
OP	748869	A	305	0.71	0.71	0.15	0.12	0.01	0.00	0.52	0.52	-0.22	-0.37
OP	748870	C	305	0.66	0.15	0.17	0.66	0.01	0.00	0.25	-0.14	-0.09	0.25
OP	748871	C	305	0.67	0.15	0.17	0.67	0.01	0.00	0.40	-0.26	-0.16	0.40
OP	748875	A	305	0.41	0.41	0.26	0.31	0.02	0.00	0.39	0.39	-0.09	-0.25
OP	748876	A	305	0.45	0.45	0.21	0.33	0.02	0.00	0.39	0.39	-0.09	-0.25
OP	748877	B	305	0.52	0.16	0.52	0.30	0.02	0.00	0.51	-0.16	0.51	-0.33
OP	748878	B	305	0.45	0.17	0.45	0.37	0.01	0.00	0.41	-0.24	0.41	-0.17
OP	748879	C	305	0.60	0.14	0.24	0.60	0.02	0.00	0.41	-0.23	-0.19	0.41
OP	748880	C	305	0.83	0.10	0.08	0.83	0.00	0.00	0.41	-0.24	-0.30	0.41
OP	748881	A	305	0.52	0.52	0.14	0.33	0.01	0.00	0.61	0.61	-0.19	-0.45
OP	748883	B	305	0.40	0.15	0.40	0.44	0.01	0.00	0.20	-0.08	0.20	-0.07
OP	748884	A	305	0.58	0.58	0.13	0.28	0.01	0.00	0.53	0.53	-0.21	-0.39
FT	829142	B	167	0.65	0.16	0.65	0.18	0.01	0.00	0.52	-0.27	0.52	-0.31
FT	829143	A	167	0.23	0.23	0.17	0.59	0.01	0.00	0.29	0.29	0.03	-0.21
FT	829145	C	167	0.81	0.13	0.05	0.81	0.01	0.00	0.31	-0.18	-0.14	0.31
FT	829146	C	167	0.70	0.10	0.19	0.70	0.01	0.00	0.33	-0.26	-0.12	0.33
FT	829150	B	167	0.35	0.13	0.35	0.51	0.01	0.00	0.30	-0.04	0.30	-0.20
FT	829152	C	167	0.55	0.14	0.30	0.55	0.01	0.00	0.06	-0.26	0.20	0.06
FT	829154	B	167	0.70	0.11	0.70	0.18	0.01	0.00	0.52	-0.21	0.52	-0.36
FT	829158	A	167	0.40	0.40	0.17	0.42	0.01	0.00	0.40	0.40	0.03	-0.35
FT	829144	B	138	0.46	0.13	0.46	0.39	0.02	0.00	0.23	-0.06	0.23	-0.09
FT	829147	B	138	0.57	0.07	0.57	0.33	0.02	0.01	0.33	-0.15	0.33	-0.14
FT	829148	C	138	0.65	0.09	0.23	0.65	0.03	0.00	0.39	0.00	-0.30	0.39
FT	829149	C	138	0.48	0.25	0.24	0.48	0.02	0.01	0.09	0.16	-0.17	0.09
FT	829151	A	138	0.42	0.42	0.26	0.30	0.02	0.00	0.31	0.31	-0.07	-0.14
FT	829153	C	138	0.71	0.09	0.18	0.71	0.02	0.00	0.49	-0.23	-0.27	0.49
FT	829156	B	138	0.59	0.14	0.59	0.25	0.02	0.00	0.30	-0.14	0.30	-0.11
FT	829157	A	138	0.49	0.49	0.22	0.27	0.02	0.01	0.40	0.40	-0.16	-0.18

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	310	0.73	0.73	0.10	0.15	0.01	0.00	0.30	0.30	-0.13	-0.16
OP	652182	B	310	0.68	0.10	0.68	0.20	0.02	0.00	0.56	-0.18	0.56	-0.42
OP	652186	B	310	0.44	0.22	0.44	0.33	0.02	0.00	0.47	-0.30	0.47	-0.14
OP	652189	B	310	0.54	0.20	0.54	0.25	0.02	0.00	0.51	-0.20	0.51	-0.31
OP	652192	B	310	0.46	0.29	0.46	0.24	0.01	0.00	0.47	-0.17	0.47	-0.29
OP	652196	C	310	0.69	0.17	0.12	0.69	0.01	0.00	0.50	-0.25	-0.30	0.50
OP	676323	B	310	0.41	0.24	0.41	0.34	0.02	0.00	0.41	-0.11	0.41	-0.24
OP	676332	B	310	0.60	0.13	0.60	0.25	0.02	0.00	0.54	-0.34	0.54	-0.26
OP	691002	C	310	0.79	0.09	0.11	0.79	0.01	0.01	0.38	-0.23	-0.23	0.38
OP	691012	C	310	0.71	0.18	0.10	0.71	0.01	0.00	0.43	-0.25	-0.26	0.43
OP	691014	C	310	0.63	0.17	0.19	0.63	0.01	0.00	0.44	-0.28	-0.18	0.44
OP	707702	B	310	0.50	0.15	0.50	0.34	0.01	0.00	0.34	-0.12	0.34	-0.19
OP	707703	B	310	0.54	0.26	0.54	0.19	0.01	0.00	0.51	-0.22	0.51	-0.31
OP	707704	B	310	0.73	0.09	0.73	0.17	0.01	0.00	0.58	-0.33	0.58	-0.39
OP	707710	A	310	0.60	0.60	0.22	0.17	0.01	0.00	0.54	0.54	-0.23	-0.37
OP	707714	A	310	0.68	0.68	0.12	0.20	0.01	0.00	0.55	0.55	-0.27	-0.38
OP	749052	C	310	0.71	0.13	0.15	0.71	0.02	0.00	0.39	-0.27	-0.13	0.39
OP	749054	A	310	0.43	0.43	0.36	0.21	0.00	0.00	0.30	0.30	0.04	-0.39
OP	749056	C	310	0.50	0.22	0.28	0.50	0.00	0.00	0.25	-0.26	-0.02	0.25
OP	749057	C	310	0.65	0.15	0.20	0.65	0.00	0.00	0.28	-0.12	-0.22	0.28
OP	749058	B	310	0.39	0.32	0.39	0.28	0.01	0.00	0.26	0.04	0.26	-0.25
OP	749059	C	310	0.74	0.15	0.10	0.74	0.01	0.00	0.38	-0.15	-0.28	0.38
OP	749061	A	310	0.86	0.86	0.11	0.02	0.01	0.00	0.36	0.36	-0.30	-0.09
OP	749062	B	310	0.64	0.06	0.64	0.29	0.01	0.00	0.52	-0.25	0.52	-0.37
OP	749063	A	310	0.85	0.85	0.05	0.09	0.01	0.00	0.40	0.40	-0.21	-0.22
OP	749066	C	310	0.68	0.11	0.19	0.68	0.02	0.00	0.30	-0.18	-0.11	0.30
OP	749068	C	310	0.63	0.18	0.17	0.63	0.02	0.00	0.25	-0.02	-0.19	0.25
OP	749069	A	310	0.75	0.75	0.05	0.17	0.02	0.00	0.45	0.45	-0.14	-0.32
OP	749070	A	310	0.53	0.53	0.18	0.27	0.02	0.00	0.37	0.37	-0.07	-0.26
OP	749071	C	310	0.62	0.21	0.16	0.62	0.02	0.00	0.41	-0.17	-0.25	0.41
FT	829160	A	178	0.35	0.35	0.32	0.31	0.02	0.00	0.23	0.23	0.12	-0.25
FT	829161	C	178	0.51	0.19	0.28	0.51	0.02	0.00	0.32	-0.09	-0.18	0.32
FT	829162	C	178	0.51	0.26	0.21	0.51	0.02	0.00	0.24	-0.11	-0.07	0.24
FT	829166	C	178	0.69	0.10	0.20	0.69	0.02	0.00	0.40	-0.25	-0.17	0.40
FT	829168	C	178	0.71	0.10	0.17	0.71	0.02	0.00	0.28	-0.25	-0.02	0.28
FT	829171	A	178	0.26	0.26	0.38	0.35	0.02	0.00	-0.02	-0.02	0.27	-0.17
FT	829173	B	178	0.79	0.08	0.79	0.11	0.02	0.00	0.47	-0.27	0.47	-0.23
FT	829174	B	178	0.78	0.06	0.78	0.14	0.02	0.01	0.45	-0.17	0.45	-0.28
FT	829159	C	132	0.52	0.17	0.30	0.52	0.02	0.00	-0.11	0.03	0.17	-0.11
FT	829163	B	132	0.29	0.39	0.29	0.31	0.02	0.00	0.19	0.27	0.19	-0.39

Grade 8 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
FT	829164	B	132	0.49	0.12	0.49	0.37	0.02	0.00	0.37	-0.13	0.37	-0.23
FT	829165	A	132	0.64	0.64	0.15	0.19	0.02	0.00	0.50	0.50	-0.19	-0.36
FT	829167	C	132	0.53	0.24	0.21	0.53	0.02	0.00	0.19	-0.05	-0.09	0.19
FT	829169	B	132	0.48	0.15	0.48	0.36	0.02	0.00	0.45	-0.19	0.45	-0.25
FT	829170	B	132	0.61	0.14	0.61	0.23	0.02	0.00	0.52	-0.27	0.52	-0.29
FT	829172	A	132	0.42	0.42	0.31	0.25	0.02	0.00	0.28	0.28	-0.02	-0.21

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	272	0.88	0.88	0.06	0.06	0.00	0.00	0.43	0.43	-0.27	-0.31
OP	651164	C	272	0.63	0.19	0.18	0.63	0.00	0.00	0.13	-0.11	-0.05	0.13
OP	651173	B	272	0.78	0.11	0.78	0.11	0.00	0.00	0.47	-0.25	0.47	-0.36
OP	651198	A	272	0.57	0.57	0.13	0.30	0.00	0.00	0.50	0.50	-0.15	-0.42
OP	651226	C	272	0.79	0.04	0.17	0.79	0.01	0.00	0.31	-0.18	-0.21	0.31
OP	651227	C	272	0.86	0.06	0.08	0.86	0.00	0.00	0.38	-0.25	-0.26	0.38
OP	651245	A	272	0.73	0.73	0.10	0.17	0.00	0.00	0.49	0.49	-0.23	-0.37
OP	651319	B	272	0.72	0.15	0.72	0.13	0.00	0.00	0.37	-0.14	0.37	-0.34
OP	651320	B	272	0.59	0.15	0.59	0.26	0.01	0.00	0.50	-0.30	0.50	-0.29
OP	676354	A	272	0.60	0.60	0.20	0.20	0.00	0.00	0.44	0.44	-0.21	-0.33
OP	691024	C	272	0.85	0.11	0.04	0.85	0.00	0.00	0.35	-0.34	-0.07	0.35
OP	691026	C	272	0.78	0.13	0.08	0.78	0.00	0.00	0.39	-0.25	-0.26	0.39
OP	691874	B	272	0.47	0.19	0.47	0.34	0.00	0.00	0.45	-0.18	0.45	-0.32
OP	707725	C	272	0.72	0.08	0.19	0.72	0.00	0.00	0.17	-0.27	0.00	0.17
OP	707727	B	272	0.58	0.14	0.58	0.27	0.01	0.00	0.57	-0.20	0.57	-0.46
OP	707732	B	272	0.55	0.15	0.55	0.29	0.01	0.00	0.47	0.00	0.47	-0.50
OP	749073	B	272	0.64	0.11	0.64	0.24	0.01	0.00	0.55	-0.22	0.55	-0.42
OP	749075	B	272	0.67	0.19	0.67	0.14	0.01	0.00	0.12	0.05	0.12	-0.20
OP	749077	C	272	0.61	0.19	0.20	0.61	0.00	0.00	0.23	-0.14	-0.13	0.23
OP	749078	A	272	0.83	0.83	0.09	0.07	0.01	0.00	0.40	0.40	-0.24	-0.29
OP	749079	A	272	0.46	0.46	0.25	0.28	0.01	0.00	0.21	0.21	0.03	-0.23
OP	749080	B	272	0.43	0.26	0.43	0.31	0.01	0.00	0.44	-0.06	0.44	-0.41
OP	749081	B	272	0.53	0.13	0.53	0.34	0.00	0.00	0.55	-0.33	0.55	-0.34
OP	749083	C	272	0.71	0.16	0.13	0.71	0.00	0.00	0.35	-0.22	-0.22	0.35
OP	749084	C	272	0.85	0.07	0.07	0.85	0.00	0.00	0.46	-0.30	-0.32	0.46

Grade 11 Mathematics													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	749085	B	272	0.59	0.18	0.59	0.22	0.01	0.00	0.56	-0.27	0.56	-0.38
OP	749087	B	272	0.49	0.18	0.49	0.33	0.00	0.00	0.40	-0.15	0.40	-0.30
OP	749088	A	272	0.40	0.40	0.29	0.31	0.00	0.00	0.24	0.24	0.01	-0.25
OP	749089	B	272	0.42	0.25	0.42	0.33	0.00	0.00	0.27	0.02	0.27	-0.29
OP	749091	B	272	0.38	0.06	0.38	0.56	0.00	0.00	0.29	-0.32	0.29	-0.12
FT	829175	A	151	0.59	0.59	0.20	0.21	0.00	0.00	0.34	0.34	-0.12	-0.30
FT	829177	B	151	0.41	0.17	0.41	0.40	0.01	0.00	0.33	-0.23	0.33	-0.11
FT	829178	C	151	0.69	0.13	0.18	0.69	0.01	0.00	0.34	-0.17	-0.23	0.34
FT	829180	C	151	0.36	0.34	0.28	0.36	0.01	0.00	0.05	0.15	-0.16	0.05
FT	829183	A	151	0.58	0.58	0.15	0.26	0.01	0.01	0.46	0.46	-0.10	-0.39
FT	829184	B	151	0.54	0.21	0.54	0.23	0.01	0.00	0.31	0.01	0.31	-0.33
FT	829186	B	151	0.60	0.26	0.60	0.13	0.01	0.00	0.42	-0.31	0.42	-0.16
FT	829187	A	151	0.59	0.59	0.22	0.19	0.01	0.00	0.27	0.27	-0.09	-0.22
FT	829176	C	121	0.80	0.13	0.07	0.80	0.00	0.00	0.31	-0.22	-0.19	0.31
FT	829179	B	121	0.26	0.17	0.26	0.56	0.00	0.00	-0.01	-0.03	-0.01	0.03
FT	829181	C	121	0.67	0.11	0.22	0.67	0.00	0.00	0.19	-0.10	-0.15	0.19
FT	829185	B	121	0.79	0.07	0.79	0.13	0.01	0.00	0.53	-0.32	0.53	-0.36
FT	829189	A	121	0.56	0.56	0.17	0.26	0.00	0.00	0.55	0.55	-0.28	-0.38
FT	829190	C	121	0.92	0.07	0.01	0.92	0.00	0.00	0.34	-0.30	-0.16	0.34
FT	829191	C	121	0.60	0.23	0.17	0.60	0.00	0.00	0.09	-0.03	-0.08	0.09
FT	831569	B	121	0.55	0.16	0.55	0.30	0.00	0.00	0.45	-0.22	0.45	-0.31

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	245	0.56	0.14	0.56	0.28	0.02	0.00	0.35	-0.11	0.35	-0.18
OP	651078	C	245	0.52	0.19	0.29	0.52	0.01	0.00	0.14	-0.05	-0.06	0.14
OP	651113	A	245	0.68	0.68	0.07	0.23	0.02	0.00	0.64	0.64	-0.26	-0.42
OP	676460	C	245	0.66	0.14	0.18	0.66	0.01	0.00	0.36	-0.09	-0.27	0.36
OP	676461	C	245	0.76	0.06	0.18	0.76	0.01	0.00	0.29	-0.16	-0.17	0.29
OP	691146	B	245	0.57	0.16	0.57	0.27	0.00	0.00	0.55	-0.14	0.55	-0.47
OP	691147	B	245	0.73	0.08	0.73	0.18	0.01	0.00	0.56	-0.20	0.56	-0.45
OP	691149	C	245	0.62	0.20	0.16	0.62	0.01	0.00	0.30	-0.21	-0.11	0.30
OP	691150	B	245	0.51	0.20	0.51	0.27	0.02	0.00	0.47	-0.27	0.47	-0.20
OP	691151	A	245	0.80	0.80	0.07	0.11	0.02	0.00	0.63	0.63	-0.24	-0.44
OP	691154	A	245	0.78	0.78	0.07	0.13	0.02	0.00	0.69	0.69	-0.32	-0.48
OP	691155	B	245	0.55	0.32	0.55	0.11	0.02	0.00	0.44	-0.10	0.44	-0.37
OP	691158	A	245	0.57	0.57	0.30	0.12	0.01	0.00	0.49	0.49	-0.15	-0.47
OP	691159	A	245	0.78	0.78	0.09	0.13	0.00	0.00	0.69	0.69	-0.43	-0.45
OP	691212	A	245	0.93	0.93	0.03	0.03	0.00	0.00	0.25	0.25	-0.10	-0.18
OP	707414	A	245	0.78	0.78	0.12	0.10	0.00	0.00	0.56	0.56	-0.37	-0.37
OP	707417	B	245	0.59	0.20	0.59	0.20	0.01	0.00	0.40	-0.02	0.40	-0.41
OP	707419	C	245	0.75	0.14	0.11	0.75	0.01	0.00	0.57	-0.36	-0.33	0.57
OP	707420	C	245	0.54	0.23	0.22	0.54	0.01	0.00	0.18	-0.01	-0.15	0.18
OP	707421	B	245	0.56	0.19	0.56	0.24	0.01	0.00	0.17	0.09	0.17	-0.20
OP	707422	A	245	0.88	0.88	0.06	0.05	0.00	0.00	0.51	0.51	-0.35	-0.31
OP	707426	A	245	0.51	0.51	0.25	0.22	0.02	0.00	0.37	0.37	-0.16	-0.18
OP	707428	C	245	0.82	0.04	0.12	0.82	0.01	0.00	0.41	-0.07	-0.33	0.41
OP	707429	B	245	0.84	0.06	0.84	0.09	0.01	0.00	0.57	-0.33	0.57	-0.34
OP	707430	C	245	0.71	0.13	0.13	0.71	0.02	0.00	0.47	-0.18	-0.29	0.47
FT	748726	B	132	0.67	0.11	0.67	0.20	0.03	0.00	0.58	-0.26	0.58	-0.30
FT	748729	C	132	0.58	0.18	0.20	0.58	0.03	0.00	0.30	0.06	-0.23	0.30
FT	748732	C	132	0.75	0.11	0.11	0.75	0.03	0.00	0.59	-0.21	-0.37	0.59
FT	748735	A	132	0.53	0.53	0.14	0.30	0.03	0.00	0.44	0.44	-0.36	-0.04
FT	748736	B	132	0.61	0.17	0.61	0.20	0.03	0.00	0.47	-0.07	0.47	-0.33
FT	748738	C	132	0.82	0.03	0.12	0.82	0.03	0.00	0.57	-0.23	-0.33	0.57
FT	748740	A	132	0.58	0.58	0.20	0.19	0.03	0.00	0.42	0.42	-0.12	-0.22
FT	748743	C	132	0.71	0.14	0.11	0.71	0.03	0.00	0.42	-0.14	-0.20	0.42
FT	748727	A	113	0.81	0.81	0.07	0.11	0.01	0.00	0.57	0.57	-0.25	-0.43

Grade 5 Science													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
FT	748728	B	113	0.82	0.04	0.82	0.13	0.01	0.00	0.60	-0.28	0.60	-0.44
FT	748733	B	113	0.74	0.05	0.74	0.19	0.01	0.00	0.58	-0.07	0.58	-0.53
FT	748734	A	113	0.40	0.40	0.14	0.45	0.01	0.00	0.29	0.29	-0.03	-0.21
FT	748739	B	113	0.60	0.17	0.60	0.22	0.01	0.00	0.44	0.00	0.44	-0.46
FT	748741	A	113	0.63	0.63	0.13	0.23	0.01	0.00	0.49	0.49	0.00	-0.49
FT	748742	C	113	0.83	0.05	0.11	0.83	0.01	0.00	0.33	-0.17	-0.20	0.33
FT	748744	A	113	0.74	0.74	0.19	0.05	0.01	0.00	0.53	0.53	-0.29	-0.41

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	303	0.70	0.19	0.70	0.11	0.00	0.00	0.50	-0.26	0.50	-0.37
OP	651246	B	303	0.47	0.22	0.47	0.29	0.02	0.00	0.25	-0.13	0.25	-0.05
OP	673797	B	303	0.62	0.09	0.62	0.27	0.02	0.00	0.52	-0.34	0.52	-0.23
OP	676474	A	303	0.67	0.67	0.11	0.22	0.01	0.00	0.52	0.52	-0.20	-0.39
OP	676475	B	303	0.59	0.25	0.59	0.15	0.01	0.00	0.40	-0.17	0.40	-0.28
OP	676476	C	303	0.83	0.09	0.08	0.83	0.00	0.00	0.47	-0.39	-0.20	0.47
OP	676477	C	303	0.62	0.11	0.26	0.62	0.02	0.00	0.22	-0.24	0.04	0.22
OP	676478	C	303	0.63	0.13	0.23	0.63	0.01	0.00	0.25	-0.20	-0.06	0.25
OP	676479	B	303	0.49	0.24	0.49	0.25	0.02	0.00	0.33	-0.15	0.33	-0.11
OP	691162	A	303	0.71	0.71	0.13	0.16	0.01	0.00	0.49	0.49	-0.23	-0.34
OP	691166	B	303	0.58	0.29	0.58	0.12	0.01	0.00	0.42	-0.14	0.42	-0.35
OP	707432	A	303	0.59	0.59	0.11	0.29	0.01	0.00	0.34	0.34	-0.15	-0.20
OP	707433	A	303	0.79	0.79	0.11	0.08	0.02	0.00	0.51	0.51	-0.30	-0.24
OP	707434	C	303	0.59	0.23	0.17	0.59	0.01	0.00	0.03	0.13	-0.07	0.03
OP	707435	C	303	0.70	0.14	0.15	0.70	0.02	0.00	0.38	-0.07	-0.27	0.38
OP	707436	A	303	0.78	0.78	0.08	0.13	0.02	0.00	0.50	0.50	-0.19	-0.32
OP	707437	B	303	0.73	0.10	0.73	0.17	0.01	0.00	0.40	-0.23	0.40	-0.24
OP	707438	C	303	0.78	0.07	0.14	0.78	0.02	0.00	0.33	-0.24	-0.07	0.33
OP	707440	C	303	0.49	0.19	0.30	0.49	0.02	0.00	0.12	-0.08	0.05	0.12
OP	707442	A	303	0.75	0.75	0.13	0.11	0.02	0.00	0.48	0.48	-0.21	-0.27
OP	707445	A	303	0.78	0.78	0.07	0.13	0.02	0.00	0.44	0.44	-0.21	-0.23
OP	707446	C	303	0.51	0.26	0.21	0.51	0.02	0.00	0.22	-0.10	-0.04	0.22
OP	707447	C	303	0.63	0.22	0.13	0.63	0.02	0.00	0.14	-0.04	-0.01	0.14

Grade 8 Science													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	707448	A	303	0.80	0.80	0.09	0.10	0.02	0.00	0.43	0.43	-0.16	-0.26
OP	708809	A	303	0.59	0.59	0.15	0.24	0.02	0.00	0.30	0.30	0.01	-0.23
FT	748746	B	173	0.81	0.08	0.81	0.09	0.02	0.00	0.62	-0.31	0.62	-0.32
FT	748749	C	173	0.84	0.07	0.06	0.84	0.02	0.00	0.56	-0.35	-0.19	0.56
FT	748751	C	173	0.59	0.16	0.23	0.59	0.02	0.00	0.38	-0.11	-0.19	0.38
FT	748752	C	173	0.72	0.12	0.14	0.72	0.02	0.00	0.44	-0.17	-0.22	0.44
FT	748754	C	173	0.64	0.18	0.16	0.64	0.02	0.00	0.48	-0.09	-0.35	0.48
FT	748755	A	173	0.68	0.68	0.08	0.22	0.02	0.00	0.47	0.47	-0.20	-0.23
FT	748757	B	173	0.68	0.10	0.68	0.20	0.02	0.00	0.61	-0.28	0.61	-0.33
FT	748762	C	173	0.51	0.26	0.21	0.51	0.02	0.00	0.31	-0.04	-0.17	0.31
FT	748747	B	130	0.73	0.05	0.73	0.21	0.01	0.00	0.43	-0.28	0.43	-0.24
FT	748748	B	130	0.52	0.23	0.52	0.24	0.01	0.00	0.28	-0.07	0.28	-0.18
FT	748750	A	130	0.24	0.24	0.56	0.19	0.01	0.00	0.34	0.34	-0.14	-0.12
FT	748753	B	130	0.63	0.20	0.63	0.16	0.01	0.00	0.43	-0.20	0.43	-0.27
FT	748756	C	130	0.84	0.08	0.08	0.84	0.01	0.00	0.47	-0.34	-0.21	0.47
FT	748759	A	130	0.89	0.89	0.05	0.05	0.01	0.00	0.46	0.46	-0.23	-0.29
FT	748761	A	130	0.78	0.78	0.08	0.13	0.01	0.00	0.56	0.56	-0.25	-0.40
FT	748763	A	130	0.88	0.88	0.03	0.08	0.01	0.00	0.51	0.51	-0.19	-0.38

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	272	0.55	0.17	0.55	0.27	0.00	0.00	0.52	-0.21	0.52	-0.38
OP	651785	C	272	0.74	0.15	0.10	0.74	0.01	0.00	0.32	-0.15	-0.24	0.32
OP	651793	B	272	0.62	0.16	0.62	0.22	0.00	0.00	0.61	-0.28	0.61	-0.45
OP	651798	B	272	0.59	0.13	0.59	0.28	0.00	0.00	0.58	-0.19	0.58	-0.48
OP	651808	A	272	0.47	0.47	0.07	0.46	0.01	0.00	0.32	0.32	-0.14	-0.23
OP	651822	A	272	0.60	0.60	0.08	0.32	0.01	0.00	0.50	0.50	-0.19	-0.38
OP	673806	B	272	0.63	0.15	0.63	0.21	0.00	0.00	0.47	-0.18	0.47	-0.38
OP	673809	C	272	0.53	0.23	0.24	0.53	0.00	0.00	0.17	-0.10	-0.08	0.17
OP	676484	B	272	0.67	0.13	0.67	0.20	0.00	0.00	0.58	-0.31	0.58	-0.42
OP	676495	B	272	0.75	0.09	0.75	0.15	0.00	0.00	0.46	-0.20	0.46	-0.39
OP	691177	A	272	0.65	0.65	0.14	0.21	0.00	0.00	0.49	0.49	-0.28	-0.31
OP	691179	C	272	0.66	0.09	0.25	0.66	0.00	0.00	0.31	-0.25	-0.17	0.31

Grade 11 Science													
GENERAL			COUNTS	PROPORTIONS						CORRELATIONS			
Type	Item ID	Key	*N*	*p*-value	A	B	C	-	*	Total	A	B	C
OP	691183	A	272	0.54	0.54	0.34	0.12	0.00	0.00	0.40	0.40	-0.15	-0.37
OP	691185	C	272	0.76	0.13	0.10	0.76	0.01	0.00	0.34	-0.14	-0.27	0.34
OP	691187	C	272	0.86	0.06	0.08	0.86	0.00	0.00	0.48	-0.33	-0.30	0.48
OP	691189	B	272	0.50	0.25	0.50	0.25	0.01	0.00	0.42	-0.11	0.42	-0.35
OP	691192	A	272	0.91	0.91	0.08	0.01	0.00	0.00	0.39	0.39	-0.35	-0.16
OP	707451	A	272	0.86	0.86	0.04	0.09	0.00	0.00	0.44	0.44	-0.27	-0.33
OP	707452	A	272	0.85	0.85	0.07	0.08	0.00	0.00	0.44	0.44	-0.23	-0.35
OP	707453	A	272	0.70	0.70	0.13	0.16	0.00	0.00	0.45	0.45	-0.24	-0.31
OP	707454	C	272	0.70	0.13	0.17	0.70	0.00	0.00	0.22	-0.16	-0.10	0.22
OP	707456	C	272	0.50	0.35	0.14	0.50	0.00	0.00	0.22	-0.12	-0.15	0.22
OP	707457	B	272	0.44	0.28	0.44	0.27	0.00	0.00	0.31	0.09	0.31	-0.43
OP	707458	A	272	0.59	0.59	0.14	0.27	0.01	0.00	0.51	0.51	-0.12	-0.46
OP	707459	A	272	0.71	0.71	0.10	0.18	0.00	0.00	0.62	0.62	-0.34	-0.43
OP	707461	B	272	0.52	0.24	0.52	0.24	0.00	0.00	0.42	0.00	0.42	-0.48
OP	707462	C	272	0.54	0.25	0.20	0.54	0.00	0.00	0.18	-0.10	-0.09	0.18
OP	707463	C	272	0.63	0.23	0.14	0.63	0.00	0.00	0.29	-0.11	-0.27	0.29
OP	707464	A	272	0.79	0.79	0.09	0.12	0.00	0.00	0.43	0.43	-0.27	-0.30
OP	707466	C	272	0.90	0.06	0.04	0.90	0.00	0.00	0.30	-0.25	-0.13	0.30
FT	748766	C	151	0.66	0.17	0.16	0.66	0.01	0.00	0.37	-0.28	-0.19	0.37
FT	748767	B	151	0.77	0.07	0.77	0.15	0.01	0.00	0.55	-0.41	0.55	-0.34
FT	748769	A	151	0.56	0.56	0.08	0.34	0.01	0.00	0.46	0.46	-0.24	-0.31
FT	748772	A	151	0.44	0.44	0.26	0.28	0.01	0.00	0.39	0.39	0.05	-0.45
FT	748773	C	151	0.69	0.15	0.16	0.69	0.01	0.00	0.26	-0.29	-0.05	0.26
FT	748779	B	151	0.74	0.15	0.74	0.11	0.01	0.00	0.42	-0.32	0.42	-0.23
FT	748780	B	151	0.70	0.11	0.70	0.19	0.01	0.00	0.59	-0.32	0.59	-0.44
FT	748783	A	151	0.81	0.81	0.07	0.11	0.01	0.00	0.54	0.54	-0.35	-0.39
FT	748764	C	121	0.82	0.10	0.07	0.82	0.01	0.00	0.34	-0.19	-0.22	0.34
FT	748765	B	121	0.72	0.06	0.72	0.22	0.00	0.00	0.65	-0.23	0.65	-0.57
FT	748768	A	121	0.83	0.83	0.04	0.12	0.02	0.00	0.42	0.42	-0.20	-0.29
FT	748770	A	121	0.68	0.68	0.11	0.21	0.01	0.00	0.54	0.54	-0.21	-0.42
FT	748771	B	121	0.40	0.27	0.40	0.32	0.01	0.00	0.15	0.00	0.15	-0.12
FT	748774	A	121	0.26	0.26	0.26	0.46	0.01	0.00	0.48	0.48	-0.16	-0.27
FT	748778	C	121	0.54	0.21	0.24	0.54	0.01	0.00	0.08	0.03	-0.08	0.08
FT	748782	C	121	0.86	0.09	0.05	0.86	0.00	0.00	0.33	-0.27	-0.16	0.33

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

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:

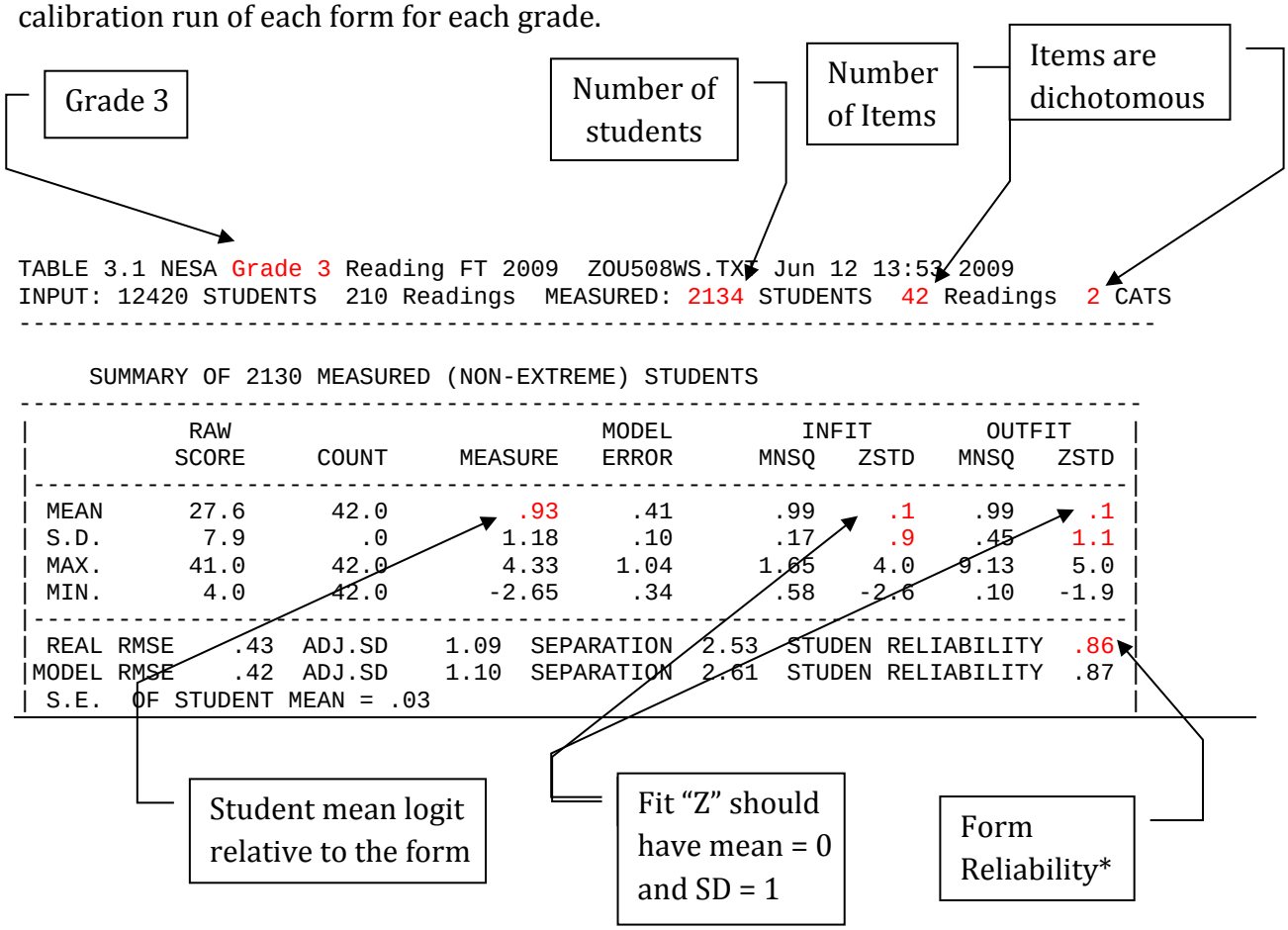
2. $r_v = \sum_{i=1}^{L} \sum_{k=0}^{m_i} k\hat{P}_{vik}$, where $\hat{P}_{vik}$ is defined by (1) with estimates replacing the parameters.

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: ELA, 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.



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

ELA

Grade 3

TABLE 3.1 State NE ELA ALT Spring 2017 RE03_ALT_freeOUT.txti Oct 23 2017 9:57
INPUT: 333517 Student 25 ELA REPORTED: 268 Student 25 ELA 2 CATS WINSTEPS 4.0.0

SUMMARY OF 240 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	16.0	25.0	.7896	.5364	.99	.1	1.02	.1
P.SD	5.4	.0	1.3472	.1633	.17	.8	.47	1.0
S.SD	5.5	.0	1.3500	.1637	.17	.8	.47	1.0
MAX.	24.0	25.0	3.4552	1.0306	1.42	2.6	4.50	2.9
MIN.	1.0	25.0	-3.4147	.4260	.66	-2.1	.29	-2.1

REAL RMSE .5764 TRUE SD 1.2176 SEPARATION 2.11 Studen RELIABILITY .82
MODEL RMSE .5607 TRUE SD 1.2249 SEPARATION 2.18 Studen RELIABILITY .83
S.E. OF Student MEAN = .0871

Grade 4

TABLE 3.1 State NE ELA ALT Spring 2017 RE04_ALT_freeOUT.txti Oct 23 2017 9:58
INPUT: 333517 Student 25 ELA REPORTED: 271 Student 25 ELA 2 CATS WINSTEPS 4.0.0

SUMMARY OF 236 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	15.7	25.0	.7438	.5240	1.00	.1	.99	.1
P.SD	5.3	.0	1.2802	.1587	.15	.8	.50	.9
S.SD	5.3	.0	1.2830	.1590	.15	.8	.51	.9
MAX.	24.0	25.0	3.4320	1.0308	1.52	3.5	7.10	3.7
MIN.	1.0	25.0	-3.4279	.4237	.66	-2.1	.23	-1.9

REAL RMSE .5603 TRUE SD 1.1511 SEPARATION 2.05 Studen RELIABILITY .81
MODEL RMSE .5475 TRUE SD 1.1572 SEPARATION 2.11 Studen RELIABILITY .82
S.E. OF Student MEAN = .0835

Grade 5

```
TABLE 3.1 State NE ELA ALT Spring 2017  RE05_ALT_freeOUT.txti Oct 23 2017 10: 0
INPUT: 333517 Student  25 ELA  REPORTED: 272 Student  25 ELA  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 249 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      15.8      25.0       .7544   .5085      1.00     .1    .99     .0 |
| P.SD       4.9        .0      1.1605   .1169       .16     .9    .34     .9 |
| S.SD       4.9        .0      1.1629   .1171       .16     .9    .34     .9 |
| MAX.      24.0      25.0      3.4898  1.0366      1.55    3.1   2.79    3.1 |
| MIN.       1.0      25.0     -3.5536   .4342       .63   -2.6    .23   -2.1 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5371 TRUE SD  1.0288  SEPARATION  1.92  Studen RELIABILITY  .79 |
|MODEL RMSE  .5217 TRUE SD  1.0366  SEPARATION  1.99  Studen RELIABILITY  .80 |
| S.E. OF Student MEAN = .0737                                                |
-------------------------------------------------------------------------------
```

Grade 6

```
TABLE 3.1 State NE ELA ALT Spring 2017  RE06_ALT_freeOUT.txti Oct 23 2017 10: 1
INPUT: 333517 Student  25 ELA  REPORTED: 304 Student  25 ELA  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 284 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      15.9      25.0       .7442   .5088       .99     .1   1.00     .1 |
| P.SD       5.0        .0      1.1676   .1250       .15     .8    .33     .9 |
| S.SD       5.0        .0      1.1697   .1252       .15     .8    .33     .9 |
| MAX.      24.0      25.0      3.4364  1.0330      1.50    3.4   2.52    3.7 |
| MIN.       1.0      25.0     -3.4226   .4223       .69   -2.3    .29   -2.0 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5376 TRUE SD  1.0365  SEPARATION  1.93  Studen RELIABILITY  .79 |
|MODEL RMSE  .5239 TRUE SD  1.0435  SEPARATION  1.99  Studen RELIABILITY  .80 |
| S.E. OF Student MEAN = .0694                                                |
-------------------------------------------------------------------------------
```

Grade 7

```
TABLE 3.1 State NE ELA ALT Spring 2017  RE07_ALT_freeOUT.txti Oct 23 2017 10: 2
INPUT: 333517 Student  25 ELA  REPORTED: 314 Student  25 ELA  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 297 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      15.8      25.0       .7200   .4937      1.00     .1    .98     .1 |
| P.SD       4.6        .0      1.0358   .1063       .15     .8    .30     .9 |
| S.SD       4.6        .0      1.0376   .1065       .15     .8    .30     .9 |
| MAX.      24.0      25.0      3.4430  1.0301      1.42    2.7   3.20    2.8 |
| MIN.       4.0      25.0     -1.8428   .4254       .65   -2.1    .33   -1.9 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5182 TRUE SD   .8969  SEPARATION  1.73  Studen RELIABILITY  .75 |
|MODEL RMSE  .5050 TRUE SD   .9044  SEPARATION  1.79  Studen RELIABILITY  .76 |
| S.E. OF Student MEAN = .0602                                                |
-------------------------------------------------------------------------------
```

Grade 8

```
TABLE 3.1 State NE ELA ALT Spring 2017  RE08_ALT_freeOUT.txti Oct 23 2017 10: 6
INPUT: 333517 Student  25 ELA  REPORTED: 321 Student  25 ELA  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 303 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      16.1      25.0       .8506   .5471      1.00     .1    .95     .1 |
| P.SD       5.7        .0      1.3964   .1679       .17     .9    .32     .9 |
| S.SD       5.7        .0      1.3987   .1682       .17     .9    .32     .9 |
| MAX.      24.0      25.0      3.4596  1.0317      1.59    3.7   1.85    3.5 |
| MIN.       1.0      25.0     -3.4250   .4263       .61   -2.1    .27   -1.9 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5872 TRUE SD  1.2669  SEPARATION  2.16  Studen RELIABILITY  .82 |
|MODEL RMSE  .5723 TRUE SD  1.2737  SEPARATION  2.23  Studen RELIABILITY  .83 |
| S.E. OF Student MEAN = .0804                                                |
-------------------------------------------------------------------------------
```

Grade 11

TABLE 3.1 State NE ELA ALT Spring 2017 RE11_ALT_freeOUT.txtt Oct 23 2017 10: 7
INPUT: 333517 Student 25 ELA REPORTED: 299 Student 25 ELA 2 CATS WINSTEPS 4.0.0

SUMMARY OF 271 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MODEL MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	15.7	25.0	.7360	.5216	.99	.0	1.00	.1
P.SD	5.2	.0	1.2626	.1253	.18	.9	.40	1.0
S.SD	5.2	.0	1.2650	.1256	.18	.9	.40	1.0
MAX.	24.0	25.0	3.5519	1.0326	1.86	3.4	3.27	3.1
MIN.	1.0	25.0	-3.5251	.4383	.62	-2.3	.33	-2.2

REAL RMSE	.5524	TRUE SD	1.1354	SEPARATION	2.06	Studen RELIABILITY	.81
MODEL RMSE	.5364	TRUE SD	1.1430	SEPARATION	2.13	Studen RELIABILITY	.82

S.E. OF Student MEAN = .0768

Mathematics

Grade 3

TABLE 3.1 State NE MATH ALT Spring 2017 Grad MA03_ALT_OUT.txt Oct 25 2017 10:20
INPUT: 333517 Student 25 MATH REPORTED: 266 Student 25 MATH 2 CATS WINSTEPS 4.0.0

SUMMARY OF 227 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MODEL MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	17.1	25.0	.8256	.5718	1.00	.2	.93	.1
P.SD	5.5	.0	1.3666	.1909	.12	.7	.28	.8
S.SD	5.5	.0	1.3696	.1914	.12	.7	.28	.8
MAX.	24.0	25.0	3.0936	1.0322	1.44	2.4	1.96	2.3
MIN.	4.0	25.0	-2.1522	.4238	.74	-1.9	.43	-1.8

REAL RMSE	.6127	TRUE SD	1.2215	SEPARATION	1.99	Studen RELIABILITY	.80
MODEL RMSE	.6028	TRUE SD	1.2264	SEPARATION	2.03	Studen RELIABILITY	.81

S.E. OF Student MEAN = .0909

Grade 4

```
TABLE 3.1 State NE MATH ALT Spring 2017 Grad MA04_ALT_OUT.txt  Oct 25 2017 10:22
INPUT: 333517 Student  30 MATH  REPORTED: 261 Student  30 MATH  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 217 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      19.6      30.0       .8930   .4991       .99     .1    .98     .0 |
| P.SD       6.7        .0      1.3458   .1636       .13     .9    .28    1.0 |
| S.SD       6.8        .0      1.3489   .1639       .13     .9    .28    1.0 |
| MAX.      29.0      30.0      3.5357  1.0250      1.52    4.2   2.61    4.1 |
| MIN.       1.0      30.0     -3.5685   .3821       .68   -2.7    .41   -2.5 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5346 TRUE SD  1.2351  SEPARATION  2.31  Studen RELIABILITY  .84 |
|MODEL RMSE  .5252 TRUE SD  1.2391  SEPARATION  2.36  Studen RELIABILITY  .85 |
| S.E. OF Student MEAN = .0916                                                |
-------------------------------------------------------------------------------
```

Grade 5

```
TABLE 3.1 State NE MATH ALT Spring 2017 Grad MA05_ALT_OUT.txt  Oct 25 2017 10:23
INPUT: 333517 Student  30 MATH  REPORTED: 272 Student  30 MATH  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 247 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      19.8      30.0       .9014   .4844      1.00     .1    .99     .0 |
| P.SD       6.1        .0      1.2270   .1327       .16    1.0    .40    1.1 |
| S.SD       6.1        .0      1.2295   .1329       .16    1.0    .40    1.1 |
| MAX.      29.0      30.0      3.6503  1.0281      1.57    3.5   4.29    3.6 |
| MIN.       1.0      30.0     -3.6757   .3933       .63   -3.1    .44   -2.9 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5150 TRUE SD  1.1137  SEPARATION  2.16  Studen RELIABILITY  .82 |
|MODEL RMSE  .5023 TRUE SD  1.1195  SEPARATION  2.23  Studen RELIABILITY  .83 |
| S.E. OF Student MEAN = .0782                                                |
-------------------------------------------------------------------------------
```

Grade 6

TABLE 3.1 State NE MATH ALT Spring 2017 Grad MA06_ALT_OUT.txt Oct 25 2017 10:25
INPUT: 333517 Student 30 MATH REPORTED: 306 Student 30 MATH 2 CATS WINSTEPS 4.0.0

SUMMARY OF 280 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MODEL MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	18.5	30.0	.7828	.4603	1.01	.1	.98	.0
P.SD	6.1	.0	1.1584	.1188	.13	.8	.21	.9
S.SD	6.1	.0	1.1605	.1190	.13	.8	.21	.9
MAX.	29.0	30.0	3.6784	1.0239	1.48	2.9	1.69	2.9
MIN.	4.0	30.0	-1.9612	.3861	.72	-2.3	.37	-2.3

REAL RMSE	.4860	TRUE SD	1.0516	SEPARATION	2.16 Studen RELIABILITY .82
MODEL RMSE	.4754	TRUE SD	1.0564	SEPARATION	2.22 Studen RELIABILITY .83

S.E. OF Student MEAN = .0694

Grade 7

TABLE 3.1 State NE MATH ALT Spring 2017 Grad MA07_ALT_OUT.txt Oct 25 2017 10:26
INPUT: 333517 Student 30 MATH REPORTED: 319 Student 30 MATH 2 CATS WINSTEPS 4.0.0

SUMMARY OF 296 MEASURED (NON-EXTREME) Student

	TOTAL SCORE	COUNT	MODEL MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	18.6	30.0	.8651	.4852	1.02	.1	1.04	.2
P.SD	6.6	.0	1.3360	.1513	.15	.9	.36	1.0
S.SD	6.6	.0	1.3382	.1515	.15	.9	.36	1.0
MAX.	29.0	30.0	3.7828	1.0274	1.54	3.5	3.00	3.6
MIN.	1.0	30.0	-3.5038	.3906	.72	-2.3	.35	-2.2

REAL RMSE	.5215	TRUE SD	1.2300	SEPARATION	2.36 Studen RELIABILITY .85
MODEL RMSE	.5083	TRUE SD	1.2355	SEPARATION	2.43 Studen RELIABILITY .86

S.E. OF Student MEAN = .0778

Grade 8

```
TABLE 3.1 State NE MATH ALT Spring 2017 Grad MA08_ALT_OUT.txt  Oct 25 2017 10:27
INPUT: 333517 Student  30 MATH  REPORTED: 330 Student  30 MATH  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 310 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      18.5      30.0       .8006   .4813      1.01     .1   1.02     .1 |
| P.SD       6.6        .0      1.3224   .1505       .14     .9    .36    1.0 |
| S.SD       6.6        .0      1.3245   .1508       .14     .9    .37    1.0 |
| MAX.      29.0      30.0      3.7252  1.0311      1.58    3.7   4.77    3.8 |
| MIN.       1.0      30.0     -3.5269   .3879       .74   -1.8    .37   -1.8 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5175 TRUE SD  1.2169  SEPARATION  2.35  Studen RELIABILITY  .85 |
|MODEL RMSE  .5043 TRUE SD  1.2225  SEPARATION  2.42  Studen RELIABILITY  .85 |
| S.E. OF Student MEAN = .0752                                                |
-------------------------------------------------------------------------------
```

Grade 11

```
TABLE 3.1 State NE MATH ALT Spring 2017 Grad MA11_ALT_OUT.txt  Oct 25 2017 10:28
INPUT: 333517 Student  30 MATH  REPORTED: 300 Student  30 MATH  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 273 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      19.1      30.0       .7839   .4743      1.01     .1    .99     .1 |
| P.SD       6.1        .0      1.2158   .1212       .16     .9    .35    1.0 |
| S.SD       6.1        .0      1.2181   .1214       .16     .9    .35    1.0 |
| MAX.      29.0      30.0      3.6660  1.0333      1.93    5.3   3.31    5.1 |
| MIN.       1.0      30.0     -3.7705   .3974       .65   -2.4    .40   -2.4 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5028 TRUE SD  1.1070  SEPARATION  2.20  Studen RELIABILITY  .83 |
|MODEL RMSE  .4895 TRUE SD  1.1129  SEPARATION  2.27  Studen RELIABILITY  .84 |
| S.E. OF Student MEAN = .0737                                                |
-------------------------------------------------------------------------------
```

Science

Grade 5

```
TABLE 3.1 State NE SCIENCE ALT Spring 2017 G SC05_ALT_OUT.txt  Oct 25 2017 10:30
INPUT: 333517 Student  25 SCIE  REPORTED: 268 Student  25 SCIE  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 242 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      16.8      25.0      -.0967   .5570      1.00     .1    .99     .1 |
| P.SD       5.4        .0      1.3374   .1771       .15     .8    .70     .9 |
| S.SD       5.4        .0      1.3401   .1774       .15     .8    .70     .9 |
| MAX.      24.0      25.0      2.3014  1.0338      1.50    2.7   9.90    3.1 |
| MIN.       2.0      25.0     -3.8687   .4289       .58   -3.4    .36   -3.0 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5963 TRUE SD  1.1971  SEPARATION  2.01  Studen RELIABILITY  .80 |
|MODEL RMSE  .5845 TRUE SD  1.2029  SEPARATION  2.06  Studen RELIABILITY  .81 |
| S.E. OF Student MEAN = .0861                                                |
-------------------------------------------------------------------------------
```

Grade 8

```
TABLE 3.1 State NE SCIENCE ALT Spring 2017 G SC08_ALT_OUT.txt  Oct 25 2017 10:31
INPUT: 333517 Student  25 SCIE  REPORTED: 322 Student  25 SCIE  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 302 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      16.4      25.0      -.2027   .5050      1.01     .2    .97     .1 |
| P.SD       4.8        .0      1.0981   .1267       .12     .7    .20     .8 |
| S.SD       4.8        .0      1.0999   .1269       .12     .7    .20     .8 |
| MAX.      24.0      25.0      2.3162  1.0283      1.35    2.7   1.54    2.7 |
| MIN.       1.0      25.0     -4.3645   .4173       .76   -1.9    .41   -1.9 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5306 TRUE SD   .9613  SEPARATION  1.81  Studen RELIABILITY  .77 |
|MODEL RMSE  .5207 TRUE SD   .9668  SEPARATION  1.86  Studen RELIABILITY  .78 |
| S.E. OF Student MEAN = .0633                                                |
-------------------------------------------------------------------------------
```

Grade 11

```
TABLE 3.1 State NE SCIENCE ALT Spring 2017 G SC11_ALT_OUT.txt  Oct 25 2017 10:32
INPUT: 333517 Student  30 SCIE  REPORTED: 299 Student  30 SCIE  2 CATS WINSTEPS 4.0.0
-------------------------------------------------------------------------------

     SUMMARY OF 264 MEASURED (NON-EXTREME) Student
-------------------------------------------------------------------------------
|          TOTAL                          MODEL         INFIT        OUTFIT    |
|          SCORE     COUNT     MEASURE    S.E.      MNSQ   ZSTD   MNSQ   ZSTD |
|-----------------------------------------------------------------------------|
| MEAN      19.4      30.0      -.0933   .4883      1.02     .2   1.00     .1 |
| P.SD       6.1        .0      1.2657   .1519       .16     .9    .35    1.0 |
| S.SD       6.1        .0      1.2681   .1522       .17     .9    .35    1.0 |
| MAX.      29.0      30.0      2.6958  1.0420      1.65    3.7   2.67    3.9 |
| MIN.       1.0      30.0     -4.7842   .3954       .75   -1.9    .37   -1.6 |
|-----------------------------------------------------------------------------|
| REAL RMSE  .5256 TRUE SD  1.1514  SEPARATION  2.19  Studen RELIABILITY  .83 |
|MODEL RMSE  .5114 TRUE SD  1.1578  SEPARATION  2.26  Studen RELIABILITY  .84 |
| S.E. OF Student MEAN = .0780                                                |
-------------------------------------------------------------------------------
```

Appendix K: ELA Item Bank Difficulties

Grade 3 ELA

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL CORR.	EX-EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	ELA
1	195	236	-.9255A	.1820	.84	-1.6	.66	-1.9	.44	.31	83.7	82.3	-.0633	650589
2	174	236	-.3901A	.1627	.88	-1.5	.82	-1.3	.46	.34	79.8	76.2	.0253	650617
3	183	236	-.6021A	.1693	.88	-1.4	.69	-2.0	.47	.33	78.5	78.6	-.0106	691033
4	164	236	-.1438A	.1566	.99	-.1	.90	-.8	.38	.36	71.7	73.8	.0313	691044
5	203	236	-1.1947A	.1952	.83	-1.5	.60	-1.9	.42	.29	86.7	85.3	-.0899	691048
6	141	236	.3961A	.1484	.95	-.9	.90	-1.1	.42	.38	72.1	69.9	.0190	707757
7	165	236	-.1201A	.1561	.78	-3.4	.65	-3.2	.57	.36	79.8	73.5	-.0177	707759
8	142	236	.3745A	.1486	1.02	.4	.99	-.1	.36	.38	66.5	69.9	.0186	707761
9	185	236	-.6298A	.1703	.94	-.7	.83	-1.0	.37	.33	82.0	78.9	-.0420	707767
10	182	236	-.5747A	.1684	.93	-.8	.87	-.8	.40	.33	79.0	78.3	-.0093	707768
11	182	236	-.5476A	.1675	.75	-3.2	.57	-3.1	.58	.33	81.5	78.0	-.0371	707770
12	148	236	.2656A	.1498	.80	-3.5	.70	-3.4	.57	.37	74.7	70.5	-.0061	707772
13	106	236	1.1413A	.1473	1.28	4.4	1.46	4.9	.11	.39	59.7	69.6	.0284	749136
14	164	236	-.1438A	.1566	1.04	.5	1.00	.1	.34	.36	73.4	73.8	.0313	749138
15	181	236	-.5207A	.1666	.98	-.2	1.00	.1	.33	.33	79.4	77.6	-.0357	749140
16	127	236	.6947A	.1466	1.09	1.6	1.13	1.6	.30	.38	65.2	68.9	.0237	749141
17	165	236	-.1438A	.1566	1.01	.1	1.08	.7	.35	.36	73.8	73.8	.0065	749142
18	187	236	-.6861A	.1723	1.01	.1	1.48	2.5	.26	.32	81.5	79.6	-.0455	749143
19	134	236	.5674A	.1471	.85	-2.8	.82	-2.2	.53	.38	75.5	69.2	.0001	749144
20	101	236	1.2497A	.1481	1.07	1.2	1.25	2.7	.28	.38	67.8	70.0	.0293	749221
21	134	236	.5461A	.1472	1.28	4.5	1.44	4.5	.13	.38	58.4	69.3	.0215	749223
22	165	236	-.1438A	.1566	.94	-.8	.84	-1.3	.42	.36	73.8	73.8	.0065	749224
23	105	236	1.1629A	.1474	.95	-.8	.96	-.4	.40	.39	70.4	69.7	.0286	749225
24	203	236	-1.1947A	.1952	.89	-.9	1.08	.4	.33	.29	87.6	85.3	-.0899	750257
25	88	236	1.5630A	.1517	1.19	2.8	1.43	3.9	.17	.38	66.1	72.0	.0083	750258
26	44	110	1.4419	.2224	1.27	2.6	1.35	2.3	.18	.41	63.9	72.0	.0012	826881
27	108	126	-1.2385	.2709	.84	-.9	.66	-1.1	.44	.28	87.2	85.8	.0011	826882
28	71	110	.1538	.2227	1.21	2.2	1.24	1.5	.20	.38	65.7	71.0	.0001	826883
29	85	126	.0086	.2095	1.09	1.0	1.20	1.3	.26	.35	70.4	72.8	.0015	826884
30	74	126	.4687	.2009	1.12	1.5	1.16	1.4	.25	.37	64.0	69.1	.0017	826885
31	60	126	1.0236	.1989	1.09	1.2	1.15	1.4	.27	.37	64.0	68.5	.0021	826886
32	67	110	.3490	.2195	.84	-1.9	.78	-1.6	.54	.39	77.8	70.3	.0003	826887
33	64	126	.8658	.1986	1.04	.6	1.08	.8	.33	.37	66.4	68.1	.0020	826888
34	63	110	.5397	.2175	.94	-.7	.91	-.6	.45	.40	75.0	69.9	.0004	826890
35	84	110	-.5474	.2455	1.04	.4	.96	-.1	.30	.34	78.7	77.7	-.0003	826891
36	37	110	1.7999	.2307	1.06	.6	1.01	.1	.36	.40	75.0	74.3	.0015	826892
37	52	126	1.3439	.2018	.99	-.1	1.08	.7	.32	.36	71.2	69.8	.0022	826893
38	90	110	-.9389	.2671	.94	-.4	1.21	.7	.37	.31	84.3	82.3	-.0004	826895
39	73	126	.5089	.2005	1.28	3.4	1.47	3.6	.10	.37	53.6	68.9	.0018	826896
40	50	110	1.1513	.2183	1.17	1.9	1.15	1.2	.28	.41	60.2	70.6	.0010	826897
41	63	126	.9052	.1986	.76	-3.4	.72	-3.0	.61	.37	81.6	68.1	.0020	826898
MEAN	122.2	190.0	.1911	.1838	1.00	.0	1.01	.1			73.4	73.8	-.0037	
P.SD	51.5	57.8	.8178	.0341	.15	1.9	.25	2.0			8.4	5.1	.0287	

Grade 4 ELA

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	ELA
1	162	237	-.1511A	.1552	.92	-1.1	.86	-1.0	.45	.38	76.9	72.9	-.0147	650970
2	106	237	1.0656A	.1496	1.05	.9	1.07	.8	.36	.42	68.4	70.7	.0266	650980
3	179	237	-.5684A	.1647	.78	-2.9	.63	-2.4	.55	.35	80.3	76.6	-.0336	650990
4	124	237	.6576A	.1481	.95	-.9	.87	-1.3	.46	.41	70.9	69.9	.0370	691057
5	183	237	-.7028A	.1688	.87	-1.6	.74	-1.4	.46	.34	80.8	78.1	-.0106	691061
6	146	237	.2076A	.1503	.90	-1.6	.79	-1.9	.49	.40	73.1	71.0	-.0004	691063
7	145	237	.2294A	.1501	1.02	.3	.96	-.3	.39	.40	70.9	70.9	.0003	707781
8	119	237	.7854A	.1482	1.15	2.5	1.25	2.5	.29	.42	64.5	70.0	.0188	707782
9	201	237	-1.2643A	.1921	.96	-.3	.72	-1.1	.34	.30	83.8	84.6	-.0335	707786
10	175	237	-.4654A	.1620	.98	-.2	.86	-.8	.37	.36	76.1	75.6	-.0286	749148
11	190	237	-.8741A	.1748	.96	-.4	.81	-.9	.34	.33	82.5	80.1	-.0495	749149
12	153	237	.0534A	.1521	.97	-.4	1.15	1.2	.41	.39	75.2	71.8	-.0063	749150
13	208	237	-1.5372A	.2075	.99	-.1	1.25	.9	.25	.27	86.8	87.5	-.0454	749151
14	174	237	-.4654A	.1620	1.03	.5	.97	-.1	.33	.36	73.1	75.6	-.0015	749152
15	123	237	.7002A	.1481	.96	-.6	.92	-.8	.44	.42	72.2	69.9	.0162	749153
16	180	237	-.5948A	.1655	.83	-2.2	.77	-1.3	.49	.35	79.1	76.9	-.0348	749154
17	170	237	-.3412A	.1590	.88	-1.8	.76	-1.6	.48	.37	77.8	74.4	-.0229	749226
18	144	237	.2294A	.1501	.99	-.1	.94	-.5	.41	.40	69.7	70.9	.0232	749227
19	76	237	1.7633A	.1596	1.08	1.0	1.18	1.4	.31	.41	75.6	75.5	.0418	749228
20	139	237	.3590A	.1491	1.27	4.3	1.45	3.7	.17	.41	61.5	70.4	.0050	749229
21	119	237	.7854A	.1482	1.14	2.3	1.22	2.2	.30	.42	62.8	70.0	.0188	749230
22	145	237	.2294A	.1501	.93	-1.2	.86	-1.2	.46	.40	73.5	70.9	.0003	749231
23	143	237	.2728A	.1497	1.13	2.1	1.36	3.0	.29	.40	67.5	70.7	.0019	749719
24	166	237	-.2688A	.1574	.96	-.6	.87	-.9	.42	.37	75.6	73.8	.0058	749720
25	159	237	-.1049A	.1544	1.14	2.1	1.17	1.2	.26	.38	65.0	72.7	.0117	749721
26	30	141	2.5279	.2430	1.20	1.4	1.46	1.6	.29	.41	80.4	83.1	.0005	827081
27	68	96	-.1392	.2440	1.09	.8	1.08	.4	.22	.32	69.8	73.6	.0018	827082
28	38	96	1.4618	.2334	.95	-.5	.93	-.5	.39	.36	69.8	71.0	.0023	827083
29	39	96	1.4076	.2324	1.04	.5	1.03	.3	.30	.36	68.8	70.5	.0023	827084
30	62	96	.2020	.2340	1.16	1.7	1.16	.9	.17	.34	63.5	71.0	.0018	827085
31	100	141	-.4327	.2072	.78	-2.6	.63	-2.0	.58	.39	81.9	74.2	-.0018	827086
32	59	96	.3638	.2308	1.25	2.6	1.34	1.9	.09	.35	59.4	69.9	.0019	827087
33	65	141	.9364	.1969	.94	-.6	.92	-.6	.48	.45	76.8	71.9	-.0009	827089
34	40	96	1.3538	.2314	.96	-.5	.91	-.6	.41	.36	71.9	70.0	.0023	827091
35	79	96	-.8873	.2838	.92	-.5	.95	.0	.37	.27	81.3	82.4	.0018	827092
36	92	141	-.1021	.2000	.86	-1.7	.88	-.7	.52	.41	79.0	72.2	-.0017	827093
37	69	141	.7825	.1957	1.17	2.0	1.20	1.5	.31	.45	65.2	71.4	-.0010	827094
38	81	141	.3259	.1954	.87	-1.7	.81	-1.3	.54	.44	74.6	70.8	-.0014	827096
39	82	96	-1.1458	.3045	.92	-.4	.62	-1.0	.38	.25	85.4	85.4	.0018	827097
40	78	141	.4401	.1950	.85	-2.0	.76	-1.9	.56	.44	74.6	70.8	-.0013	827098
41	90	141	-.0226	.1988	1.04	.6	1.12	.7	.38	.42	69.6	71.8	-.0016	827100
MEAN	119.5	190.8	.1725	.1854	1.00	.0	.98	-.1			73.6	73.9	-.0016	
P.SD	50.0	59.5	.8376	.0399	.12	1.6	.22	1.4			6.7	4.7	.0192	

Grade 5 ELA

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	ELA
1	145	250	.3904A	.1431	1.26	4.4	1.44	3.9	.14	.38	59.0	69.6	.0066	651139
2	174	250	-.1984A	.1521	.88	-1.7	.77	-1.8	.49	.37	77.1	74.0	-.0324	651154
3	123	250	.8215A	.1414	.91	-1.8	.87	-1.4	.44	.37	71.9	68.6	.0182	673823
4	207	250	-1.1099A	.1833	.89	-1.0	.81	-.9	.42	.35	85.9	84.2	-.0307	675877
5	120	250	.8799A	.1414	.96	-.7	.90	-1.0	.41	.37	66.3	68.6	.0198	691070
6	191	250	-.6368A	.1642	1.03	.4	.95	-.2	.34	.36	77.9	78.9	-.0199	691073
7	169	250	-.1091A	.1502	.94	-.9	.86	-1.1	.44	.37	73.5	73.1	-.0066	691075
8	213	250	-1.3226A	.1942	1.00	.0	1.39	1.5	.28	.34	87.1	86.3	-.0351	691077
9	208	250	-1.1437A	.1849	.97	-.2	.88	-.5	.36	.34	84.7	84.5	-.0314	691078
10	191	250	-.6368A	.1642	.86	-1.7	.72	-1.8	.50	.36	81.9	78.9	-.0199	691080
11	171	250	-.1535A	.1511	.83	-2.7	.77	-1.9	.53	.37	77.5	73.5	-.0077	707801
12	178	250	-.2901A	.1542	.99	-.1	.96	-.2	.38	.37	76.3	75.0	-.0355	707802
13	157	250	.1469A	.1459	1.30	4.6	1.51	4.0	.10	.38	57.4	71.1	.0001	707803
14	103	250	1.2148A	.1431	.81	-3.7	.72	-2.9	.54	.36	75.1	69.6	.0285	707806
15	226	250	-1.9096A	.2330	.95	-.2	.74	-.8	.36	.31	90.8	91.2	-.0444	707807
16	162	250	.0421A	.1475	.92	-1.3	.87	-1.2	.45	.38	76.7	71.9	-.0027	749158
17	216	250	-1.4398A	.2009	.78	-1.7	.48	-2.4	.53	.33	89.2	87.5	-.0374	749163
18	112	250	1.0364A	.1419	.93	-1.3	.87	-1.3	.43	.37	71.5	68.9	.0239	749164
19	115	250	.9775A	.1417	1.02	.4	.98	-.1	.37	.37	68.7	68.7	.0224	749240
20	134	250	.6073A	.1417	1.29	5.0	1.48	4.3	.12	.38	54.6	68.8	.0124	749241
21	159	250	.1052A	.1465	1.06	1.0	1.08	.7	.32	.38	68.7	71.4	-.0010	749247
22	152	250	.2495A	.1446	.84	-3.0	.76	-2.4	.53	.38	76.3	70.4	.0029	749251
23	156	250	.1676A	.1456	.78	-4.1	.68	-3.3	.60	.38	81.1	71.0	.0006	751398
24	111	250	1.0560A	.1420	1.32	5.4	1.50	4.3	.05	.37	55.8	69.0	.0244	751399
25	102	250	1.2550A	.1435	1.12	2.1	1.45	3.7	.22	.36	68.3	69.7	.0091	755215
26	79	135	.2953	.1921	1.04	.6	.95	-.3	.31	.35	61.9	67.9	-.0002	827102
27	85	115	-.4268	.2381	.99	.0	.93	-.2	.40	.39	74.8	77.5	.0023	827103
28	109	135	-1.0218	.2404	.97	-.2	1.26	1.0	.34	.34	83.6	82.9	-.0002	827104
29	73	115	.1945	.2196	.93	-.7	.87	-.7	.47	.41	75.7	73.2	.0025	827105
30	70	135	.6219	.1894	.97	-.4	.98	-.1	.35	.34	72.4	66.5	-.0002	827106
31	78	135	.3321	.1916	.93	-1.0	.92	-.5	.41	.35	73.1	67.7	-.0002	827107
32	75	135	.4416	.1905	.84	-2.6	.76	-1.9	.51	.34	73.9	67.0	-.0002	827108
33	99	135	-.5115	.2139	.93	-.6	.79	-1.1	.43	.35	78.4	76.8	-.0002	827110
34	90	135	-.1267	.2007	1.09	1.0	1.14	.9	.25	.35	69.4	72.0	-.0002	827111
35	44	115	1.5243	.2169	.98	-.1	1.03	.2	.37	.39	73.9	71.4	.0029	827112
36	67	135	.7294	.1893	1.05	.8	1.15	1.2	.28	.34	63.4	66.6	-.0002	827113
37	35	115	1.9662	.2273	1.35	3.1	1.63	2.6	.09	.36	69.6	74.7	.0030	827114
38	72	115	.2425	.2187	1.24	2.4	1.56	2.9	.21	.41	66.1	73.0	.0025	827115
39	77	115	-.0020	.2242	.97	-.2	.84	-.8	.44	.41	73.0	74.1	.0024	827118
40	83	115	-.3156	.2339	.82	-1.6	.67	-1.6	.56	.40	80.0	76.4	.0023	827119
41	41	115	1.6671	.2196	.93	-.7	.89	-.6	.42	.38	74.8	72.2	.0029	831557
MEAN	126.1	201.2	.1368	.1792	.99	-.1	1.00	.0			73.6	73.8	-.0028	
P.SD	52.6	61.3	.8622	.0342	.15	2.2	.28	2.0			8.5	6.1	.0178	

Grade 6 ELA

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	ELA
1	187	285	-.0059A	.1377	.86	-2.6	.76	-2.7	.51	.36	75.4	70.9	-.0142	651278
2	223	285	-.7545A	.1556	.88	-1.6	.81	-1.3	.45	.33	81.9	79.2	-.0309	675933
3	246	285	-1.4299A	.1858	1.09	.8	1.75	2.9	.12	.30	87.9	87.1	-.0187	691089
4	194	285	-.1390A	.1399	.88	-2.1	.81	-1.9	.47	.36	78.3	72.0	-.0165	691091
5	209	285	-.4623A	.1469	.97	-.4	.85	-1.2	.39	.35	75.1	75.4	-.0012	691096
6	188	285	-.0436A	.1383	.86	-2.5	.77	-2.5	.50	.36	76.2	71.1	.0047	707809
7	169	285	.3216A	.1341	1.07	1.4	1.03	.4	.30	.37	64.8	69.2	-.0095	707812
8	252	285	-1.6507A	.1992	.87	-.9	.61	-1.7	.41	.29	90.0	89.2	-.0225	707817
9	145	285	.7243A	.1325	.98	-.4	.93	-.8	.40	.38	69.8	68.8	.0124	707821
10	182	285	.0869A	.1365	.93	-1.3	.93	-.7	.44	.37	74.4	70.2	-.0127	707822
11	155	285	.5677A	.1327	.97	-.7	1.05	.6	.39	.38	73.7	68.7	-.0066	749166
12	208	285	-.4201A	.1459	.81	-3.0	.69	-2.8	.53	.35	79.7	74.9	-.0223	749167
13	208	285	-.4201A	.1459	.80	-3.2	.66	-3.2	.55	.35	80.4	74.9	-.0223	749169
14	89	285	1.7463A	.1420	1.19	2.8	1.28	2.1	.17	.35	70.1	73.8	.0208	749170
15	153	285	.5677A	.1327	.98	-.3	1.03	.4	.39	.38	70.8	68.7	.0286	749218
16	167	285	.3393A	.1339	1.16	3.0	1.14	1.6	.22	.37	59.1	69.2	.0089	749219
17	203	285	-.3374A	.1439	.85	-2.4	.81	-1.7	.50	.35	80.1	74.0	.0008	749220
18	208	285	-.3785A	.1449	1.15	2.2	1.36	2.8	.18	.35	71.2	74.4	-.0647	749233
19	152	285	.6200A	.1326	1.02	.5	1.03	.4	.35	.38	67.6	68.7	-.0061	749234
20	174	285	.1962A	.1352	1.19	3.4	1.20	2.2	.20	.37	60.5	69.7	.0258	749250
21	191	285	-.1197A	.1396	1.20	3.3	1.31	2.8	.16	.36	63.0	71.8	.0233	751420
22	172	285	.2502A	.1347	.91	-1.8	.88	-1.5	.46	.37	73.0	69.5	.0079	751421
23	202	285	-.3374A	.1439	.97	-.4	.97	-.2	.39	.35	74.7	74.0	.0218	751422
24	104	285	1.4368A	.1370	1.04	.8	1.15	1.4	.29	.37	73.0	71.4	.0368	751423
25	204	285	-.3578A	.1444	.80	-3.3	.68	-3.0	.56	.35	79.7	74.2	.0004	751424
26	33	128	1.9174	.2187	1.35	3.0	1.81	2.9	-.09	.30	71.7	75.9	.0019	827121
27	106	157	-.0258	.1888	1.14	1.7	1.07	.6	.24	.37	66.9	71.7	-.0006	827122
28	122	157	-.6487	.2085	1.00	.0	.94	-.2	.32	.33	79.2	78.5	-.0007	827123
29	74	157	1.0395	.1810	.98	-.2	.97	-.2	.40	.40	71.4	70.0	-.0003	827124
30	73	128	.3035	.1970	.85	-2.1	.78	-1.9	.50	.36	75.6	68.2	.0016	827125
31	83	157	.7463	.1804	1.06	.8	1.04	.4	.34	.39	66.9	69.6	-.0004	827126
32	76	157	.9741	.1807	.85	-2.2	.83	-1.7	.54	.40	77.9	69.8	-.0004	827127
33	47	128	1.3077	.2011	1.32	3.6	1.32	1.8	.06	.33	55.9	70.2	.0018	827129
34	70	128	.4193	.1960	1.24	3.2	1.22	1.7	.12	.35	52.8	67.8	.0017	827130
35	119	157	-.5215	.2034	.84	-1.7	.63	-2.2	.52	.34	77.9	76.8	-.0007	827131
36	82	128	-.0551	.2030	1.07	.8	1.02	.2	.29	.35	68.5	70.3	.0016	827133
37	80	128	.0266	.2013	1.04	.5	1.01	.1	.32	.35	65.4	69.7	.0016	827135
38	67	157	1.2711	.1830	1.48	5.5	1.58	4.4	-.01	.39	52.6	70.7	-.0003	827137
39	56	128	.9537	.1962	.89	-1.5	.85	-1.1	.45	.34	73.2	68.4	.0018	827138
40	128	157	-.9254	.2218	.87	-1.1	.61	-1.9	.46	.31	83.1	82.0	-.0007	827139
41	63	128	.6863	.1951	.85	-2.2	.80	-1.7	.50	.35	72.4	67.7	.0017	827140
MEAN	143.0	229.4	.1822	.1647	1.01	.0	1.00	-.2			72.2	72.6	-.0011	
P.SD	60.4	70.1	.7788	.0297	.16	2.2	.28	1.9			8.4	4.8	.0174	

Grade 7 ELA

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	ELA
1	205	298	-.2370A	.1353	1.10	1.7	1.15	1.5	.20	.31	66.8	72.0	-.0079	651374
2	233	298	-.7870A	.1490	.93	-.9	.91	-.6	.34	.28	81.2	78.4	-.0202	651383
3	195	298	-.0614A	.1324	.86	-2.7	.77	-2.8	.48	.32	75.5	70.3	-.0043	675942
4	206	298	-.2550A	.1356	.89	-2.0	.78	-2.3	.44	.31	77.2	72.2	-.0083	691099
5	239	298	-.9224A	.1536	.89	-1.3	.71	-2.1	.40	.27	80.5	80.2	-.0235	691106
6	237	298	-.8763A	.1520	.84	-2.0	.82	-1.3	.44	.27	79.9	79.6	-.0224	691107
7	264	298	-1.6238A	.1873	.94	-.4	.92	-.3	.24	.22	88.9	88.3	-.0425	691112
8	220	298	-.5180A	.1413	.85	-2.4	.71	-2.7	.47	.30	77.2	75.1	-.0141	707863
9	118	298	1.1893A	.1299	1.02	.4	1.03	.5	.30	.33	69.5	69.5	.0199	707866
10	238	298	-.8992A	.1528	.84	-2.0	.71	-2.2	.45	.27	80.2	79.9	-.0230	707867
11	148	298	.7041A	.1274	1.19	3.8	1.24	3.5	.13	.34	59.7	67.8	.0110	707874
12	203	298	-.2013A	.1346	.98	-.3	.94	-.6	.33	.31	70.5	71.6	-.0071	749172
13	179	298	.2066A	.1293	.87	-2.7	.80	-2.8	.47	.33	72.8	68.8	.0013	749173
14	106	298	1.3927A	.1324	1.14	2.4	1.17	2.1	.19	.33	65.4	71.0	.0234	749174
15	186	298	.0909A	.1305	.87	-2.7	.86	-1.8	.47	.33	76.8	69.3	-.0011	749175
16	216	298	-.4405A	.1394	.91	-1.5	.80	-1.8	.41	.30	75.8	74.2	-.0124	749176
17	212	298	-.3650A	.1378	.92	-1.3	.86	-1.4	.39	.31	77.2	73.3	-.0108	749222
18	179	298	.2066A	.1293	1.10	2.0	1.18	2.3	.22	.33	66.1	68.8	.0013	749235
19	170	298	.3529A	.1282	1.00	-.1	.96	-.5	.34	.33	65.8	68.3	.0041	749242
20	151	298	.6564A	.1273	.97	-.6	1.00	.0	.37	.34	69.5	67.8	.0100	749243
21	180	298	.1902A	.1295	1.06	1.3	1.02	.3	.26	.33	66.8	68.8	.0009	749244
22	187	298	.0742A	.1306	1.30	5.4	1.45	4.9	.00	.33	58.4	69.3	-.0015	751512
23	124	298	1.0903A	.1291	1.04	.7	1.07	1.1	.28	.34	68.8	68.9	.0181	751513
24	110	298	1.3240A	.1315	1.19	3.3	1.23	2.9	.13	.33	61.4	70.5	.0222	751516
25	208	298	-.2913A	.1363	.88	-2.0	.78	-2.3	.44	.31	76.5	72.6	-.0091	751517
26	101	164	.0941	.1744	1.21	2.9	1.24	2.3	.09	.32	59.8	68.8	.0007	827142
27	48	164	1.7056	.1861	1.22	2.4	1.49	3.4	.02	.30	67.7	74.0	.0014	827144
28	95	164	.2741	.1723	1.01	.2	.98	-.1	.31	.32	65.9	67.9	.0008	827145
29	76	134	.4202	.1923	.79	-3.0	.72	-2.8	.57	.35	78.4	69.0	.0026	827146
30	98	134	-.4537	.2110	1.03	.3	.97	-.1	.29	.31	72.4	75.1	.0023	827147
31	26	134	2.4710	.2366	1.43	2.8	2.09	3.7	-.13	.29	75.4	81.9	.0034	827150
32	94	134	-.2807	.2053	.87	-1.4	.76	-1.6	.47	.32	75.4	73.1	.0024	827151
33	122	164	-.5967	.1913	.83	-2.0	.69	-2.2	.50	.28	78.0	75.5	.0005	827152
34	109	164	-.1548	.1788	.83	-2.4	.74	-2.5	.50	.30	77.4	70.7	.0006	827153
35	37	164	2.1147	.2007	1.03	.3	1.01	.1	.25	.28	78.7	78.4	.0015	827154
36	59	134	1.0435	.1926	.93	-1.0	.93	-.6	.40	.35	73.1	68.9	.0029	827155
37	94	164	.3038	.1721	.92	-1.2	.90	-1.1	.41	.32	73.8	67.8	.0008	827156
38	76	134	.4202	.1923	.98	-.3	.97	-.2	.37	.35	70.9	69.0	.0026	827158
39	69	134	.6768	.1911	.85	-2.2	.82	-1.9	.51	.35	76.1	68.5	.0027	827159
40	68	134	.7133	.1911	1.13	1.8	1.14	1.4	.21	.35	61.9	68.5	.0027	827160
41	81	164	.6842	.1708	1.36	5.3	1.44	4.9	-.07	.33	50.0	67.3	.0009	827161
MEAN	145.5	239.9	.2301	.1586	1.00	.0	.99	-.1			71.8	72.2	-.0017	
P.SD	65.0	73.3	.8417	.0298	.15	2.2	.27	2.2			7.6	4.7	.0126	

Grade 8 ELA

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL CORR.	EXP.	EXACT MATCH OBS%	EXP%	DISPLACE	ELA
1	206	304	-.1217A	.1396	1.06	.9	1.12	.9	.38	.42	74.7	74.3	.0082	651408
2	194	304	.1218A	.1365	.89	-1.9	.88	-1.0	.52	.43	77.6	73.1	-.0073	651418
3	217	304	-.3382A	.1435	.92	-1.3	.93	-.5	.48	.41	76.0	75.8	.0048	651430
4	227	304	-.5252A	.1476	.98	-.2	.95	-.3	.43	.40	77.3	77.5	-.0209	691115
5	138	304	1.1120A	.1336	1.08	1.4	1.08	.8	.36	.44	69.7	72.3	.0048	691116
6	263	304	-1.4819A	.1830	.82	-1.6	.51	-2.2	.48	.33	88.5	87.4	-.0189	691118
7	243	304	-.8905A	.1580	.94	-.7	.82	-.9	.43	.37	82.2	81.3	-.0314	691124
8	160	304	.7259A	.1329	1.05	.9	1.00	.0	.41	.44	70.4	72.1	.0012	691127
9	204	304	-.0645A	.1388	.86	-2.4	.94	-.4	.54	.42	79.9	73.9	-.0107	707828
10	217	304	-.3180A	.1431	1.08	1.2	1.11	.8	.34	.41	72.7	75.7	-.0159	707830
11	234	304	-.6790A	.1516	.77	-3.2	.55	-3.1	.59	.39	82.2	79.0	-.0250	707834
12	143	304	1.0237A	.1333	.95	-.9	.90	-.9	.47	.44	72.4	72.2	.0041	751448
13	235	304	-.7245A	.1529	1.02	.3	.96	-.2	.38	.39	77.6	79.5	-.0021	751449
14	247	304	-1.0166A	.1625	.98	-.2	.80	-1.0	.39	.37	82.9	82.7	-.0081	751451
15	178	304	.4097A	.1340	.95	-1.0	.91	-.9	.49	.44	73.4	72.4	-.0028	751452
16	204	304	-.0835A	.1391	.82	-3.1	.74	-2.2	.58	.42	80.6	74.0	.0088	751453
17	233	304	-.6565A	.1510	.88	-1.7	.70	-1.9	.49	.39	82.2	78.8	-.0244	751454
18	216	304	-.3180A	.1431	1.10	1.5	1.09	.7	.32	.41	72.4	75.7	.0051	751456
19	214	304	-.2780A	.1423	.87	-2.1	.82	-1.3	.53	.41	78.3	75.4	.0058	751458
20	164	304	.6385A	.1331	1.36	5.7	1.50	4.4	.17	.44	60.5	72.2	.0179	751459
21	179	304	.3920A	.1341	.87	-2.3	.80	-2.0	.53	.44	78.3	72.4	-.0031	751461
22	171	304	.5332A	.1334	1.11	2.0	1.24	2.3	.35	.44	67.8	72.3	-.0011	751462
23	109	304	1.6228A	.1379	1.05	.8	1.01	.1	.38	.42	71.7	74.5	.0264	751463
24	218	304	-.3382A	.1435	.84	-2.6	.69	-2.4	.55	.41	78.3	75.8	-.0163	751464
25	129	304	1.2546A	.1344	1.24	3.7	1.26	2.3	.25	.44	63.8	72.7	.0238	751467
26	89	134	-.0636	.2090	1.01	.1	.89	-.6	.43	.43	72.4	74.0	-.0015	827162
27	111	134	-1.1970	.2552	1.08	.6	1.27	.9	.27	.37	85.8	84.6	-.0021	827163
28	113	134	-1.3318	.2641	.78	-1.4	.45	-1.8	.56	.36	87.3	86.0	-.0022	827164
29	110	134	-1.1329	.2512	.92	-.5	.72	-.8	.45	.38	85.1	83.9	-.0021	827165
30	108	170	.1503	.1821	.79	-2.8	.66	-2.4	.60	.43	81.2	73.0	.0037	827166
31	80	170	1.0450	.1784	1.24	2.9	1.35	2.5	.26	.44	60.0	71.9	.0040	827168
32	69	134	.7613	.2002	.94	-.6	.88	-.7	.47	.44	72.4	72.4	-.0008	827169
33	93	170	.6336	.1780	.87	-1.8	.76	-1.9	.55	.44	75.9	72.0	.0038	827171
34	111	170	.0502	.1836	.85	-1.9	.89	-.6	.55	.42	79.4	73.4	.0037	827172
35	105	134	-.8381	.2352	.99	.0	.87	-.4	.41	.39	79.9	80.6	-.0020	827173
36	86	170	.8548	.1778	1.39	4.6	1.43	3.1	.13	.45	56.5	71.7	.0039	827175
37	67	134	.8413	.2001	1.00	.0	.98	-.1	.44	.44	73.1	72.5	-.0007	827176
38	76	170	1.1728	.1793	1.62	6.6	1.83	5.1	-.04	.44	52.4	72.3	.0040	827177
39	29	134	2.5257	.2344	1.25	1.9	1.73	2.1	.15	.34	76.1	80.5	.0005	827178
40	92	170	.6653	.1779	.84	-2.2	.73	-2.2	.57	.44	77.6	72.0	.0039	827180
41	131	170	-.6844	.2030	1.09	.9	1.51	1.9	.28	.38	80.0	79.2	.0035	827181
MEAN	156.4	244.7	.0842	.1681	1.00	.0	.98	-.1			75.3	75.9	-.0014	
P.SD	61.9	75.0	.8752	.0373	.18	2.3	.31	1.9			7.9	4.4	.0118	

Grade 11 ELA

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	ELA
1	198	273	-.4228A	.1500	.91	-1.3	.87	-.9	.44	.37	78.9	75.3	-.0062	651429
2	106	273	1.3647A	.1412	.96	-.6	1.20	1.8	.39	.40	75.2	72.0	.0180	651440
3	178	273	-.0039A	.1422	.87	-2.3	.83	-1.6	.51	.39	77.0	71.9	-.0001	691130
4	184	273	-.1251A	.1440	.83	-2.9	.77	-2.1	.54	.38	78.1	72.7	-.0018	691140
5	229	273	-1.1926A	.1761	.94	-.5	.77	-1.1	.36	.32	84.8	84.1	-.0519	691142
6	172	273	.1145A	.1407	.94	-1.1	.94	-.6	.45	.39	73.3	71.2	.0015	691144
7	235	273	-1.4217A	.1874	.97	-.2	1.17	.8	.28	.30	87.4	86.4	-.0237	691145
8	222	273	-1.0162A	.1686	.87	-1.5	.67	-1.9	.45	.33	83.7	82.2	-.0163	707886
9	190	273	-.2497A	.1463	1.05	.8	.98	-.1	.33	.38	73.7	73.7	-.0037	707888
10	183	273	-.1046A	.1437	1.04	.7	1.24	2.0	.33	.38	74.1	72.5	-.0016	749178
11	217	273	-.8800A	.1634	.87	-1.5	.69	-1.9	.46	.34	81.1	80.6	-.0138	749180
12	114	273	1.2089A	.1395	1.06	1.1	1.18	1.7	.33	.40	69.6	71.2	.0160	749181
13	187	273	-.1869A	.1451	1.00	.0	1.09	.7	.38	.38	73.3	73.2	-.0027	749182
14	226	273	-1.1320A	.1734	.82	-1.9	.59	-2.3	.49	.32	84.4	83.5	-.0184	749183
15	109	273	1.3058A	.1405	1.04	.7	1.10	1.0	.35	.40	71.9	71.7	.0173	749184
16	127	273	.9621A	.1379	.94	-1.1	.89	-1.2	.45	.41	70.4	70.2	.0127	749236
17	155	273	.4393A	.1380	.94	-1.1	.90	-1.1	.46	.40	73.0	70.0	.0059	749237
18	213	273	-.7767A	.1599	.97	-.3	.93	-.4	.37	.35	80.0	79.4	-.0120	749238
19	148	273	.5703A	.1375	.81	-3.6	.79	-2.5	.56	.40	78.5	69.9	.0076	749248
20	117	273	1.1514A	.1391	1.38	5.9	1.53	4.8	.08	.41	59.6	71.0	.0152	749249
21	212	273	-.7516A	.1591	.94	-.7	.91	-.5	.38	.35	82.6	79.1	-.0116	749252
22	226	273	-1.1320A	.1734	.92	-.8	.75	-1.2	.41	.32	84.4	83.5	-.0184	749253
23	98	273	1.5248A	.1433	1.24	3.5	1.31	2.5	.20	.40	65.2	73.1	.0201	751400
24	139	273	.7380A	.1373	.89	-2.2	.86	-1.6	.50	.41	76.3	69.9	.0098	751634
25	178	273	.0160A	.1419	1.17	2.8	1.25	2.2	.23	.39	63.7	71.7	-.0203	751636
26	65	121	.3120	.2031	1.24	3.1	1.29	2.0	.15	.38	53.7	68.5	-.0001	827182
27	112	152	-.2680	.2041	1.15	1.5	1.10	.6	.23	.37	73.8	76.1	.0011	827183
28	126	152	-.9260	.2333	.82	-1.4	.63	-1.5	.50	.32	83.9	83.3	.0010	827184
29	94	121	-1.0270	.2387	.93	-.5	.78	-.9	.40	.33	83.5	79.7	-.0003	827185
30	75	152	1.0740	.1852	.92	-1.1	.88	-1.1	.49	.41	73.8	70.2	.0016	827187
31	72	152	1.1771	.1856	1.48	5.6	1.71	5.5	.00	.41	51.7	70.3	.0016	827188
32	65	152	1.4205	.1876	1.09	1.2	1.23	1.9	.30	.41	69.8	70.8	.0017	827189
33	56	121	.6831	.2037	.99	-.1	.97	-.2	.39	.38	70.2	69.2	-.0001	827190
34	45	121	1.1514	.2101	1.01	.1	.99	.0	.35	.37	74.4	71.8	.0000	827191
35	92	152	.4874	.1878	.75	-3.5	.69	-2.8	.62	.40	83.9	71.0	.0014	827192
36	57	121	.6417	.2034	.85	-2.0	.80	-1.5	.51	.38	77.7	69.1	-.0001	827193
37	59	121	.5591	.2030	1.13	1.6	1.16	1.1	.26	.38	66.1	68.9	-.0001	827194
38	113	152	-.3100	.2055	1.06	.7	1.28	1.4	.30	.37	76.5	76.5	.0011	827195
39	54	121	.7663	.2044	.85	-1.9	.81	-1.4	.51	.38	76.9	69.4	-.0001	827197
40	114	152	-.3525	.2070	.91	-.9	.75	-1.3	.46	.36	78.5	76.9	.0011	827198
41	63	121	.3944	.2029	1.36	4.4	1.32	2.2	.05	.38	47.9	68.6	-.0001	827199
MEAN	137.2	219.7	.1411	.1716	1.00	.0	.99	.0			74.2	74.2	-.0017	
P.SD	59.6	67.3	.8483	.0298	.16	2.2	.25	1.9			9.0	5.1	.0130	

Appendix L: Mathematics Item Bank Difficulties

Grade 3 Mathematics

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL CORR.	EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	MATH
1	215	236	-2.2120A	.2630	1.12	.6	.70	-.6	.35	.24	91.8	92.6	.2439	650592
2	189	236	-1.4362A	.2057	1.33	2.4	1.12	.5	.41	.31	80.3	86.7	.5634	650600
3	176	236	-.3470A	.1641	.87	-1.8	1.09	.6	.47	.40	82.0	76.1	-.1497	650603
4	171	236	-.5754A	.1699	.95	-.6	.79	-1.1	.52	.39	78.1	78.1	.2269	673355
5	179	236	-.2957A	.1629	.86	-1.9	.71	-1.9	.45	.41	78.1	75.7	-.2923	676130
6	210	236	-1.8283A	.2311	1.02	.2	.65	-.9	.38	.28	88.8	90.1	.1268	690921
7	170	236	-.5685A	.1697	.86	-1.7	.71	-1.7	.60	.39	80.3	78.0	.2472	690924
8	171	236	-.3283A	.1637	.93	-.9	.83	-1.0	.46	.41	74.7	75.9	-.0265	707612
9	200	236	-1.4051A	.2040	.90	-.8	.64	-1.3	.49	.32	86.3	86.4	.1394	707614
10	142	236	.4020A	.1531	.86	-2.2	.81	-1.7	.53	.44	78.5	72.5	-.0344	707624
11	188	236	-.4381A	.1662	.84	-2.1	.66	-2.2	.42	.40	80.3	76.8	-.4314	707627
12	156	236	.4470A	.1528	1.05	.8	.95	-.4	.38	.44	68.2	72.5	-.4237	707628
13	187	236	-.5777A	.1700	.93	-.8	.93	-.3	.37	.39	80.7	78.1	-.2509	748785
14	180	236	-.1863A	.1607	.98	-.3	.93	-.4	.33	.41	75.5	74.9	-.4372	748787
15	152	236	.1241A	.1558	1.29	3.9	1.98	6.0	.19	.43	62.7	73.2	.0054	748789
16	121	236	.5393A	.1522	1.11	1.6	1.20	1.8	.38	.44	69.1	72.3	.3155	748791
17	168	236	-.0045A	.1576	.74	-4.1	.60	-3.4	.60	.42	82.4	73.9	-.2778	748792
18	149	236	.3036A	.1539	.94	-1.0	.83	-1.5	.48	.44	75.1	72.8	-.1035	748794
19	140	236	.3727A	.1533	1.02	.4	1.00	.1	.43	.44	71.7	72.6	.0427	748795
20	144	236	.1241A	.1558	.97	-.4	.96	-.3	.48	.43	77.3	73.2	.1995	748796
21	165	236	-.4800A	.1673	.87	-1.7	.64	-2.2	.61	.39	75.5	77.2	.2906	748798
22	171	236	-.1340A	.1597	.97	-.4	.87	-.9	.40	.42	73.4	74.6	-.2272	748800
23	110	236	.8095A	.1515	1.03	.4	.98	-.1	.43	.45	72.1	71.9	.2972	748801
24	182	236	-.6660	.1726	.95	-.6	.77	-1.2	.44	.38	79.4	79.0	.0010	748802
25	124	236	.6549A	.1518	1.11	1.7	1.09	.8	.38	.45	67.4	72.1	.1303	748803
26	54	111	.9454	.2272	.77	-2.3	.65	-2.5	.64	.49	79.8	74.0	-.0013	829075
27	43	125	1.7983	.2133	1.19	2.0	1.41	2.3	.19	.38	70.2	73.2	.0038	829076
28	38	125	2.0324	.2196	1.11	1.1	1.27	1.4	.25	.37	69.4	75.1	.0039	829077
29	81	111	-.4828	.2423	.84	-1.6	.65	-1.3	.55	.42	83.5	76.4	-.0012	829078
30	46	125	1.6637	.2104	1.24	2.5	1.32	1.9	.22	.39	62.9	72.3	.0038	829079
31	74	125	.4830	.2066	1.32	3.3	1.25	1.7	.14	.41	55.6	71.8	.0034	829080
32	78	111	-.3104	.2373	.99	-.1	.85	-.5	.44	.43	76.1	75.0	-.0012	829081
33	70	111	.1227	.2290	1.02	.2	.90	-.4	.45	.46	71.6	73.0	-.0012	829082
34	77	125	.3540	.2084	.78	-2.6	.69	-2.3	.60	.41	80.6	72.4	.0033	829083
35	59	125	1.1095	.2040	1.60	6.2	1.85	5.5	-.09	.41	48.4	70.0	.0036	829084
36	66	111	.3304	.2270	1.12	1.2	1.30	1.6	.37	.47	72.5	73.0	-.0012	829085
37	61	125	1.0264	.2038	1.43	4.6	1.50	3.5	.04	.41	51.6	70.0	.0036	829086
38	71	125	.6100	.2052	.95	-.5	.91	-.6	.44	.41	71.0	71.2	.0034	829087
39	56	111	.8424	.2266	1.09	.9	1.17	1.1	.41	.49	72.5	73.8	-.0013	829088
40	69	111	.1750	.2284	1.18	1.8	1.21	1.1	.33	.46	68.8	72.9	-.0012	829089
41	49	111	1.2062	.2298	1.14	1.3	1.26	1.5	.34	.49	72.5	74.8	-.0013	829090
MEAN	125.7	190.0	.1024	.1899	1.03	.2	.99	.0			74.1	75.5	.0047	
P.SD	55.4	57.7	.8938	.0327	.18	2.1	.32	2.0			8.8	5.0	.2051	

Grade 4 Mathematics

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	MATH
1	163	225	-.2778	.1671	.99	-.2	.95	-.3	.41	.40	75.0	75.4	.0003	650757
2	169	225	-.2864A	.1673	.87	-1.7	.75	-1.6	.47	.40	79.5	75.5	-.1692	650764
3	142	225	.2814A	.1579	.92	-1.1	.90	-.8	.50	.44	74.1	72.3	-.0085	650766
4	169	225	-.4676A	.1719	.91	-1.1	.85	-.8	.47	.39	79.5	77.1	.0190	650770
5	175	225	-.5542A	.1745	.82	-2.2	.68	-1.7	.52	.38	80.9	77.9	-.0799	650779
6	148	225	.0776A	.1605	.92	-1.2	.82	-1.3	.51	.43	74.1	73.3	.0451	650784
7	175	225	-.4985A	.1728	.88	-1.4	.67	-1.9	.45	.38	77.3	77.3	-.1381	650785
8	169	225	-.4648A	.1719	.94	-.8	1.18	1.0	.43	.39	80.5	77.0	.0161	650792
9	105	225	1.0955A	.1556	.97	-.5	.99	.0	.48	.46	74.1	72.0	.0752	650931
10	178	225	-.5058A	.1730	.76	-3.2	.56	-2.7	.54	.38	81.4	77.4	-.2309	676143
11	144	225	.2226	.1586	.73	-4.4	.64	-3.2	.66	.43	82.7	72.6	.0004	676160
12	165	225	-.0971A	.1634	1.06	.9	1.26	1.7	.29	.42	71.8	74.2	-.2456	676163
13	129	225	.4532A	.1564	.97	-.5	.90	-.9	.48	.45	69.5	71.8	.1404	690946
14	100	225	1.0101A	.1553	1.03	.4	1.00	.0	.42	.46	70.9	71.8	.2823	707635
15	118	225	.8472A	.1551	1.27	3.8	1.28	2.6	.22	.46	61.4	71.5	.0100	707640
16	167	225	-.0566A	.1626	.88	-1.7	.78	-1.5	.44	.42	76.4	74.0	-.3480	707641
17	127	225	.2135A	.1587	.97	-.4	1.01	.1	.54	.43	75.0	72.6	.4311	707642
18	181	225	-.9866A	.1905	.95	-.4	.67	-1.4	.49	.34	78.6	82.5	.1660	707645
19	183	225	-.8981A	.1868	.88	-1.2	.79	-.9	.46	.35	82.3	81.5	.0036	748805
20	155	225	-.3041A	.1677	1.00	.0	.89	-.6	.49	.40	75.0	75.7	.2496	748807
21	123	225	1.0325A	.1554	1.18	2.5	1.19	1.9	.32	.46	65.9	71.8	-.2957	748809
22	167	225	-.8118A	.1833	1.21	2.1	1.21	.9	.38	.36	76.8	80.6	.4301	748811
23	144	225	.1832A	.1590	.97	-.5	1.05	.4	.47	.43	75.0	72.7	.0406	748812
24	198	225	-1.5266A	.2201	.87	-.9	.58	-1.4	.43	.29	88.6	88.1	.0293	748814
25	168	225	-.1995A	.1654	.82	-2.5	.67	-2.3	.50	.41	79.5	74.9	-.2293	748815
26	169	225	-.0385A	.1623	1.02	.4	1.27	1.8	.29	.42	73.6	73.9	-.4284	748816
27	143	225	.5541A	.1558	.97	-.5	.91	-.8	.45	.45	71.8	71.7	-.3118	748819
28	110	225	.6421A	.1554	1.15	2.2	1.16	1.5	.36	.45	65.5	71.6	.4089	748821
29	145	225	.1974	.1589	1.03	.4	1.00	.0	.41	.43	71.8	72.7	.0004	748822
30	122	225	.7604	.1551	.94	-.9	.88	-1.2	.50	.45	73.2	71.5	.0005	748823
31	54	94	.5928	.2373	.82	-1.9	.75	-1.6	.59	.42	78.7	71.1	-.0003	826394
32	72	131	.7177	.2057	1.15	1.7	1.19	1.4	.36	.47	66.7	71.9	.0011	829091
33	60	94	.2493	.2419	1.11	1.1	1.09	.5	.31	.41	69.1	72.4	-.0003	829092
34	92	131	-.1606	.2170	1.11	1.2	1.02	.2	.34	.43	68.3	74.4	.0008	829093
35	69	131	.8445	.2056	1.06	.7	1.21	1.6	.43	.48	69.8	72.0	.0012	829095
36	58	94	.3653	.2399	1.07	.7	1.10	.6	.36	.42	69.1	71.8	-.0003	829096
37	79	131	.4198	.2073	1.54	5.3	1.73	4.1	.05	.46	54.0	72.2	.0010	829097
38	35	94	1.6721	.2449	1.31	2.5	1.46	2.5	.15	.42	61.7	74.0	-.0001	829098
39	51	131	1.6242	.2131	1.10	1.0	1.30	1.8	.38	.47	73.0	74.0	.0015	829099
40	57	94	.4227	.2391	1.59	5.1	1.82	3.8	-.09	.42	51.1	71.6	-.0003	829100
41	46	131	1.8564	.2181	1.24	2.2	1.37	2.0	.29	.47	72.2	75.2	.0016	829101
42	47	94	.9841	.2363	1.00	.1	.95	-.3	.44	.43	71.3	71.1	-.0002	829102
43	79	94	-1.0720	.3015	.84	-.9	.55	-1.2	.48	.31	84.0	84.0	-.0003	829103
44	76	131	.5481	.2064	1.02	.3	1.00	.1	.45	.47	69.8	72.0	.0010	829104
45	99	131	-.5051	.2275	.91	-.8	.89	-.4	.48	.40	79.4	77.2	.0007	829105
46	59	94	.3075	.2409	.98	-.1	1.27	1.4	.43	.41	74.5	72.1	-.0003	829462
MEAN	121.4	185.9	.1840	.1887	1.02	.1	1.00	.1			73.4	74.6	-.0028	
P.SD	47.2	54.7	.7272	.0351	.17	1.9	.28	1.6			7.2	3.7	.1774	

Grade 5 Mathematics

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	MATH
1	122	249	1.0293A	.1431	1.07	1.3	1.08	.8	.33	.40	66.9	69.8	-.0337	651002
2	196	249	-.7191A	.1716	1.01	.2	1.13	.7	.34	.36	81.0	80.7	.0310	651007
3	213	249	-1.1876A	.1928	.88	-1.0	.63	-1.7	.44	.33	86.3	86.0	-.0658	651013
4	220	249	-1.4569A	.2085	.75	-1.9	.43	-2.5	.51	.31	89.9	88.5	-.0905	651017
5	134	249	.1897A	.1483	1.10	1.6	1.08	.7	.44	.40	66.9	72.1	.5614	651022
6	206	249	-.9017A	.1790	.82	-1.8	.69	-1.6	.48	.35	85.1	82.9	-.1009	651025
7	199	249	-.8642A	.1774	.85	-1.5	.67	-1.8	.54	.35	82.3	82.5	.0882	651027
8	111	249	.9270A	.1430	1.18	3.1	1.25	2.4	.24	.40	62.1	69.8	.2927	651030
9	196	249	-.9016A	.1790	.98	-.2	.76	-1.2	.51	.35	80.2	82.9	.2163	651039
10	190	249	-.7169A	.1715	.90	-1.1	.63	-2.2	.57	.36	79.4	80.7	.1996	673368
11	97	249	1.6006A	.1474	.98	-.2	1.02	.2	.38	.38	75.4	71.7	-.0835	673369
12	198	249	-.3782A	.1604	.73	-3.7	.62	-2.8	.51	.38	83.9	76.9	-.3787	676201
13	171	249	-.1446A	.1545	1.01	.2	1.18	1.3	.40	.39	75.4	74.7	.0994	676204
14	209	249	-1.0288A	.1848	.90	-.9	.94	-.2	.39	.34	86.3	84.3	-.0770	707649
15	128	249	.9858A	.1430	1.25	4.1	1.26	2.5	.18	.40	58.9	69.8	-.1123	707655
16	170	249	.5055A	.1447	.87	-2.3	.79	-2.2	.48	.40	74.6	70.5	-.5340	707660
17	195	249	-.4128A	.1614	.76	-3.2	.64	-2.6	.52	.37	84.3	77.3	-.2527	707664
18	151	249	.5055A	.1447	.99	-.1	.98	-.2	.40	.40	71.8	70.5	-.1103	707666
19	111	249	1.3223A	.1445	1.15	2.5	1.17	1.5	.26	.39	62.5	70.5	-.0994	748824
20	211	249	-1.1773	.1923	1.01	.1	2.05	3.4	.26	.33	86.3	85.9	.0006	748825
21	149	249	.4122A	.1456	.97	-.5	.88	-1.1	.43	.40	68.1	70.8	.0260	748827
22	186	249	-.1094A	.1537	1.01	.2	1.07	.6	.29	.39	73.4	74.3	-.3109	748828
23	148	249	.5290A	.1445	.89	-1.9	.84	-1.6	.49	.40	75.4	70.4	-.0701	748829
24	159	249	.7404A	.1433	.95	-.8	.98	-.1	.43	.40	73.8	69.9	-.5181	748830
25	126	249	.3574A	.1461	1.25	3.9	1.25	2.2	.28	.40	58.9	71.2	.5567	748831
26	136	249	.7073	.1435	1.07	1.3	1.20	1.9	.33	.40	66.1	70.0	.0013	748836
27	190	249	-.5987A	.1673	1.09	1.0	1.12	.7	.33	.36	76.2	79.4	.0797	748839
28	135	249	.5332A	.1445	.94	-1.1	.96	-.3	.47	.40	76.6	70.4	.1961	748841
29	145	249	.1758A	.1485	1.07	1.2	.99	.0	.41	.40	66.5	72.2	.3479	748842
30	190	249	-.4128A	.1614	.83	-2.2	.74	-1.7	.49	.37	83.1	77.3	-.1098	748843
31	71	114	.4222	.2188	.93	-.7	.97	-.1	.47	.42	76.1	71.8	-.0005	829106
32	85	114	-.3036	.2400	.90	-.9	.69	-1.4	.50	.39	77.9	77.6	-.0008	829110
33	58	135	1.1937	.1943	1.00	.1	1.06	.4	.36	.38	74.1	69.8	.0028	829111
34	61	135	1.0811	.1933	.98	-.3	1.07	.5	.40	.38	72.6	69.5	.0027	829112
35	57	114	1.0694	.2133	1.01	.2	1.09	.7	.37	.41	72.6	70.2	-.0002	829113
36	84	135	.2185	.1976	.95	-.7	.90	-.6	.44	.38	72.6	70.9	.0024	829114
37	62	135	1.0438	.1931	1.29	3.6	1.33	2.1	.14	.38	57.0	69.4	.0027	829115
38	57	135	1.2316	.1946	.99	-.1	.98	-.1	.37	.38	73.3	69.9	.0028	829116
39	101	114	-1.4815	.3190	.88	-.5	.51	-1.2	.47	.32	87.6	89.1	-.0011	829118
40	83	135	.2574	.1969	.98	-.2	.90	-.6	.41	.38	68.9	70.7	.0024	829119
41	51	114	1.3431	.2143	1.28	3.0	1.40	2.5	.15	.41	58.4	70.7	-.0001	829120
42	65	114	.7038	.2150	1.06	.7	1.07	.5	.35	.42	67.3	70.9	-.0003	829121
43	66	135	.8953	.1925	1.29	3.6	1.35	2.3	.14	.39	57.8	69.2	.0027	829122
44	93	114	-.8110	.2661	.76	-1.7	.50	-1.9	.60	.36	85.0	82.9	-.0010	829123
45	34	135	2.1895	.2189	1.28	2.4	1.73	2.6	.01	.34	78.5	77.8	.0029	829124
46	59	114	.9785	.2134	1.31	3.3	1.37	2.5	.14	.42	58.4	70.3	-.0002	829125
MEAN	132.2	205.7	.2074	.1798	1.00	.2	1.00	.1			73.8	74.9	-.0051	
P.SD	55.8	59.6	.8895	.0367	.15	1.9	.31	1.6			9.0	6.0	.2047	

Grade 6 Mathematics

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	MATH
1	186	284	-.3968A	.1446	1.19	2.7	1.21	1.5	.32	.33	69.6	74.6	.4059	651332
2	232	284	-.8940A	.1599	.85	-1.7	.69	-1.9	.40	.30	82.3	81.0	-.1114	651334
3	192	284	-.2479A	.1414	1.06	1.1	1.10	.8	.33	.34	70.3	72.9	.1394	651340
4	222	284	-.8940A	.1599	.92	-.9	.71	-1.7	.48	.30	79.5	81.0	.1496	651348
5	184	284	.0312A	.1367	1.04	.8	.99	.0	.32	.36	66.1	70.4	.0091	651351
6	151	284	.6168A	.1324	.94	-1.3	.90	-1.3	.44	.38	75.3	68.5	.0150	651353
7	192	284	.1599A	.1352	.75	-5.3	.70	-3.6	.57	.36	83.0	69.6	-.2791	651359
8	150	284	.3908A	.1333	.95	-1.0	.90	-1.2	.46	.37	67.8	68.5	.2610	651384
9	163	284	.3908A	.1333	.87	-2.8	.82	-2.3	.51	.37	75.3	68.5	.0301	651392
10	159	284	.6557A	.1324	1.05	.9	1.06	.8	.34	.38	64.7	68.5	-.1667	651398
11	238	284	-1.1235A	.1695	.85	-1.5	.70	-1.6	.42	.28	84.5	83.8	-.0488	690972
12	173	284	.4598A	.1329	.84	-3.3	.76	-3.1	.52	.38	77.7	68.4	-.2223	690974
13	238	284	-1.2248A	.1744	.89	-1.0	.62	-2.0	.44	.28	85.2	85.0	.0556	690981
14	170	284	.7350A	.1324	.89	-2.2	.85	-2.1	.49	.38	70.0	68.8	-.4462	707671
15	222	284	-.8078A	.1568	1.11	1.3	1.07	.5	.24	.31	78.1	79.9	.0613	707672
16	151	284	.6760A	.1324	.92	-1.5	.88	-1.6	.45	.38	71.7	68.6	-.0448	707675
17	137	284	.7529A	.1324	.92	-1.6	.92	-1.1	.45	.38	74.6	68.8	.1250	707677
18	171	284	-.0259A	.1375	1.03	.6	1.02	.2	.41	.36	69.3	70.8	.3084	707678
19	162	284	.4651A	.1329	.95	-1.1	.88	-1.5	.43	.38	71.0	68.4	-.0274	707684
20	165	284	.4634A	.1329	.91	-1.9	.86	-1.7	.46	.38	72.1	68.4	-.0797	748844
21	164	284	.0647A	.1363	1.32	5.6	1.54	4.7	.13	.36	59.7	70.2	.3425	748845
22	170	284	.2861A	.1340	.88	-2.4	.81	-2.3	.49	.37	73.5	68.9	.0098	748848
23	147	284	.5087A	.1327	1.18	3.5	1.20	2.3	.22	.38	59.4	68.4	.1948	748851
24	140	284	.8236	.1325	1.04	.8	1.06	.9	.35	.39	68.2	69.0	.0009	748852
25	120	284	1.3734A	.1365	1.18	2.9	1.27	3.0	.24	.39	66.4	71.9	-.1916	748855
26	121	284	1.3434A	.1362	1.00	.0	.99	.0	.41	.39	72.4	71.7	-.1799	748856
27	226	284	-.4268A	.1454	.70	-5.0	.55	-4.0	.50	.33	85.2	75.0	-.4370	748860
28	168	284	.0006A	.1371	1.19	3.4	1.19	1.7	.26	.36	63.3	70.6	.3357	748861
29	257	284	-1.4642A	.1873	.68	-2.9	.42	-3.0	.38	.26	91.2	87.4	-.4071	748862
30	177	284	.2486A	.1343	1.07	1.3	1.08	.9	.29	.37	63.6	69.1	-.0811	748864
31	100	159	.2324	.1812	.87	-1.8	.82	-1.4	.49	.37	76.7	70.2	.0013	829126
32	59	125	.8079	.2000	1.09	1.2	1.11	1.0	.30	.39	66.1	69.3	.0002	829127
33	77	125	.0896	.2022	.93	-1.0	.96	-.3	.43	.36	68.5	68.4	.0000	829128
34	39	125	1.6576	.2158	1.15	1.4	1.33	2.1	.21	.38	75.8	75.0	.0004	829129
35	110	159	-.1073	.1881	.94	-.7	1.29	1.7	.40	.35	74.8	72.8	.0013	829130
36	57	125	.8882	.2006	.91	-1.1	.91	-.8	.46	.39	75.8	69.8	.0002	829131
37	31	125	2.0533	.2300	1.39	2.9	1.62	2.9	.02	.36	72.6	78.2	.0005	829132
38	65	159	1.3432	.1803	1.13	1.6	1.12	1.1	.25	.38	64.8	70.8	.0015	829133
39	47	125	1.3015	.2068	1.58	5.3	1.71	5.0	-.11	.39	50.8	72.5	.0003	829134
40	88	159	.6165	.1774	1.19	2.7	1.23	2.0	.19	.38	60.4	68.7	.0014	829135
41	55	159	1.6781	.1861	1.19	2.2	1.43	3.0	.18	.37	66.7	73.2	.0016	829136
42	81	159	.8358	.1769	.95	-.7	.91	-.8	.42	.38	71.1	68.8	.0014	829137
43	48	125	1.2589	.2060	1.09	.9	1.09	.8	.30	.39	69.4	72.2	.0003	829138
44	62	159	1.4415	.1818	1.53	6.0	1.70	5.1	-.08	.38	50.9	71.4	.0015	829139
45	68	159	1.2463	.1792	1.06	.9	1.06	.6	.32	.38	65.4	70.3	.0015	829140
46	83	125	-.1608	.2068	1.07	.9	1.14	.9	.28	.34	66.1	70.2	.0000	829141
MEAN	139.5	234.6	.3940	.1603	1.03	.2	1.03	.1			71.0	72.1	-.0058	
P.SD	61.5	68.4	.8029	.0292	.19	2.5	.28	2.2			8.3	4.8	.1788	

Grade 7 Mathematics

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	MATH
1	224	305	-.4346	.1442	.83	-2.7	.68	-2.2	.53	.38	79.9	76.0	.0008	651852
2	256	305	-1.2042	.1699	.87	-1.3	.85	-.6	.44	.33	86.1	85.0	.0008	652112
3	182	305	.5474A	.1320	1.05	.9	.98	-.2	.38	.44	67.7	70.9	-.1934	652114
4	221	305	-.3729	.1428	1.12	1.9	1.87	4.7	.25	.39	72.3	75.4	.0008	652120
5	212	305	-.3521A	.1423	1.05	.9	1.09	.7	.39	.39	71.6	75.2	.1626	652131
6	242	305	-1.1398A	.1671	1.05	.5	.72	-1.3	.50	.33	80.9	84.3	.3102	652138
7	207	305	-.0982A	.1377	1.02	.4	.94	-.4	.39	.41	70.0	73.0	.0008	652140
8	184	305	.3214	.1331	.94	-1.1	.88	-1.1	.48	.43	72.9	71.2	.0009	676308
9	229	305	-.7513A	.1527	.96	-.5	.96	-.1	.49	.36	78.5	79.8	.2166	676317
10	162	305	.9853A	.1323	.94	-1.0	1.23	2.3	.49	.44	75.6	71.5	-.2807	690983
11	187	305	.2960A	.1333	.82	-3.5	.79	-2.1	.57	.43	77.9	71.2	-.0275	690984
12	187	305	.2682	.1335	.91	-1.7	.88	-1.1	.50	.42	75.9	71.3	.0009	690986
13	246	305	-1.0981A	.1653	.99	.0	.89	-.4	.43	.34	82.8	83.8	.1677	690991
14	175	305	.7080A	.1317	.91	-1.7	.85	-1.6	.50	.44	74.3	70.9	-.2310	707690
15	153	305	1.1295A	.1330	1.07	1.3	1.14	1.4	.40	.45	70.3	72.1	-.2671	707693
16	206	305	-.1807A	.1391	1.10	1.6	1.11	.8	.35	.40	70.6	73.6	.1047	707695
17	165	305	.3513A	.1329	1.10	1.9	1.08	.8	.39	.43	65.3	71.1	.3071	748865
18	233	305	-.6278	.1491	.93	-.9	.73	-1.7	.45	.37	78.5	78.3	.0008	748866
19	218	305	-.4275A	.1440	.89	-1.7	.78	-1.5	.52	.38	78.5	76.0	.1189	748869
20	201	305	.0470A	.1357	1.17	3.0	1.33	2.5	.25	.41	67.0	72.2	-.0328	748870
21	204	305	.0887A	.1352	1.00	-.1	.93	-.6	.40	.42	69.3	72.0	-.1332	748871
22	125	305	1.6347A	.1382	1.07	1.0	1.29	2.3	.39	.44	75.9	74.9	-.2716	748875
23	136	305	1.1319A	.1330	1.07	1.2	1.08	.8	.39	.45	70.0	72.1	.0293	748876
24	160	305	.7563A	.1317	.91	-1.7	.84	-1.8	.51	.44	75.6	71.0	-.0150	748877
25	136	305	1.0986A	.1328	1.03	.5	1.03	.3	.41	.45	71.9	72.0	.0626	748878
26	184	305	.1709A	.1344	1.05	.9	.96	-.3	.41	.42	70.0	71.7	.1543	748879
27	252	305	-1.1002A	.1654	.93	-.8	.76	-1.1	.41	.34	84.2	83.8	.0091	748880
28	159	305	.6512A	.1318	.79	-4.1	.74	-2.9	.61	.44	78.2	70.9	.1087	748881
29	123	305	1.5335A	.1368	1.33	4.7	1.50	3.9	.20	.44	63.0	74.3	-.1365	748883
30	178	305	.3837A	.1327	.89	-2.2	.88	-1.1	.53	.43	75.9	71.0	.0452	748884
31	108	167	.0590	.1818	.87	-1.9	.74	-1.6	.52	.40	75.2	71.3	-.0004	829142
32	38	167	2.5096	.2173	1.15	1.2	1.46	1.8	.29	.42	80.6	82.1	.0003	829143
33	63	138	1.1379	.1969	1.24	2.6	1.36	2.2	.23	.44	65.9	72.2	.0026	829144
34	136	167	-1.0061	.2162	.99	.0	1.00	.1	.31	.33	82.4	82.4	-.0004	829145
35	117	167	-.2476	.1878	1.05	.7	1.05	.3	.33	.38	72.1	73.4	-.0004	829146
36	79	138	.5212	.1973	1.14	1.7	1.25	1.7	.33	.44	66.7	71.8	.0025	829147
37	90	138	.0827	.2030	1.03	.3	1.16	1.0	.39	.43	73.9	73.1	.0024	829148
38	66	138	1.0220	.1963	1.48	4.9	1.60	3.6	.09	.44	51.4	71.9	.0026	829149
39	58	167	1.6930	.1904	1.17	1.7	1.49	2.8	.30	.45	70.9	76.1	.0001	829150
40	58	138	1.3331	.1985	1.16	1.8	1.20	1.2	.31	.44	66.7	72.9	.0027	829151
41	92	167	.5724	.1777	1.47	6.0	1.89	5.1	.06	.43	53.3	70.1	-.0002	829152
42	98	138	-.2592	.2113	.91	-.9	.78	-1.2	.49	.41	77.5	75.2	.0023	829153
43	117	167	-.2476	.1878	.85	-1.9	.71	-1.5	.52	.38	79.4	73.4	-.0004	829154
44	81	138	.4431	.1979	1.17	2.0	1.22	1.5	.30	.44	63.8	71.9	.0025	829156
45	67	138	.9835	.1962	1.05	.6	.99	.0	.40	.44	71.0	71.8	.0026	829157
46	67	167	1.3784	.1840	1.06	.7	1.17	1.2	.40	.45	70.3	73.7	.0000	829158
MEAN	154.0	252.0	.3107	.1601	1.03	.3	1.06	.4			72.9	74.3	.0051	
P.SD	61.5	73.1	.8424	.0288	.15	2.0	.29	1.9			7.0	4.1	.1244	

Grade 8 Mathematics

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	MATH
1	227	310	-.1619A	.1357	.99	-.1	1.17	1.5	.30	.39	75.5	73.4	-.3236	652152
2	211	310	-.5336A	.1433	.96	-.6	.85	-1.1	.56	.37	75.8	76.6	.3685	652182
3	136	310	1.3931A	.1317	.98	-.3	1.02	.2	.47	.40	74.5	71.6	-.2855	652186
4	168	310	.8958A	.1285	.90	-2.0	.85	-1.8	.51	.41	73.9	70.3	-.3214	652189
5	142	310	1.3263A	.1310	.95	-1.0	1.01	.1	.47	.40	75.2	71.3	-.3185	652192
6	215	310	-.5304A	.1432	.99	-.1	.94	-.4	.50	.37	76.5	76.6	.2903	652196
7	126	310	1.2350A	.1302	.98	-.3	.95	-.5	.41	.40	72.3	70.9	.0346	676323
8	186	310	.2033A	.1310	.87	-2.5	.76	-2.8	.54	.40	74.2	71.3	.0681	676332
9	245	310	-1.2319A	.1670	1.17	1.6	1.50	2.2	.38	.32	80.6	84.7	.3707	691002
10	220	310	-.3026A	.1382	.94	-.9	.93	-.5	.43	.38	77.4	74.5	-.0379	691012
11	194	310	.0192A	.1330	.98	-.3	.89	-1.0	.44	.40	70.0	72.1	.1156	691014
12	154	310	.8765A	.1285	1.10	1.8	1.05	.6	.34	.41	63.5	70.3	-.0728	707702
13	166	310	.6674A	.1284	.88	-2.5	.83	-2.1	.51	.41	74.2	70.4	-.0620	707703
14	226	310	-.2659A	.1375	.74	-4.7	.60	-4.0	.58	.39	82.6	74.2	-.1963	707704
15	185	310	.4525A	.1292	.84	-3.2	.77	-2.9	.54	.41	77.1	70.7	-.1655	707710
16	210	310	.1154A	.1319	.79	-4.1	.72	-3.1	.55	.40	79.4	71.7	-.2714	707714
17	220	310	-.1027A	.1348	.95	-.9	.87	-1.2	.39	.39	73.9	72.9	-.2421	749052
18	133	310	1.1595A	.1297	1.11	1.9	1.17	1.7	.30	.40	67.4	70.6	-.0076	749054
19	155	310	.3669A	.1297	1.23	4.1	1.42	4.2	.25	.41	60.6	70.9	.4203	749056
20	203	310	-.3181A	.1385	1.24	3.6	1.40	3.0	.28	.38	68.1	74.6	.2971	749057
21	121	310	1.0327A	.1290	1.16	2.9	1.17	1.9	.26	.41	60.6	70.4	.3202	749058
22	228	310	-.5644A	.1441	1.02	.3	.98	-.1	.38	.37	76.8	77.0	.0678	749059
23	268	310	-1.5539A	.1828	1.02	.2	.80	-.8	.36	.30	86.8	87.9	.0649	749061
24	198	310	-.2449A	.1372	.96	-.7	.89	-.9	.52	.39	76.1	74.0	.3122	749062
25	263	310	-1.0058A	.1578	.77	-2.8	.67	-2.0	.40	.34	86.5	82.1	-.3414	749063
26	211	310	.1001A	.1321	1.06	1.0	1.01	.2	.30	.40	68.1	71.7	-.2747	749066
27	195	310	-.0333A	.1338	1.20	3.3	1.32	2.8	.25	.40	66.5	72.5	.1512	749068
28	234	310	-.6565A	.1465	.93	-1.0	.84	-1.1	.45	.36	76.8	78.0	.0349	749069
29	164	310	.4789A	.1290	1.06	1.1	1.02	.3	.37	.41	68.4	70.6	.1596	749070
30	191	310	.3005A	.1301	.98	-.4	.89	-1.3	.41	.41	69.7	71.0	-.1162	749071
31	68	132	.7521	.1954	1.58	6.4	1.72	4.7	-.11	.40	44.7	69.8	.0033	829159
32	62	178	1.5583	.1777	1.21	2.5	1.31	2.0	.23	.40	66.3	73.2	.0001	829160
33	91	178	.6946	.1703	1.13	1.8	1.16	1.4	.32	.42	66.3	70.7	-.0001	829161
34	91	178	.6946	.1703	1.22	3.0	1.30	2.5	.24	.42	61.8	70.7	-.0001	829162
35	38	132	1.9621	.2134	1.26	2.4	1.19	.9	.19	.36	66.7	75.4	.0036	829163
36	65	132	.8666	.1954	1.03	.4	1.00	.0	.37	.40	68.2	69.7	.0034	829164
37	84	132	.1284	.2014	.89	-1.4	.80	-1.3	.50	.39	75.8	71.4	.0032	829165
38	122	178	-.2412	.1808	.99	-.1	.98	-.1	.40	.40	77.5	73.9	-.0003	829166
39	70	132	.6757	.1956	1.23	2.8	1.24	1.8	.19	.40	58.3	69.9	.0033	829167
40	127	178	-.4082	.1849	1.10	1.2	1.33	1.8	.28	.39	75.8	75.2	-.0003	829168
41	63	132	.9430	.1956	.94	-.7	.92	-.6	.45	.40	71.2	69.7	.0034	829169
42	81	132	.2487	.1994	.86	-1.7	.79	-1.5	.52	.39	80.3	71.0	.0032	829170
43	46	178	2.0977	.1910	1.44	4.1	1.91	3.7	-.02	.36	69.1	77.7	.0002	829171
44	56	132	1.2130	.1975	1.09	1.1	1.14	1.0	.28	.39	68.2	70.0	.0034	829172
45	141	178	-.9310	.2035	.89	-1.0	.70	-1.4	.47	.36	82.0	80.9	-.0003	829173
46	139	178	-.8497	.2000	.91	-.9	.76	-1.1	.45	.37	81.5	80.0	-.0003	829174
MEAN	155.2	256.1	.2722	.1564	1.03	.3	1.03	.1			72.2	73.6	.0014	
P.SD	63.6	75.1	.8243	.0286	.17	2.3	.27	1.9			7.8	4.1	.1925	

Grade 11 Mathematics

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	MATH
1	239	272	-1.5986A	.1955	.82	-1.4	.90	-.3	.43	.26	88.2	87.8	-.0119	651135
2	172	272	.3105A	.1380	1.24	4.0	1.33	3.5	.13	.39	63.2	70.3	-.2275	651164
3	212	272	-1.1449A	.1723	1.05	.6	.98	.0	.47	.30	79.4	83.1	.3657	651173
4	156	272	.6205A	.1365	.88	-2.3	.87	-1.8	.50	.40	74.6	69.9	-.2278	651198
5	214	272	-.7783A	.1586	1.00	.0	1.07	.5	.31	.33	80.9	78.9	-.0614	651226
6	233	272	-1.3175A	.1802	.89	-1.0	.62	-1.9	.38	.29	86.0	85.0	-.0791	651227
7	198	272	-.3402A	.1470	.84	-2.5	.70	-2.7	.49	.36	76.8	74.5	-.1181	651245
8	195	272	-.1986A	.1443	.94	-1.0	.88	-1.1	.37	.37	76.8	73.3	-.1952	651319
9	160	272	.3291A	.1378	.89	-2.1	.82	-2.2	.50	.39	73.5	70.3	-.0116	651320
10	164	272	-.1924A	.1442	1.08	1.3	1.07	.6	.44	.37	67.6	73.2	.4379	676354
11	231	272	-1.3974A	.1843	.95	-.4	1.04	.3	.35	.28	86.0	85.9	.0724	691024
12	212	272	-.6223A	.1539	.93	-1.0	.72	-2.0	.39	.34	77.2	77.3	-.1702	691026
13	128	272	.9147	.1368	.94	-1.0	.96	-.5	.45	.40	73.5	70.1	.0018	691874
14	197	272	-.4659A	.1499	1.22	2.9	1.23	1.6	.17	.35	67.6	75.7	.0339	707725
15	159	272	-.0978A	.1426	.92	-1.3	.94	-.5	.57	.37	73.9	72.4	.4382	707727
16	150	272	.6047A	.1366	.90	-1.8	.90	-1.3	.47	.40	74.6	69.9	-.0987	707732
17	175	272	.4431A	.1371	.81	-3.8	.74	-3.4	.55	.39	78.3	70.1	-.4216	749073
18	182	272	.5533A	.1367	1.28	4.6	1.38	4.3	.12	.40	57.0	69.9	-.6765	749075
19	165	272	.1021A	.1399	1.20	3.3	1.28	2.8	.23	.38	63.6	71.2	.1212	749077
20	227	272	-1.8301A	.2105	1.44	2.7	1.16	.6	.40	.24	83.8	89.9	.6369	749078
21	125	272	.8914A	.1367	1.18	3.1	1.32	3.8	.21	.40	64.3	70.0	.0808	749079
22	116	272	1.0822A	.1376	.94	-1.1	.90	-1.2	.44	.39	74.3	70.5	.0599	749080
23	144	272	.5898A	.1366	.83	-3.2	.79	-2.9	.55	.40	79.8	69.9	.0285	749081
24	193	272	-.0976A	.1426	.96	-.6	1.01	.2	.35	.37	75.4	72.4	-.2539	749083
25	232	272	-1.3875A	.1838	.85	-1.3	.63	-1.8	.46	.28	86.4	85.8	.0282	749084
26	160	272	.0799A	.1402	.86	-2.4	.76	-2.7	.56	.38	74.3	71.3	.2400	749085
27	132	272	.9146A	.1368	.99	-.1	.96	-.6	.40	.40	69.9	70.1	-.0722	749087
28	108	272	1.1977A	.1384	1.13	2.1	1.23	2.7	.24	.39	67.6	70.9	.0974	749088
29	114	272	1.0439A	.1373	1.15	2.5	1.15	1.9	.27	.39	65.4	70.4	.1356	749089
30	103	272	1.2757A	.1391	1.11	1.8	1.10	1.2	.29	.39	68.0	71.2	.1167	749091
31	89	151	.4852	.1852	1.05	.6	1.02	.3	.34	.39	68.2	70.9	.0039	829175
32	97	121	-1.1389	.2446	1.00	.0	.88	-.3	.31	.30	81.8	80.6	-.0011	829176
33	62	151	1.3942	.1850	1.07	.9	1.14	1.3	.33	.38	68.9	70.5	.0040	829177
34	104	151	-.0518	.1947	1.04	.5	.96	-.2	.34	.37	72.8	73.6	.0038	829178
35	32	121	1.8335	.2301	1.40	3.0	1.64	2.9	-.01	.36	71.1	77.7	-.0008	829179
36	54	151	1.6736	.1890	1.31	3.6	1.55	3.8	.05	.37	64.9	71.8	.0040	829180
37	81	121	-.3224	.2126	1.17	1.9	1.27	1.5	.19	.36	65.3	72.1	-.0010	829181
38	87	151	.5535	.1845	.93	-1.0	.89	-1.1	.46	.39	72.8	70.6	.0039	829183
39	82	151	.7224	.1833	1.09	1.2	1.07	.7	.31	.40	64.9	70.1	.0039	829184
40	96	121	-1.0798	.2414	.80	-1.6	.57	-1.8	.53	.31	80.2	79.9	-.0011	829185
41	90	151	.4508	.1856	.96	-.4	.93	-.6	.42	.39	70.2	71.0	.0039	829186
42	89	151	.4852	.1852	1.13	1.6	1.14	1.3	.27	.39	62.9	70.9	.0039	829187
43	68	121	.2376	.2042	.83	-2.3	.79	-1.7	.55	.38	77.7	69.0	-.0009	829189
44	111	121	-2.2621	.3425	.89	-.3	.55	-.9	.34	.21	91.7	91.7	-.0011	829190
45	72	121	.0698	.2057	1.31	3.6	1.34	2.2	.09	.38	52.9	69.6	-.0010	829191
46	66	121	.3208	.2037	.93	-.9	.86	-1.1	.45	.38	71.1	68.9	-.0009	831569
MEAN	140.8	224.7	.0621	.1715	1.02	.2	1.00	.1			73.2	74.4	.0064	
P.SD	56.3	65.4	.9458	.0405	.16	2.1	.25	1.9			8.1	6.1	.2066	

Appendix M: Science Item Bank Difficulties

Grade 5 Science

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL CORR.	EX-EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	SCIE
1	136	245	-.6959A	.1534	1.21	2.9	1.41	3.0	.35	.46	66.0	73.6	.3528	651050
2	127	245	-.2053A	.1501	1.43	5.9	1.71	5.5	.14	.46	55.6	72.3	.0641	651078
3	167	245	-.8963A	.1559	.74	-4.1	.59	-3.6	.64	.46	80.5	74.5	-.1846	651113
4	162	245	-.8716A	.1556	1.11	1.5	1.13	1.0	.36	.46	71.8	74.4	-.0830	676460
5	185	245	-1.7000A	.1744	1.24	2.4	1.40	1.8	.29	.43	74.7	80.5	.1407	676461
6	139	245	-1.0292A	.1580	1.06	.9	.91	-.6	.55	.46	70.1	75.3	.6193	691146
7	179	245	-1.4451A	.1670	.86	-1.8	.97	-.1	.56	.44	83.4	78.5	.0528	691147
8	153	245	-.6072A	.1525	1.19	2.7	1.16	1.3	.30	.46	64.7	73.2	-.1303	691149
9	124	245	-.1301A	.1500	.97	-.5	1.00	.1	.47	.46	76.3	72.2	.0563	691150
10	195	245	-1.5991A	.1712	.65	-4.5	.51	-3.0	.63	.43	91.3	79.7	-.2782	691151
11	192	245	-1.4313A	.1666	.59	-5.9	.41	-4.2	.69	.44	88.8	78.3	-.3525	691154
12	134	245	-.1700A	.1500	1.01	.2	.96	-.3	.44	.46	71.4	72.2	-.1281	691155
13	140	245	-.1706A	.1500	.96	-.5	.89	-1.1	.49	.46	74.7	72.2	-.2633	691158
14	191	245	-1.6723A	.1735	.65	-4.4	.46	-3.3	.69	.43	88.8	80.3	-.0714	691159
15	229	245	-3.2102A	.2591	.89	-.5	1.56	1.2	.25	.33	93.4	92.5	-.2859	691212
16	191	245	-2.0118A	.1856	.98	-.2	.71	-1.3	.56	.41	81.3	83.2	.2759	707414
17	144	245	-.6633A	.1530	1.08	1.2	1.03	.3	.40	.46	70.1	73.5	.1371	707417
18	183	245	-1.5472A	.1697	.84	-1.9	.70	-1.7	.57	.44	82.2	79.3	.0431	707419
19	132	245	-.2163A	.1501	1.38	5.3	1.44	3.7	.18	.46	60.2	72.3	-.0371	707420
20	137	245	-.1781A	.1500	1.39	5.4	1.57	4.6	.17	.46	59.3	72.2	-.1878	707421
21	216	245	-2.1936A	.1935	.66	-3.4	.41	-2.8	.51	.40	89.2	84.8	-.5164	707422
22	125	245	-.3290A	.1505	1.15	2.3	1.21	1.8	.37	.46	66.4	72.5	.2324	707426
23	202	245	-2.0397A	.1868	.99	-.1	.98	.0	.41	.41	82.6	83.4	-.0694	707428
24	206	245	-2.1464A	.1913	.73	-2.6	.51	-2.2	.57	.40	88.4	84.4	-.1132	707429
25	175	245	-1.5051A	.1686	1.06	.7	.94	-.3	.47	.44	75.5	79.0	.2236	707430
26	88	132	-1.1122	.2126	.83	-1.8	.67	-2.0	.58	.45	77.1	74.7	-.0024	748726
27	92	113	-1.8737	.2752	.84	-1.0	.53	-1.4	.57	.42	85.5	83.3	.0008	748727
28	93	113	-1.9506	.2798	.77	-1.5	.53	-1.4	.60	.42	88.2	83.8	.0008	748728
29	77	132	-.6355	.2047	1.20	2.1	1.11	.8	.30	.45	60.3	72.9	-.0023	748729
30	99	132	-1.6444	.2289	.81	-1.7	.59	-1.9	.59	.43	80.9	78.8	-.0025	748732
31	84	113	-1.3295	.2490	.83	-1.4	1.14	.6	.58	.45	82.7	79.2	.0010	748733
32	45	113	.7198	.2290	1.25	2.2	1.29	1.4	.29	.45	64.5	74.2	.0015	748734
33	70	132	-.3459	.2025	1.02	.3	1.03	.2	.44	.45	72.5	72.3	-.0022	748735
34	80	132	-.7622	.2063	.97	-.3	.98	-.1	.47	.45	77.9	73.2	-.0023	748736
35	108	132	-2.1643	.2539	.81	-1.4	.51	-1.7	.57	.40	84.7	83.7	-.0025	748738
36	68	113	-.4423	.2264	1.04	.4	.93	-.3	.44	.47	70.0	72.9	.0013	748739
37	76	132	-.5937	.2043	1.04	.4	.96	-.2	.42	.45	68.7	72.8	-.0022	748740
38	71	113	-.5976	.2288	.97	-.2	.97	-.1	.49	.47	74.5	73.6	.0013	748741
39	94	113	-2.0303	.2848	1.17	1.0	.75	-.5	.33	.41	80.0	84.5	.0008	748742
40	94	132	-1.3927	.2201	1.02	.2	1.05	.3	.42	.44	75.6	76.6	-.0024	748743
41	84	113	-1.3295	.2490	.89	-.8	.75	-.9	.53	.45	82.7	79.2	.0010	748744
MEAN	133.8	197.2	-1.1256	.1937	.98	-.1	.94	-.2			76.4	77.3	-.0125	
P.SD	48.4	60.1	.7857	.0411	.21	2.6	.34	2.0			9.5	4.9	.1903	

Grade 8 Science

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	SCIE
1	211	303	-1.0569A	.1364	.84	-2.8	.94	-.5	.50	.38	80.1	73.2	-.1521	651233
2	141	303	.0080	.1292	1.14	2.8	1.16	1.7	.25	.38	61.5	69.2	.0008	651246
3	187	303	-1.1161A	.1375	.96	-.7	.90	-.9	.52	.38	74.1	73.7	.3508	673797
4	202	303	-1.0208A	.1358	.86	-2.5	.75	-2.6	.52	.38	75.1	72.9	-.0162	676474
5	179	303	-.8909A	.1339	1.05	.9	1.04	.5	.40	.39	70.1	72.0	.2633	676475
6	251	303	-2.1203	.1678	.90	-1.0	.72	-1.6	.47	.35	84.4	84.2	.0006	676476
7	188	303	-.7854	.1326	1.19	3.3	1.39	3.7	.22	.39	64.1	71.3	.0007	676477
8	191	303	-.7543A	.1322	1.13	2.3	1.20	2.1	.25	.39	65.8	71.1	-.0837	676478
9	149	303	.0265A	.1293	1.07	1.4	1.04	.5	.33	.38	64.8	69.2	-.1491	676479
10	214	303	-.9540A	.1348	.83	-3.1	.76	-2.6	.49	.39	76.4	72.4	-.3157	691162
11	177	303	-.6486A	.1312	.96	-.7	1.02	.2	.42	.39	73.4	70.5	.0544	691166
12	180	303	-.4048A	.1295	1.04	.7	1.00	.1	.34	.39	66.4	69.4	-.2404	707432
13	238	303	-1.9649A	.1613	.95	-.5	.75	-1.5	.51	.36	82.7	82.5	.1841	707433
14	178	303	-.4881A	.1300	1.40	7.0	1.56	5.5	.03	.39	53.8	69.7	-.1232	707434
15	211	303	-1.1811A	.1387	1.00	.0	1.05	.5	.38	.38	73.4	74.2	-.0265	707435
16	235	303	-1.8437A	.1568	.93	-.7	.73	-1.8	.50	.36	81.1	81.2	.1329	707436
17	221	303	-1.4025A	.1436	.99	-.2	.92	-.6	.40	.38	74.8	76.4	-.0047	707437
18	236	303	-1.6933A	.1517	1.02	.3	.97	-.1	.33	.37	79.7	79.5	-.0436	707438
19	149	303	-.3687A	.1294	1.31	5.7	1.43	4.4	.12	.38	54.2	69.3	.2432	707440
20	226	303	-1.4488A	.1447	.88	-1.8	.74	-2.1	.48	.38	78.1	76.9	-.0645	707442
21	237	303	-1.5637A	.1478	.85	-2.0	.80	-1.5	.44	.37	83.1	78.1	-.1998	707445
22	155	303	-.2252	.1290	1.16	3.0	1.15	1.7	.22	.38	61.8	69.0	.0008	707446
23	190	303	-.7783A	.1325	1.26	4.5	1.26	2.6	.14	.39	62.1	71.2	-.0418	707447
24	243	303	-1.9935A	.1625	.97	-.3	.82	-1.0	.43	.36	83.4	82.8	.0884	707448
25	179	303	-.7783A	.1325	1.13	2.3	1.15	1.6	.30	.39	65.8	71.2	.1502	708809
26	140	173	-2.0461	.2150	.75	-2.2	.50	-2.6	.62	.37	83.1	82.8	.0008	748746
27	95	130	-1.3166	.2176	.94	-.6	.79	-1.1	.43	.35	76.7	76.1	.0004	748747
28	68	130	-.2026	.1956	1.09	1.2	1.08	.7	.28	.36	64.3	68.3	.0006	748748
29	146	173	-2.3448	.2323	.78	-1.6	.56	-1.8	.56	.36	86.6	86.1	.0008	748749
30	31	130	1.3370	.2254	.94	-.5	.90	-.5	.34	.29	80.6	78.3	.0009	748750
31	102	173	-.6890	.1743	1.01	.2	.95	-.3	.38	.40	66.9	71.0	.0009	748751
32	124	173	-1.4039	.1889	.95	-.6	.87	-.8	.44	.39	76.7	75.9	.0008	748752
33	82	130	-.7509	.2017	.93	-.8	.85	-1.1	.43	.36	72.1	70.8	.0005	748753
34	111	173	-.9682	.1784	.91	-1.2	.82	-1.4	.48	.40	74.4	72.3	.0009	748754
35	118	173	-1.1966	.1832	.93	-.9	.92	-.5	.47	.40	76.2	73.9	.0008	748755
36	109	130	-2.0916	.2590	.86	-.9	.68	-1.1	.47	.32	86.0	84.6	.0003	748756
37	118	173	-1.1966	.1832	.77	-3.0	.62	-2.9	.61	.40	79.7	73.9	.0008	748757
38	116	130	-2.6412	.3063	.86	-.6	.63	-.9	.46	.30	89.9	89.9	.0003	748759
39	102	130	-1.6708	.2334	.78	-1.9	.66	-1.6	.56	.34	85.3	80.1	.0004	748761
40	88	173	-.2719	.1717	1.08	1.2	1.05	.4	.31	.40	65.1	69.5	.0009	748762
41	115	130	-2.5502	.2972	.80	-1.0	.52	-1.4	.51	.30	89.1	89.2	.0003	748763
MEAN	161.8	243.9	-1.1086	.1696	.98	.1	.92	-.2			74.2	75.4	.0005	
P.SD	55.0	75.1	.7872	.0460	.15	2.2	.24	1.9			9.2	5.9	.1220	

Grade 11 Science

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTBISERL-EX CORR.	PTBISERL-EX EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	DISPLACE	SCIE
1	150	272	-.3918A	.1408	.91	-1.6	.83	-1.8	.52	.44	75.5	70.9	.0762	651774
2	202	272	-1.1989A	.1497	1.03	.5	1.03	.2	.32	.40	72.5	74.8	-.2233	651785
3	168	272	-.5491A	.1416	.77	-4.2	.70	-3.3	.61	.44	80.8	71.4	-.1289	651793
4	160	272	-1.1730A	.1492	1.04	.6	1.14	1.0	.58	.41	72.8	74.6	.6631	651798
5	127	272	.3723A	.1432	1.16	2.5	1.42	3.9	.32	.45	70.6	72.5	-.2309	651808
6	162	272	-.4655A	.1411	.92	-1.4	.87	-1.3	.50	.44	75.8	71.1	-.0905	651822
7	172	272	-.7074A	.1428	.94	-.9	.82	-1.7	.47	.43	71.7	72.0	-.0512	673806
8	144	272	.0747A	.1411	1.38	5.7	1.50	4.9	.17	.45	59.2	71.1	-.2723	673809
9	182	272	-1.1384A	.1486	.85	-2.3	.92	-.5	.58	.41	81.1	74.4	.1754	676484
10	204	272	-1.6616A	.1611	.97	-.4	1.02	.2	.46	.37	81.5	78.7	.2043	676495
11	177	272	-.5305A	.1415	.90	-1.8	.84	-1.6	.49	.44	75.8	71.3	-.3373	691177
12	179	272	-.8985A	.1449	1.13	2.1	1.08	.7	.31	.42	66.0	72.9	-.0047	691179
13	146	272	-.2834A	.1406	1.05	.9	1.11	1.2	.40	.45	67.5	70.7	.0465	691183
14	207	272	-1.3651A	.1532	1.02	.3	.84	-1.0	.34	.39	72.1	76.0	-.1774	691185
15	233	272	-2.1093A	.1776	.77	-2.5	.48	-2.6	.48	.33	84.9	83.6	-.1834	691187
16	135	272	-.0437A	.1407	1.05	.8	1.07	.8	.42	.45	68.3	70.8	.0239	691189
17	248	272	-3.1977A	.2493	1.11	.6	.62	-1.0	.39	.22	90.9	92.9	.3022	691192
18	235	272	-2.2556A	.1844	.80	-1.9	.58	-1.8	.44	.31	87.2	85.2	-.1038	707451
19	231	272	-2.7600A	.2141	1.31	2.0	.95	.0	.44	.26	84.5	89.8	.5525	707452
20	191	272	-1.3069A	.1519	.99	-.1	.96	-.2	.45	.40	78.5	75.6	.1484	707453
21	191	272	-1.3573A	.1530	1.27	3.5	1.55	3.1	.22	.39	71.3	76.0	.1999	707454
22	137	272	.2543A	.1422	1.30	4.6	1.47	4.5	.22	.45	63.8	71.8	-.3121	707456
23	121	272	-.0734A	.1406	1.18	2.9	1.18	1.9	.31	.45	63.0	70.8	.3332	707457
24	160	272	-.7865A	.1436	.95	-.8	1.09	.8	.51	.43	76.2	72.4	.2749	707458
25	194	272	-1.2754A	.1513	.77	-3.6	.61	-3.0	.62	.40	81.1	75.4	.0474	707459
26	141	272	-.0883A	.1406	1.02	.4	1.03	.4	.42	.45	67.5	70.8	-.0502	707461
27	148	272	-.3703A	.1408	1.35	5.5	1.60	5.4	.18	.44	58.9	70.8	.0943	707462
28	170	272	-.4210A	.1409	1.15	2.5	1.14	1.4	.29	.44	63.4	70.9	-.3004	707463
29	214	272	-1.4600A	.1555	.85	-2.0	1.02	.2	.43	.38	79.6	76.9	-.2662	707464
30	246	272	-2.6040A	.2038	.82	-1.4	.81	-.5	.30	.28	90.9	88.6	-.2100	707466
31	99	121	-2.1185	.2539	.97	-.2	.85	-.4	.34	.31	83.2	81.8	.0002	748764
32	87	121	-1.4465	.2235	.70	-3.3	.55	-2.4	.65	.37	83.2	74.6	.0002	748765
33	100	151	-.7640	.1967	1.08	1.0	1.03	.2	.37	.44	70.5	73.5	.0019	748766
34	117	151	-1.4799	.2169	.83	-1.6	.62	-1.7	.55	.39	82.2	78.8	.0019	748767
35	100	121	-2.1840	.2579	.90	-.7	.65	-1.1	.42	.31	84.0	82.6	.0001	748768
36	85	151	-.2056	.1905	.98	-.3	.98	-.1	.46	.46	71.2	71.1	.0018	748769
37	82	121	-1.2046	.2168	.84	-1.9	.71	-1.6	.54	.39	79.8	72.9	.0002	748770
38	48	121	.2968	.2140	1.35	3.4	1.44	2.8	.15	.43	63.0	72.5	.0004	748771
39	66	151	.4857	.1928	1.08	1.0	1.12	1.0	.39	.46	67.8	72.4	.0018	748772
40	104	151	-.9211	.1999	1.20	2.1	1.56	2.8	.26	.43	69.2	74.4	.0019	748773
41	32	121	1.1017	.2384	.85	-1.3	.89	-.5	.48	.41	84.9	79.0	.0004	748774
42	65	121	-.4495	.2076	1.42	4.5	1.51	3.3	.08	.42	50.4	69.9	.0003	748778
43	112	151	-1.2539	.2088	.99	-.1	1.01	.1	.42	.41	76.0	76.8	.0019	748779
44	105	151	-.9612	.2008	.80	-2.4	.75	-1.4	.59	.43	81.5	74.6	.0019	748780
45	104	121	-2.4700	.2781	.97	-.1	.85	-.2	.33	.28	84.9	85.8	.0002	748782
46	123	151	-1.7785	.2302	.79	-1.7	.62	-1.4	.54	.36	85.6	81.7	.0019	748783
MEAN	147.9	224.7	-.9810	.1782	1.01	.2	.99	.2			75.0	75.8	.0047	
P.SD	53.6	65.4	.9255	.0397	.18	2.3	.30	2.0			9.0	5.7	.2019	

Appendix N: ELA Pre- and Post-Equating Summary

2017 was the first administration of the NeSA-AAELA test, and a standard setting took place to set a new bank.

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	-2.21	-1.68	0.92	0.21	-0.26	1.64	1.03	1.02	-0.12	-0.40	-0.07	-1.72	-0.94	-0.59	-1.78	-0.16	-0.58	0.91	-1.60	-1.62	0.00
2	-1.44	-0.60	-0.02	-0.29	-0.43	0.57	-0.72	-0.66	-0.41	-0.89	-1.09	0.43	-1.70	-1.35	-1.78	-0.53	-0.27	-1.00	0.31	0.04	1.48
3	-0.35	-0.20	0.00	0.28	0.29	0.06	-1.19	-1.22	-0.02	-0.25	-0.21	-0.55	0.55	0.20	0.86	1.39	1.00	0.84	-1.14	-0.81	-2.04
4	-0.58	-0.06	-1.40	-0.47	-0.43	-0.01	-1.46	-1.51	0.05	-0.89	-0.84	-0.60	0.09	-0.52	1.87	0.90	0.45	1.00	0.62	0.34	1.54
5	-0.30	-0.29	0.70	-0.55	-0.61	0.29	0.19	0.77	-2.72	0.03	-0.07	0.04	-0.35	-0.33	-0.53	1.33	0.89	0.99	-0.78	-0.86	0.38
6	-1.83	-1.42	0.23	0.08	0.14	-0.10	-0.90	-0.97	0.13	0.62	0.54	-0.08	-1.14	-0.98	-1.02	-0.53	-0.35	-0.79	-1.32	-1.41	0.40
7	-0.57	-0.04	-0.60	-0.50	-0.64	0.57	-0.86	-0.75	-0.66	0.16	-0.23	1.20	-0.10	-0.25	0.14	1.24	1.16	-0.05	-0.34	-0.49	0.76
8	-0.33	-0.06	-1.86	-0.46	-0.46	0.08	0.93	1.24	-1.56	0.39	0.58	-1.16	-0.15	0.17	-1.62	0.20	0.17	-0.15	-0.20	-0.42	1.21
9	-1.41	-0.98	1.63	1.10	1.21	-0.27	-0.90	-0.66	-1.21	0.39	0.35	-0.20	-0.75	-0.69	-0.66	-1.23	-0.96	-1.04	0.33	0.26	0.27
10	0.40	0.68	-0.29	-0.51	-0.71	0.76	-0.72	-0.50	-1.13	0.66	0.40	0.66	0.99	0.55	1.19	-0.30	-0.44	0.12	-0.19	0.19	-2.33
11	-0.44	-0.56	0.41	-0.34	0.24	-1.81	1.60	1.54	0.09	-1.12	-1.26	0.17	0.30	0.11	0.25	0.02	0.03	-0.29	-1.40	-1.34	-0.43
12	0.45	0.33	0.35	-0.10	-0.32	0.82	-0.38	-0.72	1.33	0.46	0.15	0.89	-0.30	0.11	-2.00	0.88	0.69	0.28	-0.62	-0.81	1.01
13	-0.58	-0.53	0.15	0.45	0.62	-0.44	-0.14	-0.02	-0.70	-1.22	-1.26	-0.24	-1.10	-1.08	-0.50	0.67	0.50	0.20	-0.47	-0.47	-0.09
14	-0.19	-0.32	1.52	1.01	1.34	-0.97	-1.03	-1.08	0.02	0.74	0.19	1.88	0.71	0.33	1.00	-0.27	-0.58	0.62	-0.10	0.28	-2.32
15	0.12	0.43	-1.26	0.85	0.89	-0.03	0.99	0.89	0.22	-0.81	-0.84	-0.24	1.13	0.71	1.14	0.45	0.18	0.50	0.60	0.45	0.81
16	0.54	1.19	-2.03	-0.06	-0.37	1.14	0.51	-0.00	2.04	0.68	0.56	0.08	-0.18	-0.23	-0.24	0.12	-0.25	0.79	0.44	-0.02	2.59
17	-0.00	0.02	1.96	0.21	0.67	-1.39	-0.41	-0.64	0.79	0.75	0.79	-0.55	0.35	0.52	-1.06	-0.10	-0.44	0.69	0.55	-0.16	4.04
18	0.30	0.51	-0.08	-0.99	-0.84	-0.38	0.51	0.42	0.21	-0.03	0.19	-1.25	0.17	-0.76	3.06	1.16	1.06	0.02	0.10	0.17	-0.50
19	0.37	0.73	-2.24	-0.90	-0.87	0.01	1.32	1.24	0.16	0.47	0.33	0.17	-0.43	-0.46	-0.29	0.37	0.70	-1.22	-1.83	-1.22	-3.68
20	0.12	0.63	-0.21	-0.30	-0.07	-0.67	-0.25	-1.15	3.76	0.46	0.31	0.24	0.05	-0.14	0.26	-0.32	-0.11	-0.85	0.89	0.90	-0.15
21	-0.48	0.10	0.35	1.03	0.76	0.98	0.41	0.46	-0.38	0.06	0.33	-1.48	0.09	-0.20	0.63	1.03	1.27	-0.92	1.08	1.07	-0.00
22	-0.13	-0.06	-0.39	-0.81	-0.37	-1.34	-0.11	-0.39	1.05	0.29	0.20	-0.04	1.63	1.21	1.16	-0.56	-0.62	-0.11	0.59	0.56	0.09
23	0.81	1.45	1.88	0.18	0.24	-0.09	0.53	0.48	0.03	0.51	0.60	-0.75	1.13	1.01	0.01	-1.55	-1.59	-0.15	-0.10	-0.38	1.55

	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	-0.08	-0.38	1.47	-1.53	-1.46	-0.11	0.74	0.24	1.99	0.25	0.72	-2.34	0.76	0.59	0.20	-0.24	-0.04	-0.84	-1.39	-1.37	-0.19
25	0.65	1.12	-0.46	-0.20	-0.40	0.76	0.36	0.94	-2.70	1.37	1.10	0.73	1.10	1.01	-0.10	-1.01	-1.44	0.97	0.08	0.26	-1.18
26				-0.04	-0.43	1.39	-0.03	0.73	-3.48	1.34	1.08	0.68	0.17	0.17	-0.42	0.10	-0.29	0.85	0.91	0.77	0.72
27				0.55	0.27	1.04	-0.60	-0.50	-0.62	-0.43	-0.94	1.72	-1.10	-1.24	0.07	-0.03	0.01	-0.39	1.20	1.21	-0.19
28				0.64	1.06	-1.27	0.53	0.75	-1.12	0.00	0.22	-1.29	0.65	0.60	-0.26	-0.66	-0.74	-0.02	1.04	1.10	-0.44
29				0.90	0.22	2.35	0.18	0.54	-1.78	-1.46	-1.93	1.55	1.53	1.25	0.63	0.48	0.54	-0.42	1.28	1.31	-0.29
30				-0.04	0.76	-2.54	-0.41	-0.50	0.19	0.25	0.09	0.25	0.38	0.27	-0.01	0.30	0.06	0.41			
Mean	-0.29	-0.00		-0.02	-0.00		-0.01	0.00		0.08	0.00		0.15	-0.00		0.10	0.00		-0.05	-0.08	
Corr	0.938			0.945			0.950			0.953			0.982			0.946			0.958		
SD	0.78	0.77		0.67	0.72		0.82	0.85		0.73	0.75		0.80	0.70		0.76	0.73		0.91	0.85	
Ratio	0.99			1.07			1.04			1.03			0.88			0.96			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	0.79	-1.55	-1.06	-0.19	0.54	-0.39	0.65	-0.30
2	-0.21	0.99	-0.31	-0.49	0.97	-1.71	-1.20	-0.41	0.63
3	-0.90	0.08	0.57	-1.12	0.23	-1.27	-0.55	0.30	0.40
4	-0.87	0.20	0.17	-1.02	-0.01	0.00	-1.17	0.45	-2.50
5	-1.70	-0.38	-0.84	-0.89	0.37	-0.97	0.37	1.09	0.89
6	-1.03	0.73	-2.67	-2.54	-1.02	-1.95	-0.47	0.41	0.27
7	-1.45	-0.22	-0.45	-1.35	0.21	-2.12	-0.71	0.22	0.10
8	-0.61	0.41	0.40	-0.75	0.16	0.37	0.07	0.76	1.00
9	-0.13	1.05	-0.27	0.03	0.85	0.74	-1.14	0.02	-0.74
10	-1.60	-0.68	0.82	-0.95	-0.24	1.15	-1.66	-0.46	-0.91
11	-1.43	-0.59	1.13	-0.65	0.41	-0.16	-0.53	0.12	1.13
12	-0.17	0.83	0.47	-0.40	0.36	0.96	-0.90	0.08	-0.08
13	-0.17	0.70	1.02	-1.96	-0.73	-0.86	-0.28	0.72	-0.19
14	-1.67	-0.56	0.00	-0.49	0.39	0.51	-1.37	-0.53	0.45
15	-3.21	-2.24	0.61	-1.18	-0.19	0.06	-2.11	-1.25	0.37
16	-2.01	-0.56	-1.42	-1.84	-0.66	-0.65	-0.04	0.93	-0.08
17	-0.66	0.62	-0.67	-1.40	-0.37	-0.06	-3.20	-1.85	-1.46
18	-1.55	-0.33	-0.43	-1.69	-0.68	0.01	-2.26	-1.32	0.08
19	-0.22	0.88	0.09	-0.37	0.85	-0.78	-2.76	-1.19	-2.29
20	-0.18	0.77	0.71	-1.45	-0.47	0.14	-1.31	-0.17	-0.67
21	-2.19	-1.47	1.64	-1.56	-0.71	0.59	-1.36	-0.17	-0.86
22	-0.33	1.03	-1.01	0.14	0.75	1.54	0.25	0.89	1.17
23	-2.04	-0.91	-0.06	-0.78	0.18	0.21	-0.07	1.20	-1.20
24	-2.15	-1.05	0.09	-1.99	-0.84	-0.52	-0.79	0.45	-1.06
25	-1.51	-0.12	-1.14	-0.78	0.37	-0.53	-1.28	-0.24	-0.31
26							-0.09	0.82	0.18
27							-0.37	0.68	-0.37
28							-0.42	0.26	1.02
29							-1.46	-0.71	0.74
30							-2.60	-1.76	0.40
Mean	-1.15	0.00		-1.06	-0.04		-0.99	-0.00	
Corr	0.964			0.950			0.962		
SD	0.82	0.87		0.55	0.52		0.91	0.84	
Ratio	1.06			0.94			0.92		

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

The charts are simple displays of scale score, raw score, and percentile. The raw score and percentile for any scale score can be read directly from the chart.

The proformance levels *Level 2* begins at a scale score of 200 and *Level 1*varies by grade. *Level 3* is a Scale Score of 199 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 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 2017	3	ELA	0	25	9.3	25	9.3	5	101	48
Spr 2017	3	ELA	1	5	1.9	30	11.2	10	101	27
Spr 2017	3	ELA	2	-	0.0	30	11.2	11	118	20
Spr 2017	3	ELA	3	1	0.4	31	11.5	11	130	17
Spr 2017	3	ELA	4	3	1.1	34	12.6	12	140	15
Spr 2017	3	ELA	5	3	1.1	37	13.8	13	147	14
Spr 2017	3	ELA	6	1	0.4	38	14.1	14	154	13
Spr 2017	3	ELA	7	5	1.9	43	16.0	15	160	12
Spr 2017	3	ELA	8	4	1.5	47	17.5	17	165	12
Spr 2017	3	ELA	9	9	3.3	56	20.8	19	171	12
Spr 2017	3	ELA	10	7	2.6	63	23.4	22	176	11
Spr 2017	3	ELA	11	13	4.8	76	28.3	26	181	11
Spr 2017	3	ELA	12	12	4.5	88	32.7	30	185	11
Spr 2017	3	ELA	13	8	3.0	96	35.7	34	190	11
Spr 2017	3	ELA	14	13	4.8	109	40.5	38	195	11
Spr 2017	3	ELA	15	19	7.1	128	47.6	44	200	11
Spr 2017	3	ELA	16	13	4.8	141	52.4	50	205	12
Spr 2017	3	ELA	17	17	6.3	158	58.7	56	210	12
Spr 2017	3	ELA	18	17	6.3	175	65.1	62	216	12
Spr 2017	3	ELA	19	19	7.1	194	72.1	69	222	13
Spr 2017	3	ELA	20	13	4.8	207	77.0	75	229	14
Spr 2017	3	ELA	21	13	4.8	220	81.8	79	237	15
Spr 2017	3	ELA	22	21	7.8	241	89.6	86	246	17
Spr 2017	3	ELA	23	11	4.1	252	93.7	92	259	20
Spr 2017	3	ELA	24	13	4.8	265	98.5	96	279	27
Spr 2017	3	ELA	25	4	1.5	269	100.0	99	300	48

Grade 4

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	4	ELA	0	31	11.4	31	11.4	6	101	47
Spr 2017	4	ELA	1	2	0.7	33	12.1	12	101	26
Spr 2017	4	ELA	2	1	0.4	34	12.5	12	121	19
Spr 2017	4	ELA	3	2	0.7	36	13.2	13	133	16
Spr 2017	4	ELA	4	1	0.4	37	13.6	13	142	14
Spr 2017	4	ELA	5	-	0.0	37	13.6	14	149	13
Spr 2017	4	ELA	6	-	0.0	37	13.6	14	156	12
Spr 2017	4	ELA	7	8	2.9	45	16.5	15	162	12
Spr 2017	4	ELA	8	9	3.3	54	19.9	18	167	11
Spr 2017	4	ELA	9	13	4.8	67	24.6	23	172	11
Spr 2017	4	ELA	10	9	3.3	76	27.9	27	177	11
Spr 2017	4	ELA	11	14	5.1	90	33.1	31	181	11
Spr 2017	4	ELA	12	9	3.3	99	36.4	35	186	11
Spr 2017	4	ELA	13	9	3.3	108	39.7	38	191	11
Spr 2017	4	ELA	14	14	5.1	122	44.9	42	195	11
Spr 2017	4	ELA	15	14	5.1	136	50.0	48	200	11
Spr 2017	4	ELA	16	15	5.5	151	55.5	53	205	11
Spr 2017	4	ELA	17	24	8.8	175	64.3	60	210	12
Spr 2017	4	ELA	18	14	5.1	189	69.5	67	215	12
Spr 2017	4	ELA	19	15	5.5	204	75.0	72	221	12
Spr 2017	4	ELA	20	11	4.0	215	79.0	77	228	13
Spr 2017	4	ELA	21	12	4.4	227	83.5	81	235	14
Spr 2017	4	ELA	22	13	4.8	240	88.2	86	244	16
Spr 2017	4	ELA	23	14	5.1	254	93.4	91	256	19
Spr 2017	4	ELA	24	13	4.8	267	98.2	96	276	26
Spr 2017	4	ELA	25	5	1.8	272	100.0	99	300	47

Grade 5

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	5	ELA	0	20	7.4	20	7.4	4	101	49
Spr 2017	5	ELA	1	1	0.4	21	7.7	8	101	28
Spr 2017	5	ELA	2	2	0.7	23	8.5	8	112	20
Spr 2017	5	ELA	3	2	0.7	25	9.2	9	125	17
Spr 2017	5	ELA	4	1	0.4	26	9.6	9	135	15
Spr 2017	5	ELA	5	2	0.7	28	10.3	10	143	14
Spr 2017	5	ELA	6	5	1.8	33	12.1	11	151	13
Spr 2017	5	ELA	7	2	0.7	35	12.9	13	157	13
Spr 2017	5	ELA	8	6	2.2	41	15.1	14	163	12
Spr 2017	5	ELA	9	7	2.6	48	17.6	16	169	12
Spr 2017	5	ELA	10	8	2.9	56	20.6	19	174	12
Spr 2017	5	ELA	11	10	3.7	66	24.3	22	180	12
Spr 2017	5	ELA	12	13	4.8	79	29.0	27	185	12
Spr 2017	5	ELA	13	18	6.6	97	35.7	32	190	12
Spr 2017	5	ELA	14	11	4.0	108	39.7	38	195	12
Spr 2017	5	ELA	15	15	5.5	123	45.2	42	200	12
Spr 2017	5	ELA	16	22	8.1	145	53.3	49	205	12
Spr 2017	5	ELA	17	19	7.0	164	60.3	57	211	12
Spr 2017	5	ELA	18	23	8.5	187	68.8	65	217	13
Spr 2017	5	ELA	19	15	5.5	202	74.3	72	223	13
Spr 2017	5	ELA	20	23	8.5	225	82.7	78	230	14
Spr 2017	5	ELA	21	18	6.6	243	89.3	86	238	15
Spr 2017	5	ELA	22	11	4.0	254	93.4	91	247	17
Spr 2017	5	ELA	23	9	3.3	263	96.7	95	260	20
Spr 2017	5	ELA	24	6	2.2	269	98.9	98	280	28
Spr 2017	5	ELA	25	3	1.1	272	100.0	99	300	49

Grade 6

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	6	ELA	0	16	5.3	16	5.3	3	101	50
Spr 2017	6	ELA	1	3	1.0	19	6.3	6	101	28
Spr 2017	6	ELA	2	1	0.3	20	6.6	6	115	21
Spr 2017	6	ELA	3	-	0.0	20	6.6	7	128	17
Spr 2017	6	ELA	4	-	0.0	20	6.6	7	137	16
Spr 2017	6	ELA	5	2	0.7	22	7.2	7	145	14
Spr 2017	6	ELA	6	1	0.3	23	7.6	7	152	13
Spr 2017	6	ELA	7	6	2.0	29	9.5	9	159	13
Spr 2017	6	ELA	8	6	2.0	35	11.5	11	165	12
Spr 2017	6	ELA	9	11	3.6	46	15.1	13	170	12
Spr 2017	6	ELA	10	16	5.3	62	20.4	18	175	12
Spr 2017	6	ELA	11	21	6.9	83	27.3	24	180	12
Spr 2017	6	ELA	12	14	4.6	97	31.9	30	185	12
Spr 2017	6	ELA	13	17	5.6	114	37.5	35	190	12
Spr 2017	6	ELA	14	14	4.6	128	42.1	40	195	12
Spr 2017	6	ELA	15	15	4.9	143	47.0	45	200	12
Spr 2017	6	ELA	16	18	5.9	161	53.0	50	205	12
Spr 2017	6	ELA	17	12	3.9	173	56.9	55	211	12
Spr 2017	6	ELA	18	18	5.9	191	62.8	60	216	13
Spr 2017	6	ELA	19	23	7.6	214	70.4	67	223	13
Spr 2017	6	ELA	20	22	7.2	236	77.6	74	230	14
Spr 2017	6	ELA	21	25	8.2	261	85.9	82	238	16
Spr 2017	6	ELA	22	15	4.9	276	90.8	88	248	17
Spr 2017	6	ELA	23	20	6.6	296	97.4	94	261	21
Spr 2017	6	ELA	24	4	1.3	300	98.7	98	282	28
Spr 2017	6	ELA	25	4	1.3	304	100.0	99	300	50

Grade 7

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	7	ELA	0	16	5.1	16	5.1	3	101	58
Spr 2017	7	ELA	1	-	0.0	16	5.1	5	101	32
Spr 2017	7	ELA	2	-	0.0	16	5.1	5	101	24
Spr 2017	7	ELA	3	-	0.0	16	5.1	5	110	20
Spr 2017	7	ELA	4	1	0.3	17	5.4	5	122	18
Spr 2017	7	ELA	5	1	0.3	18	5.7	6	131	16
Spr 2017	7	ELA	6	4	1.3	22	7.0	6	139	15
Spr 2017	7	ELA	7	5	1.6	27	8.6	8	146	15
Spr 2017	7	ELA	8	8	2.5	35	11.1	10	153	14
Spr 2017	7	ELA	9	18	5.7	53	16.9	14	159	14
Spr 2017	7	ELA	10	12	3.8	65	20.7	19	165	14
Spr 2017	7	ELA	11	9	2.9	74	23.6	22	171	13
Spr 2017	7	ELA	12	14	4.5	88	28.0	26	177	13
Spr 2017	7	ELA	13	21	6.7	109	34.7	31	182	13
Spr 2017	7	ELA	14	33	10.5	142	45.2	40	188	13
Spr 2017	7	ELA	15	10	3.2	152	48.4	47	194	14
Spr 2017	7	ELA	16	20	6.4	172	54.8	52	200	14
Spr 2017	7	ELA	17	19	6.1	191	60.8	58	206	14
Spr 2017	7	ELA	18	21	6.7	212	67.5	64	213	15
Spr 2017	7	ELA	19	21	6.7	233	74.2	71	220	16
Spr 2017	7	ELA	20	31	9.9	264	84.1	79	228	16
Spr 2017	7	ELA	21	15	4.8	279	88.9	86	238	18
Spr 2017	7	ELA	22	20	6.4	299	95.2	92	249	20
Spr 2017	7	ELA	23	8	2.5	307	97.8	96	264	24
Spr 2017	7	ELA	24	6	1.9	313	99.7	99	288	32
Spr 2017	7	ELA	25	1	0.3	314	100.0	99	300	58

Grade 8

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	8	ELA	0	15	4.7	15	4.7	2	101	44
Spr 2017	8	ELA	1	3	0.9	18	5.6	5	103	25
Spr 2017	8	ELA	2	3	0.9	21	6.5	6	121	18
Spr 2017	8	ELA	3	-	0.0	21	6.5	7	132	15
Spr 2017	8	ELA	4	1	0.3	22	6.9	7	140	13
Spr 2017	8	ELA	5	2	0.6	24	7.5	7	147	12
Spr 2017	8	ELA	6	8	2.5	32	10.0	9	153	12
Spr 2017	8	ELA	7	4	1.2	36	11.2	11	159	11
Spr 2017	8	ELA	8	12	3.7	48	15.0	13	164	11
Spr 2017	8	ELA	9	11	3.4	59	18.4	17	169	11
Spr 2017	8	ELA	10	12	3.7	71	22.1	20	173	10
Spr 2017	8	ELA	11	18	5.6	89	27.7	25	178	10
Spr 2017	8	ELA	12	20	6.2	109	34.0	31	182	10
Spr 2017	8	ELA	13	10	3.1	119	37.1	36	186	10
Spr 2017	8	ELA	14	14	4.4	133	41.4	40	191	10
Spr 2017	8	ELA	15	11	3.4	144	44.9	43	195	10
Spr 2017	8	ELA	16	15	4.7	159	49.5	48	200	11
Spr 2017	8	ELA	17	16	5.0	175	54.5	52	205	11
Spr 2017	8	ELA	18	22	6.9	197	61.4	58	210	11
Spr 2017	8	ELA	19	17	5.3	214	66.7	64	216	12
Spr 2017	8	ELA	20	18	5.6	232	72.3	70	222	13
Spr 2017	8	ELA	21	20	6.2	252	78.5	76	229	14
Spr 2017	8	ELA	22	20	6.2	272	84.7	82	238	15
Spr 2017	8	ELA	23	27	8.4	299	93.1	89	249	18
Spr 2017	8	ELA	24	19	5.9	318	99.1	96	267	25
Spr 2017	8	ELA	25	3	0.9	321	100.0	99	297	44

Grade 11

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	11	ELA	0	23	7.7	23	7.7	4	101	47
Spr 2017	11	ELA	1	2	0.7	25	8.4	8	101	26
Spr 2017	11	ELA	2	2	0.7	27	9.0	9	112	19
Spr 2017	11	ELA	3	1	0.3	28	9.4	9	124	16
Spr 2017	11	ELA	4	1	0.3	29	9.7	10	133	15
Spr 2017	11	ELA	5	2	0.7	31	10.4	10	141	13
Spr 2017	11	ELA	6	4	1.3	35	11.7	12	148	13
Spr 2017	11	ELA	7	5	1.7	40	13.4	13	154	12
Spr 2017	11	ELA	8	6	2.0	46	15.4	15	159	12
Spr 2017	11	ELA	9	15	5.0	61	20.4	18	165	12
Spr 2017	11	ELA	10	10	3.3	71	23.7	23	170	11
Spr 2017	11	ELA	11	13	4.3	84	28.1	26	175	11
Spr 2017	11	ELA	12	15	5.0	99	33.1	31	180	11
Spr 2017	11	ELA	13	20	6.7	119	39.8	37	185	11
Spr 2017	11	ELA	14	14	4.7	133	44.5	43	190	11
Spr 2017	11	ELA	15	15	5.0	148	49.5	47	195	11
Spr 2017	11	ELA	16	13	4.3	161	53.8	52	200	12
Spr 2017	11	ELA	17	18	6.0	179	59.9	57	205	12
Spr 2017	11	ELA	18	19	6.4	198	66.2	63	211	12
Spr 2017	11	ELA	19	24	8.0	222	74.2	70	217	13
Spr 2017	11	ELA	20	15	5.0	237	79.3	77	224	14
Spr 2017	11	ELA	21	17	5.7	254	84.9	82	232	15
Spr 2017	11	ELA	22	17	5.7	271	90.6	88	242	16
Spr 2017	11	ELA	23	17	5.7	288	96.3	94	254	19
Spr 2017	11	ELA	24	6	2.0	294	98.3	97	274	26
Spr 2017	11	ELA	25	5	1.7	299	100.0	99	300	47

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

The charts are simple displays of scale score, raw score, and percentile. The raw score and percentile for any scale score can be read directly from the chart.

The proformance 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 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 2017	3	Math	0	28	10.5	28	10.5	1	1	55
Spr 2017	3	Math	1	-	0.0	28	10.5	1	1	31
Spr 2017	3	Math	2	-	0.0	28	10.5	1	1	22
Spr 2017	3	Math	3	-	0.0	28	10.5	1	12	19
Spr 2017	3	Math	4	3	1.1	31	11.6	1	23	17
Spr 2017	3	Math	5	2	0.7	33	12.4	1	32	16
Spr 2017	3	Math	6	2	0.7	35	13.1	2	39	15
Spr 2017	3	Math	7	7	2.6	42	15.7	4	46	14
Spr 2017	3	Math	8	6	2.2	48	18.0	6	53	13
Spr 2017	3	Math	9	4	1.5	52	19.5	8	59	13
Spr 2017	3	Math	10	13	4.9	65	24.3	12	64	13
Spr 2017	3	Math	11	7	2.6	72	27.0	16	70	13
Spr 2017	3	Math	12	10	3.7	82	30.7	19	75	13
Spr 2017	3	Math	13	8	3.0	90	33.7	23	81	13
Spr 2017	3	Math	14	14	5.2	104	39.0	28	86	13
Spr 2017	3	Math	15	14	5.2	118	44.2	34	91	13
Spr 2017	3	Math	16	9	3.4	127	47.6	39	97	13
Spr 2017	3	Math	17	3	1.1	130	48.7	41	103	13
Spr 2017	3	Math	18	22	8.2	152	56.9	47	109	14
Spr 2017	3	Math	19	7	2.6	159	59.6	53	116	15
Spr 2017	3	Math	20	8	3.0	167	62.5	56	124	15
Spr 2017	3	Math	21	21	7.9	188	70.4	62	132	17
Spr 2017	3	Math	22	17	6.4	205	76.8	70	143	19
Spr 2017	3	Math	23	25	9.4	230	86.1	79	157	22
Spr 2017	3	Math	24	25	9.4	255	95.5	90	179	31
Spr 2017	3	Math	25	12	4.5	267	100.0	97	200	55

Grade 4

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	4	Math	0	35	13.4	35	13.4	1	1	68
Spr 2017	4	Math	1	1	0.4	36	13.7	1	1	38
Spr 2017	4	Math	2	1	0.4	37	14.1	1	1	27
Spr 2017	4	Math	3	-	0.0	37	14.1	1	1	23
Spr 2017	4	Math	4	-	0.0	37	14.1	1	1	20
Spr 2017	4	Math	5	2	0.8	39	14.9	1	3	19
Spr 2017	4	Math	6	1	0.4	40	15.3	1	12	17
Spr 2017	4	Math	7	3	1.1	43	16.4	2	20	17
Spr 2017	4	Math	8	3	1.1	46	17.6	4	27	16
Spr 2017	4	Math	9	4	1.5	50	19.1	5	33	15
Spr 2017	4	Math	10	12	4.6	62	23.7	9	40	15
Spr 2017	4	Math	11	4	1.5	66	25.2	12	46	15
Spr 2017	4	Math	12	11	4.2	77	29.4	16	51	14
Spr 2017	4	Math	13	8	3.1	85	32.4	20	57	14
Spr 2017	4	Math	14	10	3.8	95	36.3	24	63	14
Spr 2017	4	Math	15	3	1.1	98	37.4	27	68	14
Spr 2017	4	Math	16	6	2.3	104	39.7	29	74	14
Spr 2017	4	Math	17	15	5.7	119	45.4	33	79	14
Spr 2017	4	Math	18	6	2.3	125	47.7	38	85	15
Spr 2017	4	Math	19	8	3.1	133	50.8	41	91	15
Spr 2017	4	Math	20	12	4.6	145	55.3	46	97	15
Spr 2017	4	Math	21	12	4.6	157	59.9	51	103	15
Spr 2017	4	Math	22	6	2.3	163	62.2	55	110	16
Spr 2017	4	Math	23	13	5.0	176	67.2	59	117	17
Spr 2017	4	Math	24	7	2.7	183	69.8	63	125	18
Spr 2017	4	Math	25	14	5.3	197	75.2	68	134	19
Spr 2017	4	Math	26	7	2.7	204	77.9	73	144	20
Spr 2017	4	Math	27	19	7.3	223	85.1	79	157	23
Spr 2017	4	Math	28	19	7.3	242	92.4	87	174	27
Spr 2017	4	Math	29	10	3.8	252	96.2	93	200	38
Spr 2017	4	Math	30	10	3.8	262	100.0	98	200	68

Grade 5

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	5	Math	0	21	7.7	21	7.7	1	1	68
Spr 2017	5	Math	1	1	0.4	22	8.1	1	1	38
Spr 2017	5	Math	2	1	0.4	23	8.5	1	1	27
Spr 2017	5	Math	3	1	0.4	24	8.8	1	1	23
Spr 2017	5	Math	4	1	0.4	25	9.2	1	6	20
Spr 2017	5	Math	5	-	0.0	25	9.2	2	16	19
Spr 2017	5	Math	6	2	0.7	27	9.9	2	25	18
Spr 2017	5	Math	7	1	0.4	28	10.3	2	34	17
Spr 2017	5	Math	8	2	0.7	30	11.0	3	41	16
Spr 2017	5	Math	9	6	2.2	36	13.2	4	48	16
Spr 2017	5	Math	10	2	0.7	38	14.0	6	54	15
Spr 2017	5	Math	11	11	4.0	49	18.0	9	61	15
Spr 2017	5	Math	12	6	2.2	55	20.2	12	67	15
Spr 2017	5	Math	13	9	3.3	64	23.5	15	73	15
Spr 2017	5	Math	14	9	3.3	73	26.8	18	78	15
Spr 2017	5	Math	15	7	2.6	80	29.4	21	84	15
Spr 2017	5	Math	16	17	6.3	97	35.7	26	90	15
Spr 2017	5	Math	17	8	2.9	105	38.6	31	96	15
Spr 2017	5	Math	18	13	4.8	118	43.4	36	102	15
Spr 2017	5	Math	19	9	3.3	127	46.7	40	108	15
Spr 2017	5	Math	20	16	5.9	143	52.6	45	114	15
Spr 2017	5	Math	21	11	4.0	154	56.6	50	121	16
Spr 2017	5	Math	22	13	4.8	167	61.4	55	128	16
Spr 2017	5	Math	23	12	4.4	179	65.8	60	135	17
Spr 2017	5	Math	24	23	8.5	202	74.3	67	143	18
Spr 2017	5	Math	25	15	5.5	217	79.8	75	152	19
Spr 2017	5	Math	26	20	7.4	237	87.1	82	163	20
Spr 2017	5	Math	27	15	5.5	252	92.6	89	176	23
Spr 2017	5	Math	28	9	3.3	261	96.0	94	193	27
Spr 2017	5	Math	29	7	2.6	268	98.5	97	200	38
Spr 2017	5	Math	30	4	1.5	272	100.0	99	200	68

Grade 6

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	6	Math	0	20	6.5	20	6.5	1	1	52
Spr 2017	6	Math	1	-	0.0	20	6.5	1	1	29
Spr 2017	6	Math	2	-	0.0	20	6.5	1	1	21
Spr 2017	6	Math	3	-	0.0	20	6.5	1	10	18
Spr 2017	6	Math	4	2	0.7	22	7.2	1	20	16
Spr 2017	6	Math	5	1	0.3	23	7.5	1	28	15
Spr 2017	6	Math	6	1	0.3	24	7.8	1	35	14
Spr 2017	6	Math	7	2	0.7	26	8.5	2	41	13
Spr 2017	6	Math	8	3	1.0	29	9.5	2	47	12
Spr 2017	6	Math	9	14	4.6	43	14.1	5	52	12
Spr 2017	6	Math	10	7	2.3	50	16.3	9	57	12
Spr 2017	6	Math	11	10	3.3	60	19.6	12	62	11
Spr 2017	6	Math	12	12	3.9	72	23.5	15	67	11
Spr 2017	6	Math	13	13	4.2	85	27.8	20	71	11
Spr 2017	6	Math	14	18	5.9	103	33.7	25	75	11
Spr 2017	6	Math	15	9	2.9	112	36.6	30	80	11
Spr 2017	6	Math	16	17	5.6	129	42.2	35	84	11
Spr 2017	6	Math	17	22	7.2	151	49.3	42	88	11
Spr 2017	6	Math	18	16	5.2	167	54.6	48	92	11
Spr 2017	6	Math	19	12	3.9	179	58.5	53	97	11
Spr 2017	6	Math	20	12	3.9	191	62.4	57	101	11
Spr 2017	6	Math	21	10	3.3	201	65.7	61	106	12
Spr 2017	6	Math	22	8	2.6	209	68.3	64	111	12
Spr 2017	6	Math	23	15	4.9	224	73.2	68	117	13
Spr 2017	6	Math	24	16	5.2	240	78.4	74	123	13
Spr 2017	6	Math	25	8	2.6	248	81.0	78	129	14
Spr 2017	6	Math	26	17	5.6	265	86.6	83	137	16
Spr 2017	6	Math	27	17	5.6	282	92.2	89	146	17
Spr 2017	6	Math	28	13	4.2	295	96.4	94	159	21
Spr 2017	6	Math	29	5	1.6	300	98.0	97	180	29
Spr 2017	6	Math	30	6	2.0	306	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 2017	7	Math	0	15	4.7	15	4.7	1	1	63
Spr 2017	7	Math	1	1	0.3	16	5.0	1	1	35
Spr 2017	7	Math	2	2	0.6	18	5.6	1	1	26
Spr 2017	7	Math	3	2	0.6	20	6.3	1	1	21
Spr 2017	7	Math	4	-	0.0	20	6.3	1	9	19
Spr 2017	7	Math	5	1	0.3	21	6.6	2	18	17
Spr 2017	7	Math	6	1	0.3	22	6.9	2	26	16
Spr 2017	7	Math	7	4	1.3	26	8.2	3	34	15
Spr 2017	7	Math	8	4	1.3	30	9.4	4	41	15
Spr 2017	7	Math	9	4	1.3	34	10.7	6	47	14
Spr 2017	7	Math	10	10	3.1	44	13.8	8	53	14
Spr 2017	7	Math	11	20	6.3	64	20.1	13	58	14
Spr 2017	7	Math	12	15	4.7	79	24.8	19	64	14
Spr 2017	7	Math	13	19	6.0	98	30.7	24	69	13
Spr 2017	7	Math	14	12	3.8	110	34.5	29	74	13
Spr 2017	7	Math	15	9	2.8	119	37.3	33	79	13
Spr 2017	7	Math	16	9	2.8	128	40.1	36	84	13
Spr 2017	7	Math	17	23	7.2	151	47.3	41	90	13
Spr 2017	7	Math	18	9	2.8	160	50.2	46	95	14
Spr 2017	7	Math	19	11	3.4	171	53.6	50	100	14
Spr 2017	7	Math	20	20	6.3	191	59.9	55	106	14
Spr 2017	7	Math	21	16	5.0	207	64.9	61	112	14
Spr 2017	7	Math	22	8	2.5	215	67.4	64	118	15
Spr 2017	7	Math	23	7	2.2	222	69.6	67	125	15
Spr 2017	7	Math	24	18	5.6	240	75.2	71	132	16
Spr 2017	7	Math	25	9	2.8	249	78.1	75	140	17
Spr 2017	7	Math	26	15	4.7	264	82.8	79	150	19
Spr 2017	7	Math	27	20	6.3	284	89.0	85	162	21
Spr 2017	7	Math	28	15	4.7	299	93.7	91	177	26
Spr 2017	7	Math	29	12	3.8	311	97.5	95	200	35
Spr 2017	7	Math	30	8	2.5	319	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 2017	8	Math	0	18	5.5	18	5.5	1	1	70
Spr 2017	8	Math	1	2	0.6	20	6.1	1	1	39
Spr 2017	8	Math	2	2	0.6	22	6.7	1	1	28
Spr 2017	8	Math	3	1	0.3	23	7.0	1	1	24
Spr 2017	8	Math	4	-	0.0	23	7.0	1	1	21
Spr 2017	8	Math	5	1	0.3	24	7.3	1	4	19
Spr 2017	8	Math	6	2	0.6	26	7.9	2	13	18
Spr 2017	8	Math	7	6	1.8	32	9.7	3	21	17
Spr 2017	8	Math	8	2	0.6	34	10.3	4	28	16
Spr 2017	8	Math	9	12	3.6	46	13.9	6	35	16
Spr 2017	8	Math	10	11	3.3	57	17.3	10	42	16
Spr 2017	8	Math	11	11	3.3	68	20.6	14	48	15
Spr 2017	8	Math	12	18	5.5	86	26.1	19	54	15
Spr 2017	8	Math	13	17	5.2	103	31.2	24	60	15
Spr 2017	8	Math	14	12	3.6	115	34.8	29	66	15
Spr 2017	8	Math	15	16	4.8	131	39.7	33	71	15
Spr 2017	8	Math	16	10	3.0	141	42.7	37	77	15
Spr 2017	8	Math	17	12	3.6	153	46.4	41	83	15
Spr 2017	8	Math	18	18	5.5	171	51.8	46	89	15
Spr 2017	8	Math	19	9	2.7	180	54.5	50	95	15
Spr 2017	8	Math	20	10	3.0	190	57.6	53	101	16
Spr 2017	8	Math	21	16	4.8	206	62.4	57	107	16
Spr 2017	8	Math	22	17	5.2	223	67.6	63	114	16
Spr 2017	8	Math	23	18	5.5	241	73.0	68	122	17
Spr 2017	8	Math	24	13	3.9	254	77.0	73	130	18
Spr 2017	8	Math	25	19	5.8	273	82.7	79	139	19
Spr 2017	8	Math	26	14	4.2	287	87.0	84	149	21
Spr 2017	8	Math	27	14	4.2	301	91.2	88	162	24
Spr 2017	8	Math	28	15	4.5	316	95.8	93	180	28
Spr 2017	8	Math	29	12	3.6	328	99.4	97	200	39
Spr 2017	8	Math	30	2	0.6	330	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 2017	11	Math	0	27	9.0	27	9.0	1	1	93
Spr 2017	11	Math	1	1	0.3	28	9.3	1	1	52
Spr 2017	11	Math	2	-	0.0	28	9.3	1	1	38
Spr 2017	11	Math	3	-	0.0	28	9.3	1	1	32
Spr 2017	11	Math	4	2	0.7	30	10.0	1	1	28
Spr 2017	11	Math	5	1	0.3	31	10.3	1	1	26
Spr 2017	11	Math	6	1	0.3	32	10.7	1	1	25
Spr 2017	11	Math	7	1	0.3	33	11.0	2	1	23
Spr 2017	11	Math	8	3	1.0	36	12.0	2	9	22
Spr 2017	11	Math	9	7	2.3	43	14.3	4	19	22
Spr 2017	11	Math	10	12	4.0	55	18.3	8	28	21
Spr 2017	11	Math	11	9	3.0	64	21.3	12	36	21
Spr 2017	11	Math	12	13	4.3	77	25.7	16	45	21
Spr 2017	11	Math	13	11	3.7	88	29.3	20	53	20
Spr 2017	11	Math	14	12	4.0	100	33.3	25	61	20
Spr 2017	11	Math	15	11	3.7	111	37.0	29	69	20
Spr 2017	11	Math	16	13	4.3	124	41.3	33	77	20
Spr 2017	11	Math	17	13	4.3	137	45.7	38	85	20
Spr 2017	11	Math	18	16	5.3	153	51.0	43	93	20
Spr 2017	11	Math	19	9	3.0	162	54.0	48	102	21
Spr 2017	11	Math	20	13	4.3	175	58.3	52	110	21
Spr 2017	11	Math	21	8	2.7	183	61.0	56	119	22
Spr 2017	11	Math	22	16	5.3	199	66.3	60	129	22
Spr 2017	11	Math	23	19	6.3	218	72.7	66	139	23
Spr 2017	11	Math	24	16	5.3	234	78.0	73	150	24
Spr 2017	11	Math	25	20	6.7	254	84.7	79	162	26
Spr 2017	11	Math	26	17	5.7	271	90.3	86	177	28
Spr 2017	11	Math	27	13	4.3	284	94.7	92	194	32
Spr 2017	11	Math	28	10	3.3	294	98.0	96	200	38
Spr 2017	11	Math	29	6	2.0	300	100.0	99	200	52
Spr 2017	11	Math	30	-	0.0	300	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. The raw score and percentile rank for any scale score can be read directly from the chart.

The proformance 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 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 2017	5	Science	0	22	8.2	22	8.2	1	1	65
Spr 2017	5	Science	1	-	0.0	22	8.2	1	1	37
Spr 2017	5	Science	2	1	0.4	23	8.6	1	1	27
Spr 2017	5	Science	3	2	0.7	25	9.3	1	1	23
Spr 2017	5	Science	4	1	0.4	26	9.7	2	14	20
Spr 2017	5	Science	5	4	1.5	30	11.2	3	25	19
Spr 2017	5	Science	6	4	1.5	34	12.7	4	35	18
Spr 2017	5	Science	7	2	0.7	36	13.4	5	44	17
Spr 2017	5	Science	8	9	3.4	45	16.8	7	51	16
Spr 2017	5	Science	9	8	3.0	53	19.8	11	59	16
Spr 2017	5	Science	10	7	2.6	60	22.4	14	66	16
Spr 2017	5	Science	11	6	2.2	66	24.6	16	73	15
Spr 2017	5	Science	12	8	3.0	74	27.6	19	79	15
Spr 2017	5	Science	13	12	4.5	86	32.1	23	86	15
Spr 2017	5	Science	14	11	4.1	97	36.2	28	92	15
Spr 2017	5	Science	15	12	4.5	109	40.7	33	99	15
Spr 2017	5	Science	16	16	6.0	125	46.6	38	106	16
Spr 2017	5	Science	17	12	4.5	137	51.1	44	113	16
Spr 2017	5	Science	18	15	5.6	152	56.7	50	121	17
Spr 2017	5	Science	19	19	7.1	171	63.8	57	129	17
Spr 2017	5	Science	20	21	7.8	192	71.6	65	138	18
Spr 2017	5	Science	21	14	5.2	206	76.9	72	148	20
Spr 2017	5	Science	22	21	7.8	227	84.7	79	160	22
Spr 2017	5	Science	23	14	5.2	241	89.9	86	177	26
Spr 2017	5	Science	24	23	8.6	264	98.5	94	200	36
Spr 2017	5	Science	25	4	1.5	268	100.0	99	200	65

Grade 8

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*S.E.*
Spr 2017	8	Science	0	19	5.9	19	5.9	1	1	72
Spr 2017	8	Science	1	2	0.6	21	6.5	1	1	40
Spr 2017	8	Science	2	3	0.9	24	7.5	1	1	29
Spr 2017	8	Science	3	-	0.0	24	7.5	1	1	24
Spr 2017	8	Science	4	-	0.0	24	7.5	1	4	22
Spr 2017	8	Science	5	-	0.0	24	7.5	1	15	20
Spr 2017	8	Science	6	3	0.9	27	8.4	2	25	19
Spr 2017	8	Science	7	3	0.9	30	9.3	3	34	18
Spr 2017	8	Science	8	4	1.2	34	10.6	4	41	17
Spr 2017	8	Science	9	13	4.0	47	14.6	7	49	17
Spr 2017	8	Science	10	14	4.3	61	18.9	11	56	17
Spr 2017	8	Science	11	16	5.0	77	23.9	16	63	16
Spr 2017	8	Science	12	14	4.3	91	28.3	21	70	16
Spr 2017	8	Science	13	9	2.8	100	31.1	25	77	16
Spr 2017	8	Science	14	16	5.0	116	36.0	29	83	16
Spr 2017	8	Science	15	16	5.0	132	41.0	34	90	17
Spr 2017	8	Science	16	24	7.5	156	48.4	41	97	17
Spr 2017	8	Science	17	25	7.8	181	56.2	49	105	17
Spr 2017	8	Science	18	23	7.1	204	63.4	57	113	18
Spr 2017	8	Science	19	23	7.1	227	70.5	65	121	19
Spr 2017	8	Science	20	25	7.8	252	78.3	73	131	20
Spr 2017	8	Science	21	22	6.8	274	85.1	80	142	22
Spr 2017	8	Science	22	26	8.1	300	93.2	88	156	24
Spr 2017	8	Science	23	14	4.3	314	97.5	95	174	29
Spr 2017	8	Science	24	7	2.2	321	99.7	98	200	40
Spr 2017	8	Science	25	1	0.3	322	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 2017	11	Science	0	27	9.0	27	9.0	1	1	62
Spr 2017	11	Science	1	1	0.3	28	9.4	1	1	35
Spr 2017	11	Science	2	-	0.0	28	9.4	1	1	25
Spr 2017	11	Science	3	-	0.0	28	9.4	1	1	21
Spr 2017	11	Science	4	1	0.3	29	9.7	1	6	19
Spr 2017	11	Science	5	-	0.0	29	9.7	1	16	18
Spr 2017	11	Science	6	1	0.3	30	10.0	1	25	16
Spr 2017	11	Science	7	1	0.3	31	10.4	1	32	16
Spr 2017	11	Science	8	4	1.3	35	11.7	2	39	15
Spr 2017	11	Science	9	6	2.0	41	13.7	4	46	14
Spr 2017	11	Science	10	11	3.7	52	17.4	7	52	14
Spr 2017	11	Science	11	7	2.3	59	19.7	10	58	14
Spr 2017	11	Science	12	12	4.0	71	23.7	14	63	14
Spr 2017	11	Science	13	11	3.7	82	27.4	18	69	13
Spr 2017	11	Science	14	12	4.0	94	31.4	22	74	13
Spr 2017	11	Science	15	9	3.0	103	34.4	26	79	13
Spr 2017	11	Science	16	10	3.3	113	37.8	30	84	13
Spr 2017	11	Science	17	10	3.3	123	41.1	33	90	13
Spr 2017	11	Science	18	16	5.4	139	46.5	38	95	13
Spr 2017	11	Science	19	13	4.3	152	50.8	44	100	14
Spr 2017	11	Science	20	17	5.7	169	56.5	49	106	14
Spr 2017	11	Science	21	19	6.4	188	62.9	56	112	14
Spr 2017	11	Science	22	7	2.3	195	65.2	60	118	15
Spr 2017	11	Science	23	12	4.0	207	69.2	64	124	15
Spr 2017	11	Science	24	17	5.7	224	74.9	69	131	16
Spr 2017	11	Science	25	14	4.7	238	79.6	75	139	17
Spr 2017	11	Science	26	15	5.0	253	84.6	80	149	19
Spr 2017	11	Science	27	13	4.3	266	89.0	85	160	21
Spr 2017	11	Science	28	13	4.3	279	93.3	90	176	25
Spr 2017	11	Science	29	12	4.0	291	97.3	95	200	34
Spr 2017	11	Science	30	8	2.7	299	100.0	99	200	62

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

ELA : Grade 3

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Level 1	Level 2	Level 3
Overall		269	14.7	7.1	200.2	47.4	18.2	41.3	40.5
Gender	Male	169	15.2	6.5	204.3	43.7	18.9	40.8	40.2
	Female	100	13.8	7.9	193.4	52.6	17.0	42.0	41.0
Ethnicity*	AM	7	16.6	3.7	209.6	20.0	0.0	71.4	28.6
	AS	7	14.1	7.6	197.7	53.6	14.3	28.6	57.1
	BL	27	15.6	7.1	207.3	47.7	25.9	40.7	33.3
	HI	50	13.6	7.4	193.1	48.6	16.0	40.0	44.0
	PI	0	–	–	–	–	–	–	–
	WH	161	14.7	7.0	201.0	47.2	18.6	40.4	41.0
	MU	17	14.9	7.8	199.8	53.0	17.6	47.1	35.3
Special Ed	No	2	18.5	0.7	219.0	4.2	0.0	100.0	0.0
	Yes	267	14.6	7.1	200.1	47.5	18.4	40.8	40.8
ELL	No	263	14.7	7.1	200.4	47.4	18.3	41.4	40.3
	Yes	6	13.7	7.3	190.7	49.4	16.7	33.3	50.0
FLS	No	101	13.5	7.3	193.0	48.5	15.8	37.6	46.5
	Yes	168	15.3	6.9	204.6	46.3	19.6	43.5	36.9

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

Grade 4

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Level 1	Level 2	Level 3
Overall		272	14.1	7.2	196.9	47.6	16.5	38.6	44.9
Gender	Male	187	14.3	6.9	198.8	45.6	17.6	36.4	46.0
	Female	85	13.7	7.8	192.7	51.7	14.1	43.5	42.4
Ethnicity*	AM	4	12.3	8.2	180.3	53.0	0.0	75.0	25.0
	AS	8	10.4	7.0	174.3	42.5	0.0	37.5	62.5
	BL	27	14.6	7.5	198.2	48.9	18.5	44.4	37.0
	HI	50	13.3	6.5	190.9	40.8	10.0	36.0	54.0
	PI	0	–	–	–	–	–	–	–
	WH	168	14.5	7.3	200.5	49.6	20.2	36.3	43.5
	MU	15	13.5	7.4	190.8	45.2	6.7	53.3	40.0
Special Ed	No	2	11.0	5.7	181.0	26.9	0.0	50.0	50.0
	Yes	270	14.1	7.2	197.0	47.7	16.7	38.5	44.8
ELL	No	265	14.0	7.2	196.3	47.9	16.2	38.1	45.7
	Yes	7	17.7	4.9	218.1	28.8	28.6	57.1	14.3
FLS	No	118	13.3	7.1	192.0	46.9	12.7	34.7	52.5
	Yes	154	14.7	7.2	200.7	47.9	19.5	41.6	39.0

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

Grade 5

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Level 1	Level 2	Level 3
Overall		272	14.8	6.4	200.3	42.0	17.3	43.0	39.7
Gender	Male	181	15.0	5.8	201.3	37.9	14.9	46.4	38.7
	Female	91	14.4	7.3	198.2	49.2	22.0	36.3	41.8
Ethnicity*	AM	7	14.9	5.0	202.0	31.9	14.3	42.9	42.9
	AS	6	13.8	4.3	194.0	23.4	0.0	50.0	50.0
	BL	32	14.4	6.2	196.4	39.2	9.4	59.4	31.3
	HI	51	13.8	6.6	192.9	42.5	13.7	39.2	47.1
	PI	0	–	–	–	–	–	–	–
	WH	168	15.1	6.5	203.0	43.9	20.2	41.7	38.1
	MU	8	16.3	3.8	209.1	23.4	25.0	25.0	50.0
Special Ed	No	3	8.7	2.1	166.7	11.9	0.0	0.0	100.0
	Yes	269	14.8	6.4	200.6	42.0	17.5	43.5	39.0
ELL	No	271	14.8	6.4	200.2	42.1	17.3	42.8	39.9
	Yes	1	17.0	–	211.0	–	0.0	100.0	0.0
FLS	No	106	14.7	6.6	200.7	44.6	18.9	40.6	40.6
	Yes	166	14.8	6.2	200.0	40.3	16.3	44.6	39.2

* 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 *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Level 1	Level 2	Level 3
Overall		304	15.2	6.1	203.7	40.6	22.4	35.5	42.1
Gender	Male	183	15.5	5.8	205.8	37.9	22.4	36.1	41.5
	Female	121	14.7	6.7	200.6	44.3	22.3	34.7	43.0
Ethnicity*	AM	9	14.1	6.7	194.4	41.3	0.0	66.7	33.3
	AS	6	14.0	7.9	193.3	52.8	16.7	33.3	50.0
	BL	27	16.0	6.3	208.5	43.5	25.9	37.0	37.0
	HI	65	14.2	7.0	197.4	45.8	20.0	36.9	43.1
	PI	1	15.0	–	200.0	–	0.0	100.0	0.0
	WH	184	15.4	5.8	205.5	38.8	23.9	32.1	44.0
	MU	12	16.9	4.1	212.7	24.0	25.0	50.0	25.0
Special Ed	No	2	17.5	9.2	231.0	72.1	50.0	0.0	50.0
	Yes	302	15.2	6.1	203.6	40.4	22.2	35.8	42.1
ELL	No	298	15.1	6.1	203.3	40.4	21.8	35.9	42.3
	Yes	6	18.0	6.2	227.0	46.6	50.0	16.7	33.3
FLS	No	106	14.4	6.1	199.3	40.5	17.9	30.2	51.9
	Yes	198	15.6	6.1	206.1	40.5	24.7	38.4	36.9

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

Grade 7

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Level 1	Level 2	Level 3
Overall		314	15.0	5.7	197.4	39.2	11.1	40.4	48.4
Gender	Male	204	15.1	5.7	198.1	39.4	10.8	41.7	47.5
	Female	110	14.8	5.8	196.0	39.0	11.8	38.2	50.0
Ethnicity*	AM	8	13.3	4.1	184.4	24.5	0.0	37.5	62.5
	AS	5	12.0	4.1	177.2	24.8	0.0	20.0	80.0
	BL	30	15.6	6.0	202.6	43.6	20.0	30.0	50.0
	HI	68	13.2	5.9	185.6	40.0	5.9	30.9	63.2
	PI	0	–	–	–	–	–	–	–
	WH	197	15.6	5.6	201.0	38.2	11.7	46.2	42.1
	MU	6	18.0	5.1	217.8	35.2	33.3	33.3	33.3
Special Ed	No	1	14.0	–	188.0	–	0.0	0.0	100.0
	Yes	313	15.0	5.7	197.4	39.2	11.2	40.6	48.2
ELL	No	313	15.0	5.7	197.1	38.9	10.9	40.6	48.6
	Yes	1	24.0	–	288.0	–	100.0	0.0	0.0
FLS	No	125	15.3	5.3	198.7	36.4	10.4	42.4	47.2
	Yes	189	14.8	6.0	196.4	41.0	11.6	39.2	49.2

* 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 *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Level 1	Level 2	Level 3
Overall		321	15.4	6.5	200.9	40.3	21.5	33.6	44.9
Gender	Male	208	15.4	6.5	201.0	40.2	21.2	34.1	44.7
	Female	113	15.4	6.7	200.9	40.7	22.1	32.7	45.1
Ethnicity*	AM	5	13.8	9.5	189.2	57.9	20.0	40.0	40.0
	AS	4	15.8	4.8	200.8	24.1	0.0	50.0	50.0
	BL	38	14.6	7.3	195.4	45.0	21.1	28.9	50.0
	HI	63	16.0	6.1	204.4	36.6	23.8	34.9	41.3
	PI	0	–	–	–	–	–	–	–
	WH	197	15.5	6.6	201.6	41.3	22.3	32.5	45.2
	MU	14	14.9	4.8	195.4	27.6	7.1	50.0	42.9
Special Ed	No	1	6.0	–	153.0	–	0.0	0.0	100.0
	Yes	320	15.4	6.5	201.1	40.3	21.6	33.8	44.7
ELL	No	315	15.3	6.6	200.2	40.2	21.0	33.3	45.7
	Yes	6	21.0	3.0	237.3	32.4	50.0	50.0	0.0
FLS	No	129	15.2	6.4	200.8	40.2	20.9	31.8	47.3
	Yes	192	15.5	6.6	201.0	40.5	21.9	34.9	43.2

* 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 *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Level 1	Level 2	Level 3
Overall		299	14.6	6.6	195.4	42.9	20.7	29.8	49.5
Gender	Male	184	14.9	6.5	197.2	42.1	21.2	32.6	46.2
	Female	115	14.2	6.8	192.6	44.2	20.0	25.2	54.8
Ethnicity*	AM	2	6.0	7.1	138.0	52.3	0.0	0.0	100.0
	AS	13	12.9	6.6	185.3	42.7	15.4	15.4	69.2
	BL	31	15.9	7.0	203.0	44.3	35.5	29.0	35.5
	HI	44	14.1	5.7	192.0	36.1	11.4	31.8	56.8
	PI	0	–	–	–	–	–	–	–
	WH	196	14.6	6.8	195.1	44.3	20.4	30.1	49.5
	MU	13	17.3	5.1	212.5	33.3	30.8	38.5	30.8
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	299	14.6	6.6	195.4	42.9	20.7	29.8	49.5
ELL	No	297	14.6	6.6	195.4	43.0	20.9	29.6	49.5
	Yes	2	14.0	8.5	191.5	46.0	0.0	50.0	50.0
FLS	No	138	13.7	6.9	190.2	45.7	18.1	26.1	55.8
	Yes	161	15.4	6.3	199.9	40.0	23.0	32.9	44.1

* 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 *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		267	15.6	7.6	103.7	54.8	29.6	36.7	33.7
Gender	Male	168	16.6	7.0	111.2	52.9	33.3	34.5	32.1
	Female	99	14.1	8.3	91.2	56.0	23.2	40.4	36.4
Ethnicity*	AM	7	18.6	5.8	121.3	42.4	42.9	42.9	14.3
	AS	7	15.3	10.0	101.9	68.2	57.1	0.0	42.9
	BL	27	16.6	7.1	109.6	51.7	29.6	37.0	33.3
	HI	49	14.6	7.8	96.5	54.8	28.6	28.6	42.9
	PI	0	–	–	–	–	–	–	–
	WH	160	15.6	7.6	104.0	55.6	28.1	40.0	31.9
	MU	17	16.2	7.9	106.4	56.4	29.4	41.2	29.4
Special Ed	No	2	16.0	2.8	97.5	16.3	0.0	100.0	0.0
	Yes	265	15.6	7.6	103.8	55.0	29.8	36.2	34.0
ELL	No	261	15.6	7.6	103.4	54.7	29.1	36.8	34.1
	Yes	6	17.5	9.1	117.2	64.0	50.0	33.3	16.7
FLS	No	100	14.4	7.7	93.6	52.8	20.0	42.0	38.0
	Yes	167	16.4	7.5	109.8	55.3	35.3	33.5	31.1

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

Grade 4

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		262	17.4	9.4	92.9	60.6	24.8	29.8	45.4
Gender	Male	181	17.5	9.0	92.7	58.6	24.9	29.8	45.3
	Female	81	17.1	10.3	93.3	65.2	24.7	29.6	45.7
Ethnicity*	AM	4	17.5	12.3	94.3	69.0	25.0	50.0	25.0
	AS	7	11.1	10.0	55.9	60.5	14.3	14.3	71.4
	BL	27	18.0	9.5	96.9	60.3	25.9	29.6	44.4
	HI	49	17.2	9.0	89.3	56.3	26.5	26.5	46.9
	PI	0	–	–	–	–	–	–	–
	WH	160	17.6	9.4	94.9	62.1	24.4	30.6	45.0
	MU	15	17.3	10.2	92.8	60.4	26.7	33.3	40.0
Special Ed	No	2	10.5	7.8	38.5	50.2	0.0	0.0	100.0
	Yes	260	17.4	9.4	93.3	60.6	25.0	30.0	45.0
ELL	No	256	17.3	9.4	92.0	60.6	23.8	30.1	46.1
	Yes	6	23.0	7.2	129.3	52.4	66.7	16.7	16.7
FLS	No	116	16.5	9.2	86.3	58.6	19.8	26.7	53.4
	Yes	146	18.1	9.5	98.2	61.9	28.8	32.2	39.0

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

Grade 5

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		272	18.4	8.0	110.5	53.1	38.6	32.0	29.4
Gender	Male	180	18.8	7.6	112.3	50.8	36.7	36.1	27.2
	Female	92	17.7	8.7	107.0	57.7	42.4	23.9	33.7
Ethnicity*	AM	7	20.7	7.6	126.9	53.2	57.1	14.3	28.6
	AS	5	19.6	3.0	112.4	18.8	20.0	60.0	20.0
	BL	31	18.0	8.0	107.0	50.9	35.5	29.0	35.5
	HI	52	17.8	8.4	106.3	54.4	40.4	30.8	28.8
	PI	0	–	–	–	–	–	–	–
	WH	169	18.6	8.1	111.9	54.5	38.5	33.1	28.4
	MU	8	18.0	6.7	106.3	46.0	37.5	25.0	37.5
Special Ed	No	3	12.0	3.6	66.3	21.5	0.0	33.3	66.7
	Yes	269	18.5	8.0	111.0	53.2	39.0	32.0	29.0
ELL	No	271	18.4	8.0	110.6	53.2	38.7	31.7	29.5
	Yes	1	16.0	–	90.0	–	0.0	100.0	0.0
FLS	No	104	17.4	7.9	103.3	51.9	29.8	38.5	31.7
	Yes	168	19.1	8.0	115.0	53.6	44.0	28.0	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 6

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		306	17.5	7.6	94.1	42.4	19.0	38.9	42.2
Gender	Male	186	18.5	7.4	99.7	41.9	23.1	37.6	39.2
	Female	120	16.1	7.8	85.3	41.7	12.5	40.8	46.7
Ethnicity*	AM	9	16.6	8.9	90.2	49.5	22.2	11.1	66.7
	AS	6	16.3	9.6	85.3	49.0	16.7	50.0	33.3
	BL	27	18.5	7.8	98.5	42.7	22.2	48.1	29.6
	HI	66	16.9	9.0	91.0	49.4	24.2	30.3	45.5
	PI	1	14.0	–	75.0	–	0.0	0.0	100.0
	WH	186	17.7	7.2	95.1	40.4	17.2	40.3	42.5
	MU	11	18.1	4.5	94.2	22.0	9.1	63.6	27.3
Special Ed	No	2	19.5	10.6	106.5	55.9	50.0	0.0	50.0
	Yes	304	17.5	7.6	94.0	42.4	18.8	39.1	42.1
ELL	No	300	17.5	7.6	93.7	42.4	18.3	39.3	42.3
	Yes	6	20.5	7.7	111.2	42.2	50.0	16.7	33.3
FLS	No	106	15.9	7.2	85.0	38.5	10.4	38.7	50.9
	Yes	200	18.4	7.8	98.9	43.6	23.5	39.0	37.5

* 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 *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		319	18.0	7.7	101.6	50.4	24.8	35.1	40.1
Gender	Male	206	18.0	7.8	101.8	50.9	25.7	35.4	38.8
	Female	113	17.9	7.6	101.1	49.8	23.0	34.5	42.5
Ethnicity*	AM	8	15.5	5.7	82.9	31.4	0.0	37.5	62.5
	AS	5	17.0	4.2	90.2	23.0	0.0	60.0	40.0
	BL	31	17.5	8.4	98.8	55.2	22.6	38.7	38.7
	HI	68	16.2	7.9	88.9	47.2	19.1	32.4	48.5
	PI	0	–	–	–	–	–	–	–
	WH	200	18.6	7.6	106.0	51.1	27.5	35.0	37.5
	MU	7	24.0	5.4	140.1	40.6	57.1	28.6	14.3
Special Ed	No	1	18.0	–	95.0	–	0.0	100.0	0.0
	Yes	318	18.0	7.7	101.6	50.5	24.8	34.9	40.3
ELL	No	317	18.0	7.7	101.4	50.2	24.6	35.3	40.1
	Yes	2	21.5	10.6	137.0	89.1	50.0	0.0	50.0
FLS	No	129	18.1	7.3	101.6	48.7	20.9	38.8	40.3
	Yes	190	18.0	8.0	101.5	51.7	27.4	32.6	40.0

* 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 *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		330	17.6	7.7	93.4	51.8	23.0	30.6	46.4
Gender	Male	212	17.4	7.8	92.2	52.1	22.6	29.7	47.6
	Female	118	18.0	7.7	95.7	51.2	23.7	32.2	44.1
Ethnicity*	AM	6	17.0	10.3	89.8	59.2	33.3	33.3	33.3
	AS	4	11.5	7.9	55.5	37.9	0.0	25.0	75.0
	BL	38	16.3	7.9	84.1	48.6	18.4	31.6	50.0
	HI	64	19.2	7.5	105.2	53.3	31.3	26.6	42.2
	PI	0	–	–	–	–	–	–	–
	WH	204	17.6	7.7	93.3	51.7	22.1	32.8	45.1
	MU	14	15.4	7.1	79.1	48.2	14.3	14.3	71.4
Special Ed	No	1	11.0	–	48.0	–	0.0	0.0	100.0
	Yes	329	17.6	7.7	93.6	51.8	23.1	30.7	46.2
ELL	No	324	17.4	7.7	92.3	51.5	21.9	30.9	47.2
	Yes	6	25.8	2.3	152.3	26.3	83.3	16.7	0.0
FLS	No	134	17.7	7.4	93.5	49.8	22.4	31.3	46.3
	Yes	196	17.5	8.0	93.4	53.2	23.5	30.1	46.4

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

Grade 11

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		300	17.3	8.0	98.3	61.6	33.7	25.0	41.3
Gender	Male	185	17.7	8.2	101.3	64.2	38.4	21.1	40.5
	Female	115	16.8	7.7	93.3	57.0	26.1	31.3	42.6
Ethnicity*	AM	2	12.5	4.9	48.0	41.0	0.0	0.0	100.0
	AS	13	16.2	7.4	86.8	57.7	30.8	15.4	53.8
	BL	31	18.7	9.0	113.1	65.9	48.4	22.6	29.0
	HI	44	16.5	7.1	87.7	57.4	25.0	25.0	50.0
	PI	0	–	–	–	–	–	–	–
	WH	197	17.2	8.2	97.8	62.0	32.5	25.9	41.6
	MU	13	21.1	6.1	125.4	56.7	53.8	30.8	15.4
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	300	17.3	8.0	98.3	61.6	33.7	25.0	41.3
ELL	No	298	17.3	8.0	98.0	61.7	33.6	24.8	41.6
	Yes	2	23.5	2.1	145.5	23.3	50.0	50.0	0.0
FLS	No	139	16.2	8.1	89.1	59.7	28.8	22.3	48.9
	Yes	161	18.3	7.8	106.2	62.3	37.9	27.3	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

Science
Grade 5

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		268	15.6	7.0	110.4	56.1	36.2	36.2	27.6
Gender	Male	178	16.0	6.6	112.7	53.4	36.5	40.4	23.0
	Female	90	14.9	7.7	105.9	61.1	35.6	27.8	36.7
Ethnicity*	AM	7	18.3	4.8	130.4	43.3	57.1	28.6	14.3
	AS	5	11.8	4.0	76.2	29.6	0.0	60.0	40.0
	BL	32	15.3	7.0	107.3	52.9	37.5	31.3	31.3
	HI	51	14.7	7.4	103.8	58.1	31.4	37.3	31.4
	PI	0	–	–	–	–	–	–	–
	WH	165	15.8	7.2	112.7	57.6	38.2	35.2	26.7
	MU	8	17.3	4.4	121.8	41.5	25.0	62.5	12.5
Special Ed	No	3	10.7	3.1	69.7	20.7	0.0	33.3	66.7
	Yes	265	15.6	7.0	110.9	56.2	36.6	36.2	27.2
ELL	No	267	15.6	7.0	110.4	56.2	36.3	36.0	27.7
	Yes	1	18.0	–	121.0	–	0.0	100.0	0.0
FLS	No	102	15.2	7.3	107.7	58.5	34.3	37.3	28.4
	Yes	166	15.8	6.9	112.1	54.7	37.3	35.5	27.1

* 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 *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		322	15.4	6.1	99.6	46.7	21.7	42.2	36.0
Gender	Male	207	15.4	6.1	98.9	46.6	22.2	40.6	37.2
	Female	115	15.6	6.2	100.8	47.2	20.9	45.2	33.9
Ethnicity*	AM	5	13.8	8.6	89.0	58.5	20.0	40.0	40.0
	AS	4	12.8	7.2	75.0	49.5	0.0	75.0	25.0
	BL	38	14.7	6.6	93.4	46.2	18.4	44.7	36.8
	HI	64	16.2	5.2	105.2	42.6	17.2	48.4	34.4
	PI	0	–	–	–	–	–	–	–
	WH	197	15.6	6.3	101.0	48.5	25.9	38.6	35.5
	MU	14	13.4	5.1	81.4	33.8	0.0	50.0	50.0
Special Ed	No	1	9.0	–	49.0	–	0.0	0.0	100.0
	Yes	321	15.5	6.1	99.7	46.7	21.8	42.4	35.8
ELL	No	316	15.4	6.1	99.3	46.9	21.5	42.4	36.1
	Yes	6	17.8	3.6	116.0	33.2	33.3	33.3	33.3
FLS	No	131	15.4	6.2	99.1	47.2	22.1	42.0	35.9
	Yes	191	15.5	6.1	99.9	46.5	21.5	42.4	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 11

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Exceeds	Meets	Below
Overall		299	17.9	8.3	101.0	52.3	25.1	37.1	37.8
Gender	Male	185	18.5	8.4	105.2	54.4	27.6	36.2	36.2
	Female	114	17.1	8.0	94.2	48.1	21.1	38.6	40.4
Ethnicity*	AM	2	14.0	9.9	72.0	56.6	0.0	50.0	50.0
	AS	13	14.5	7.6	78.5	45.7	7.7	38.5	53.8
	BL	31	19.5	9.0	111.8	56.5	38.7	35.5	25.8
	HI	44	17.4	6.9	94.7	40.6	11.4	45.5	43.2
	PI	0	–	–	–	–	–	–	–
	WH	196	17.9	8.5	101.2	54.1	26.5	35.2	38.3
	MU	13	20.8	7.4	120.2	50.8	38.5	38.5	23.1
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	299	17.9	8.3	101.0	52.3	25.1	37.1	37.8
ELL	No	297	17.9	8.3	101.0	52.4	25.3	37.0	37.7
	Yes	2	19.0	7.1	102.5	40.3	0.0	50.0	50.0
FLS	No	138	16.9	8.6	95.0	54.0	23.2	34.1	42.8
	Yes	161	18.8	7.8	106.1	50.3	26.7	39.8	33.5

* 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: ELA, 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 based on the true score model**

Content	Code	Strand
ELA	E.1	Vocabulary
	E.2	Comprehension
	E.3	Writing
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*
E.1	6	0.78	0.92
E.2	14	0.89	1.43
E.3	5	0.54	0.98
M.1	11	0.87	1.22
M.2	8	0.85	1.03
M.3	4	0.78	0.71
M.4	2	0.45	0.58

Grade 4:

Grade 4	*L*	Reliability	*SEM*
E.1	6	0.83	0.86
E.2	14	0.87	1.49
E.3	5	0.59	0.96
M.1	13	0.90	1.35
M.2	9	0.88	1.06
M.3	6	0.73	1.01
M.4	2	0.51	0.56

Grade 5:

Grade 5	*L*	Reliability	*SEM*
E.1	8	0.76	1.12
E.2	13	0.84	1.44
E.3	4	0.44	0.87
M.1	12	0.82	1.39
M.2	8	0.58	0.97
M.3	5	0.54	0.97
M.4	5	0.67	0.90
S.1	4	0.59	0.82
S.2	7	0.83	0.98
S.3	7	0.73	1.06
S.4	7	0.77	0.99

Grade 6:

Grade 6	*L*	Reliability	*SEM*
E.1	7	0.72	1.06
E.2	13	0.80	1.48
E.3	5	0.49	1.00
M.1	10	0.76	1.34
M.2	7	0.83	0.94
M.3	9	0.70	1.31
M.4	4	0.60	0.82

Grade 7:

Grade 7	*L*	Reliability	*SEM*
E.1	8	0.69	1.14
E.2	12	0.78	1.45
E.3	5	0.35	1.04
M.1	9	0.77	1.21
M.2	7	0.73	1.06
M.3	5	0.65	0.94
M.4	9	0.77	1.22

Grade 8:

Grade 8	*L*	Reliability	*SEM*
E.1	8	0.74	1.16
E.2	13	0.86	1.38
E.3	4	0.55	0.84
M.1	10	0.76	1.33
M.2	7	0.73	1.03
M.3	8	0.79	1.14
M.4	5	0.67	0.91
S.1	4	0.59	0.81
S.2	6	0.68	1.01
S.3	8	0.74	1.16
S.4	7	0.63	1.14

Grade 11:

Grade 11	*L*	Reliability	*SEM*
E.1	7	0.79	0.99
E.2	12	0.85	1.35
E.3	6	0.59	1.06
M.1	4	0.61	0.83
M.2	11	0.81	1.33
M.3	9	0.85	1.10
M.4	6	0.67	1.04
S.1	4	0.61	0.84
S.2	10	0.82	1.23
S.3	7	0.84	0.90
S.4	9	0.75	1.29


DATA RECOGNITION
DRC
CORPORATION