Spring 2023

Nebraska Student-Centered Assessment System (NSCAS)

Alternate Assessment

ELA • Mathematics • Science

TECHNICAL REPORT

APPENDICES

December 2023

Prepared by Data Recognition Corporation

DATA RECOGNITION

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CORPORATION

Appendix A: NSCAS-AAELA Test Blueprint

ELA Grade 3 Alternate Assessment Table of Specifications				
	DOK Stage 2	DOK Stage 3	DOK Stage 4	Item Total
Reading Comprehension				
Reading Prose and Poetry				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level literary texts.				
LA.3.RP.1 Identify the central message or lesson in a literary text and explain how key details support that idea.				
LAE.3.RP.1 Use explicit text and/or illustrations to identify the main idea in a literary text.	0-2	0-4	0-2	0-4
LA.3.RP.2 Explain how characters respond to major events and challenges in a literary text.				
LAE.3.RP.2 Identify the main character(s) in a literary text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level literary and informational text.				
LA.3.RP.3 Determine and explain the point of view in a literary text.				
LAE.3.RP.3 Identify a narrator's/character's point of view explicitly stated in a literary text.	0-2	0-4	0-2	0-4
LA.3.RP.4 Explain how sections of a literary text (e.g., chapters, scenes, stanzas) build on one another and contribute to meaning.				
LAE.3.RP.4 Identify the beginning, middle, and end or a sequence in a literary text.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary text.				
LA.3.RP.5 Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary text.				
LAE.3.RP.5 Identify a similarity in characters, settings, or events between two literary texts by the same author (e.g., books from a series).	Assessed at the district level.			
LA.3.RP.6 Explain what the text says explicitly and draw inferences when asking and answering questions.				
LAE.3.RP.6 Answer literal questions using explicit information in a literary text.	0-2	0-4	0-2	0-4
LA.3.RP.7 Compare and contrast themes, topics, and/or patterns of events in a range of literary texts.				
LAE.3.RP.7 Identify a similarity in characters or events in two literary texts.	0-2	0-4	0-2	0-4

Reading Informational Text				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level informational text.				
LA.3.RI.1 Identify the central idea and explain how key details support that idea.				
LAE.3.RI.1 Use explicit text and/or illustrations to identify the central idea in an informational text.	0-2	0-4	0-2	0-4
LA.3.RI.2 Explain the relationships between individuals, historical events, scientific ideas or concepts, or steps in a process.				
LAE.3.RI.2 Identify an important individual or event in an informational text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level literary and informational text.				
LA.3.RI.3 Determine and explain the author's purpose in an informational text.				
LAE.3.RI.3 Identify if an author's purpose is to inform or entertain.	0-2	0-4	0-2	0-4
LA.3.RI.4 Explain how text features (titles, headings, table of contents, glossaries, captions, graphs, maps, and/or other visuals) contribute to meaning.				
LAE.3.RI.4 Use text features (i.e., titles, headings, table of contents, maps, pictures) to locate information.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary text.				
LA.3.RI.5 Compare and contrast the two most important ideas and key details presented by multiple informational texts on the same topic.				
LAE.3.RI.5 Identify a similar idea about the same topic presented in two different informational texts.	0-2	0-4	0-2	0-4
LA.3.RI.6 Identify an author's claim(s) and explain how the author supports the claim(s) in the text.				
LAE.3.RI.6 Answer literal questions, using explicit information from an informational text.	0-2	0-4	0-2	0-4
LA.3.RI.7 Compare and contrast topics and/or patterns of events in a range of informational texts.				
LAE.3.RI.7 Identify a similar topic or event in two informational texts.	0-2	0-4	0-2	0-4

Vocabulary				
Acquisition and Use: Build and use a range of conversational, academic, and discipline-specific grade-level vocabulary and apply to reading, writing, speaking, and listening.				
LA.3.V.1 Acquire and use grade-level academic vocabulary appropriately.				
LAE.3.V.1.a Use sentence-level context clues and/or illustrations to determine the meaning of a word.	0-2	0-4	0-2	0-4
LAE.3.V.1.b Use commonly occurring prefixes to determine the meaning of words.	0-2	0-4	0-2	0-4
LAE.3.V.1.c Use word structure to determine singular or plural nouns and/or familiar past or present verb tense.	0-2	0-4	0-2	0-4
Context and Connotation: Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies.				
LA.3.V.2 Interpret an author's use of figurative, connotative, and technical language in grade-level literary and informational text.				
LAE.3.V.2.a Identify the use of alliteration in text.	0-2	0-4	0-2	0-4
LAE.3.V.2.c Identify the relationship between words (e.g., same, opposite, beginning with the same initial letter or sound).	0-2	0-4	0-2	0-4
Writing				
Productions of Writing: Use a recursive writing process to produce clear and coherent writing appropriate to the discipline, audience, and/or context.				
LA.3.W.1 Write paragraphs using a variety of sentence types.				
LAE.3.W.1.a Capitalize the initial word in simple sentences.	0-2	0-4	0-2	0-4
LAE.3.W.1.b Use periods and question marks in simple sentences.	0-2	0-4	0-2	0-4
Modes of Writing: Write in a variety of modes for a variety of purposes and audiences across disciplines.				
LA.3.W.5 Write informative/explanatory pieces to examine a topic or text and convey ideas and information.				
LAE.3.W.5.b Identify details that relate to the given topic.	0-2	0-4	0-2	0-4
LA.3.W.6 Locate evidence from literary and/or informational text sources to answer questions about a topic.				
LAE.3.W.6.b Identify print and digital tools to gather information.	0-2	0-4	0-2	0-4
LAE.3.W.6.c Organize information into categories.	0-2	0-4	0-2	0-4

ELA Grade 4 Alternate Assessment Table of Specifications				
	DOK Stage 2	DOK Stage 3	DOK Stage 4	Item Total
Reading Comprehension				
Reading Prose and Poetry				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level literary texts.				
LA.4.RP.1 Determine a theme in a literary text and how it is conveyed through key details**.**				
LAE.4.RP.1 Identify the explicitly stated main idea and/or a key detail that supports the explicitly stated main idea in a literary text.	0-2	0-4	0-2	0-4
LA.4.RP.2 Analyze a character, setting, or event in a literary text, drawing on specific details such as a character's thoughts, words, or actions.				
LAE.4.RP.2 Identify and describe the main character(s) or setting in a literary text, using key details from the text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level literary text.				
LA.4.RP.3 Distinguish reader perspective from the perspective and point of view of the narrator or the characters in a literary text.				
LAE.4.RP.3 Determine the narrator's or a character's point of view explicitly stated in a literary text.	0-2	0-4	0-2	0-4
LA.4.RP.4 Compare and contrast the structural elements of literary texts (e.g., dramas, narratives, and poems).				
LAE.4.RP.4 Identify a drama, a poem, or a story, using structural elements of a literary text.	Assessed at the district level.			
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary text.				
LA.4.RP.5 Compare and contrast the treatment of similar themes and topics and patterns of events in literary texts by different authors or from different cultures.				
LAE.4.RP.5 Identify a similarity in characters, settings, or events between two literary texts by the same author (e.g., books from a series).	Assessed at the district level.			
LA.4.RP.6 Explain what the text says explicitly and draw inferences when asking or answering questions, quoting, or paraphrasing specific evidence from the text as appropriate.				
LAE.4.RP.6 Answer literal questions, using explicit information from a literary text.	0-2	0-4	0-2	0-4
LA.4.RP.7 Explain an author or narrator/speaker's treatment of similar themes and/or patterns of events in a wide range of literary texts.				
LAE.4.RP.7 Identify a similarity in character traits, events, or themes in two literary texts.	0-2	0-4	0-2	0-4

Reading Informational Text				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level informational text.				
LA.4.RI.1 Determine the central idea of an informational text and how it is conveyed through key details.				
LAE.4.RI.1 Identify the explicitly stated central idea and/or a key detail that supports the explicitly stated central idea in an informational text.	0-2	0-4	0-2	0-4
LA.4.RI.2 Analyze an individual, event, scientific idea or concept, or steps in a process.				
LAE.4.RI.2 Identify how individuals or events are related in an informational text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level informational text.				
LA.4.RI.3 Compare and contrast authors' perspectives in multiple informational texts of the same topic.				
LAE.4.RI.3 Determine if an author's purpose is to inform, entertain, or persuade.	0-2	0-4	0-2	0-4
LA.4.RI.4 Describe the overall structure of an informational text and how it contributes to meaning.				
LAE.4.RI.4 Use text features (e.g., titles, headings, table of contents, glossaries, captions, graphs, maps, other visuals) to locate information.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary text.				
LA.4.RI.5 Integrate information from multiple informational texts on the same topic in order to demonstrate knowledge of the topic.				
LAE.4.RI.5 Identify similar ideas between two informational texts on the same topic.	0-2	0-4	0-2	0-4
LA.4.RI.6 Identify an author's claim(s) and explain how the author supports the claim in the text.				
LAE.4.RI.6 Answer literal questions, using explicit information from an informational text.	0-2	0-4	0-2	0-4
LA.4.RI.7 Explain an author or speaker's treatment of similar topics and/or patterns of events in a wide range of informational texts.				
LAE.4.RI.7 Identify patterns of events in two informational texts.	0-2	0-4	0-2	0-4

Vocabulary **Acquisition and Use: Build and use a range of conversational, academic, and discipline-specific grade-level vocabulary and apply to reading, writing, speaking, and listening.** **LA.4.V.1 Acquire and use grade-level academic vocabulary appropriately.**				
LAE.4.V.1.a Use context clues (e.g., definitions, examples, restatements) with or without illustrations to determine the meanings of words and phrases.	0-2	0-4	0-2	0-4
LAE.4.V.1.b Use commonly occurring prefixes and roots to determine the meaning of words.	0-2	0-4	0-2	0-4
Context and Connotation: Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies.				
LA.4.V.2 Interpret an author's use of figurative, connotative, and technical language in grade-level literary and informational text.				
LAE.4.V.2.a Use text and/or illustrations to determine the meaning of figurative language (e.g., alliteration, onomatopoeia).	0-2	0-4	0-2	0-4
LAE.4.V.2.c Identify commonly occurring synonyms.	0-2	0-4	0-2	0-4
Writing				
Productions of Writing: Use a recursive writing process to produce clear and coherent writing appropriate to the discipline, audience, and/or context.				
LA.4.W.1 Create grammatically correct sentences and paragraphs using a variety of sentence types and phrasing.				
LAE.4.W.1.a Capitalize initial words and names in simple and complex sentences.	0-2	0-4	0-2	0-4
LAE.4.W.1.b Use periods, question marks, and exclamation points in simple and complex sentences.	0-2	0-4	0-2	0-4
Modes of Writing: Write in a variety of modes for a variety of purposes and audiences across disciplines.				
LA.4.W.3 Write creative and/or expressive pieces that describe a well-developed event or experience.				
LAE.4.W.3.b Use precise words, phrases, and descriptive details to describe experiences or events.	0-2	0-4	0-2	0-4
LA.4.W.4 Write opinion pieces that explain a perspective with supporting reasons and/or evidence.				
LAE.4.W.4.b Identify facts to support reasons and/or evidence.	0-2	0-4	0-2	0-4
LA.4.W.6 Locate and summarize relevant evidence from literary and/or informational text sources to answer questions about a topic.				
LAE.4.W.6.b Identify appropriate print and digital sources needed to gather information about a given topic.	0-2	0-4	0-2	0-4

ELA Grade 5 Alternate Assessment Table of Specifications				
	DOK Stage 2	**DOK Stage 3**	**DOK Stage 4**	**Item Total**
Reading Comprehension				
Reading Prose and Poetry				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level literary texts.				
LA.5.RP.1 Explain the theme in a literary text and how it is conveyed through key details.				
LAE.5.RP.1 Identify the explicitly stated main idea and/or a key detail that supports the explicitly stated main idea in a literary text.	0-2	0-4	0-2	0-4
LA.5.RP.2 Compare and contrast two or more characters, settings, or events in a literary text or texts.				
LAE.5.RP.2 Compare or contrast two characters, settings, or events in a literary text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level literary text.				
LA.5.RP.3 Describe how a narrator or speaker's point of view influences the meaning of a literary text.				
LAE.5.RP.3 Identify the point of view from which a text is written (i.e., character in the story, narrator outside the story).	0-2	0-4	0-2	0-4
LA.5.RP.4 Explain how a sequence of chapters, scenes, or stanzas fit together to provide the overall structure of literary texts.				
LAE.5.RP.4 Retell a simple literary text with a beginning, middle, and end.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary text.				
LA.5.RP.5 Compare and contrast the treatment of themes and topics in literary texts of the same genre.				
LAE.5.RP.5 Identify similarities or differences between two literary texts on the same topic.	0-2	0-4	0-2	0-4
LA.5.RP.6 Analyze a literary text to answer and develop inferential questions to enhance the comprehension of self and others, quoting or paraphrasing specific evidence from the text.				
LAE.5.RP.6 Answer literal and inferential questions, using information from a literary text.	0-2	0-4	0-2	0-4
LA.5.RP.7 Explain the relationships between two or more characters, events, or ideas in a range of literary texts.				
LAE.5.RP.7 Identify the relationship between two characters, two events, or two ideas in a literary text.	0-2	0-4	0-2	0-4

Reading Informational Text				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level informational text.				
LA.5.RI.1 Explain the central idea in an informational text and how it is conveyed through key details.				
LAE.5.RI.1 Identify the explicitly stated central idea and/or a key detail that supports the explicitly stated central idea in an informational text.	0-2	0-4	0-2	0-4
LA.5.RI.2 Compare and contrast two or more individuals, events, scientific ideas or concepts, or steps in a process, drawing on supporting details from an informational text or texts.				
LAE.5.RI.2 Compare or contrast two individuals, events, ideas, or steps in a process in an informational text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level informational text.				
LA.5.RI.3 Determine the author's purpose(s) and describe how the author's perspective (e.g., beliefs, assumptions, biases) influences the meaning of an informational text.				
LAE.5.RI.3 Identify an author's purpose in an informational text.	0-2	0-4	0-2	0-4
LA.5.RI.4 Explain how text features (titles, headings, table of contents, glossaries, captions, graphs, maps, and/or other visuals) contribute to the meaning of texts.				
LAE.5.RI.4 Use text features (e.g., titles, headings, table of contents, glossaries, captions, graphs, maps, other visuals) to locate information.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level informational text.				
LA.5.RI.5 Integrate information from multiple texts on the same topic in order to demonstrate knowledge of the topic.				
LAE.5.RI.5 Summarize ideas from two informational texts on the same topic.	0-2	0-4	0-2	0-4
LA.5.RI.6 Analyze the development of an author's claim(s) and how supporting evidence is used to support the claim(s).				
LAE.5.RI.6 Answer literal and inferential questions, using information from an informational text.	0-2	0-4	0-2	0-4
LA.5.RI.7 Explain the relationships between two or more individuals, events, ideas, or concepts in a range of informational texts.				
LAE.5.RI.7 Identify the relationship between two individuals, two events, or two ideas in an informational text.	0-2	0-4	0-2	0-4

Vocabulary				
Acquisition and Use: Build and use a range of conversational, academic, and discipline-specific grade-level vocabulary and apply to reading, writing, speaking, and listening.				
LA.5.V.1 Acquire and use grade-level academic vocabulary appropriately.				
LAE.5.V.1.a Use context clues (e.g., definitions, examples, restatements, comparisons in text) with or without illustrations to determine the meanings of words and phrases.	0-2	0-4	0-2	0-4
LAE.5.V.1.b Use commonly occurring affixes to determine the meanings of words.	0-2	0-4	0-2	0-4
Context and Connotation: Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies.				
LA.5.V.2 Interpret an author's use of figurative, connotative, and technical language in grade-level literary and informational text.				
LAE.5.V.2.a Use text and/or illustrations to determine the meaning of figurative language (e.g., alliteration, onomatopoeia, similes).	0-2	0-4	0-2	0-4
LAE.5.V.2.c Identify commonly occurring synonyms and antonyms.	0-2	0-4	0-2	0-4
Writing				
Productions of Writing: Use a recursive writing process to produce clear and coherent writing appropriate to the discipline, audience, and/or context.				
LA.5.W.1 Create grammatically correct multi-paragraph compositions with varied sentence structures.				
LAE.5.W.1.a Identify the use of quotation marks to indicate words spoken by characters in a text and/or a direct quote.	0-2	0-4	0-2	0-4
LAE.5.W.1.b Use commas to separate three items in a list.	0-2	0-4	0-2	0-4
Modes of Writing: Write in a variety of modes for a variety of purposes and audiences across disciplines.				
LA.5.W.3 Write creative and/or expressive pieces that describe a well-developed event or experience.				
LAE.5.W.3.b Use precise words, phrases, and descriptive details to describe experiences or events.	0-2	0-4	0-2	0-4
LA.5.W.4 Write opinion pieces that explain a perspective with supporting reasons and evidence.				
LAE.5.W.4.c Identify words and phrases that connect two main ideas.	0-2	0-4	0-2	0-4
LA.5.W.6 Locate and summarize relevant evidence from literary and/or informational text sources to answer questions about a topic.				
LAE.5.W.6.b Identify relevant evidence from print and digital sources to support information on a given topic.	0-2	0-4	0-2	0-4

ELA Grade 6 Alternate Assessment Table of Specifications				
	DOK Stage 2	**DOK Stage 3**	**DOK Stage 4**	**Item Total**
Reading Comprehension				
Reading Prose and Poetry				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level literary texts.				
LA.6.RP.1 Determine the implied or explicit theme of a literary text and how it develops over the course of a text.				
LAE.6.RP.1 Identify the explicit main idea or theme and/or a detail that supports that main idea or theme in a literary text.	0-2	0-4	0-2	0-4
LA.6.RP.2 Explain how a plot unfolds as well as how the characters respond to events or changes as the plot moves toward a resolution.				
LAE.6.RP.2 Identify how a character(s) changes from the beginning to the end of a literary text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level literary text.				
LA.6.RP.3 Explain how an author establishes and conveys the point(s) of view of a narrator or speaker in a literary text.				
LAE.6.RP.3 Identify the point of view from which a text is written (i.e., character in the story, narrator outside the story), using key detail(s) from the text.	0-2	0-4	0-2	0-4
LA.6.RP.4 Analyze how a sequence of chapters, scenes, or stanzas contribute to the development of literary elements (e.g., theme, setting, or plot).				
LAE.6.RP.4 Identify a change in a literary element (e.g., character, plot, setting) from the beginning to the end of a literary text.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary and informational text.				
LA.6.RP.5 Compare and contrast texts in different forms or genres (e.g., stories and poems, historical novels, fantasy stories) and their treatment of similar themes and topics.				
LAE.6.RP.5 Compare how the same topic is presented in two different literary genres.	0-2	0-4	0-2	0-4
LA.6.RP.6 Analyze a literary text to answer and develop inferential and evaluative questions to enhance the comprehension of self and others, quoting or paraphrasing specific evidence from the text.				
LAE.6.RP.6 Answer literal and inferential questions about a literary text.	0-2	0-4	0-2	0-4
LA.6.RP.7 Compare and contrast regional, national, and/or multicultural perspectives within and across literary texts.				
LAE.6.RP.7 Compare multicultural perspectives in a literary text(s).	Assessed at the district level.			

Reading Informational Text				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level informational text.				
LA.6.RI.1 Determine the implied or explicit central idea of an informational text and how it develops over the course of a text.				
LAE.6.RI.1 Identify the explicit central idea and/or a detail that supports that central idea in an informational text.	0-2	0-4	0-2	0-4
LA.6.RI.2 Explain how a key individual, event, or idea or concept is introduced and developed, drawing on specific supporting details in an informational text.				
LAE.6.RI.2 Identify a detail that introduces a key individual or develops a key idea or event in an informational text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level informational text.				
LA.6.RI.3 Explain how an author establishes and conveys a perspective or purpose in an informational text.				
LAE.6.RI.3 Identify a detail that introduces a key individual or develops a key idea or event in an informational text.	0-2	0-4	0-2	0-4
LA.6.RI.4 Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.				
LAE.6.RI.4 Identify how a particular phrase or sentence contributes to the structure and/or development of ideas in an informational text.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level informational text.				
LA.6.RI.5 Compare and contrast one author's presentation of information with that of another.				
LAE.6.RI.5 Compare how the same topic is presented in two different informational texts.	0-2	0-4	0-2	0-4
LA.6.RI.6 Analyze the development of an argument and identify the type(s) of reasoning used to support the argument.				
LAE.6.RI.6 Answer literal and inferential questions about an informational text.	0-2	0-4	0-2	0-4
LA.6.RI.7 Compare and contrast regional, national, and/or multicultural perspectives within and across informational texts.				
LAE.6.RI.7 Compare multicultural perspectives in an informational text(s).	Assessed at the district level.			

Vocabulary				
Acquisition and Use: Build and use a range of conversational, academic, and discipline-specific grade-level vocabulary and apply to reading, writing, speaking, and listening.				
LA.6.V.1 Integrate grade-level academic vocabulary appropriately for a variety of tasks and purposes.				
LAE.6.V.1.a Use context clues (e.g., definitions, examples, restatements, comparisons in text, the overall meaning of a sentence, a word's position in a sentence) to determine the meanings of words and phrases.	0-2	0-4	0-2	0-4
LAE.6.V.1.b Use commonly occurring affixes and roots to determine the meanings of words.	0-2	0-4	0-2	0-4
Context and Connotation: Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies.				
LA.6.V.2 Interpret an author's use of figurative, connotative, and technical language in grade-level literary and informational text.				
LAE.6.V.2.a Use text and/or illustrations to determine the meaning of figurative language (e.g., alliteration, onomatopoeia, similes, metaphors).	0-2	0-4	0-2	0-4
LAE.6.V.2.c Identify commonly occurring synonyms, antonyms, and homographs.	0-2	0-4	0-2	0-4
Writing				
Productions of Writing: Use a recursive writing process to produce clear and coherent writing appropriate to the discipline, audience, and/or context.				
LA.6.W.1 Create grammatically correct multi-paragraph compositions with varied sentence structures.				
LAE.6.W.1.a Capitalize proper nouns in simple sentences.	0-2	0-4	0-2	0-4
LAE.6.W.1.b Use ending punctuation (limited to a period, question mark, and exclamation point) and commas in a series (limited to three items).	0-2	0-4	0-2	0-4
Modes of Writing: Write in a variety of modes for a variety of purposes and audiences across disciplines.				
LA.6.W.3 Write in a variety of literary forms to convey real or imagined experiences or events in which the development and structure are appropriate to the task, purpose, and audience.				
LAE.6.W.3.d Use precise words, phrases, and descriptive details to describe experiences and events.	0-2	0-4	0-2	0-4
LA.6.W.4 Write arguments that explain a perspective with supporting reasons and evidence.				
LAE.6.W.4.b Identify evidence that answers a question about a given topic.	0-2	0-4	0-2	0-4
LAE.6.W.4.c Identify a word or phrase that shows a connection between a claim and supporting evidence (e.g., because, as a result, so, this means).	0-2	0-4	0-2	0-4
LA.6.W.6 Gather and use credible evidence from trustworthy sources and assess its relevance in answering a research question.				
LAE.6.W.6.b Identify credible print and digital sources of information to research a topic.	0-2	0-4	0-2	0-4

ELA Grade 7 Alternate Assessment Table of Specifications				
	DOK Stage 2	**DOK Stage 3**	**DOK Stage 4**	**Item Total**
Reading Comprehension				
Reading Prose and Poetry				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level literary texts.				
LA.7.RP.1 Determine two or more implied or explicit themes in a literary text and how they are supported with key details.				
LAE.7.RP.1 Identify the explicit main idea or theme and/or a detail that supports that main idea or theme in a literary text.	0-2	0-4	0-2	0-4
LA.7.RP.2 Analyze how particular events, lines of dialogue, or descriptive details develop the plot, reveal aspects of characters, or create meaning.				
LAE.7.RP.2 Identify a key detail that develops the plot of a literary text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level literary text.				
LA.7.RP.3 Analyze how an author establishes, conveys, and contrasts the points of view of different characters or narrators in a literary text.				
LAE.7.RP.3 Compare two characters' points of view in a literary text.	0-2	0-4	0-2	0-4
LA.7.RP.4 Analyze the structure of a literary text, and how the structure contributes to its theme(s) and meaning.				
LAE.7.RP.4 Identify the structure (e.g., narrative, compare/contrast, cause/effect, sequential/chronological) of a literary text.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary and informational text.				
LA.7.RP.5 Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period.				
LAE.7.RP.5 Determine whether a literary text is fiction or nonfiction, using details from the text.	0-2	0-4	0-2	0-4
LA.7.RP.6 Synthesize the implied or stated theme(s) in a literary text to draw conclusions and deepen understanding of self and others.				
LAE.7.RP.6 Answer literal and inferential questions about a literary text.	0-2	0-4	0-2	0-4

Reading Informational Text				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level informational text.				
LA.7.RI.1 Determine two or more implied or explicit central ideas of an informational text and how they are supported with key details.				
LAE.7.RI.1 Identify the explicit central idea and/or a detail that supports that central idea in an informational text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level informational text.				
LA.7.RI.3 Analyze how an author establishes or conveys a perspective or purpose and distinguishes it from that of others.				
LAE.7.RI.3 Identify an author's purpose in an informational text.	0-2	0-4	0-2	0-4
LA.7.RI.4 Analyze how the major sections of text contribute to the development of ideas in an informational text.				
LAE.7.RI.4 Identify the structure (e.g., compare/contrast, cause/effect, sequential/chronological) of an informational text.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level informational text.				
LA.7.RI.5 Analyze how the major sections of text contribute to the development of ideas in an informational text.				
LAE.7.RI.5 Identify a phrase or sentence that contributes to the development of ideas in an informational text.	0-2	0-4	0-2	0-4
LA.7.RI.6 Analyze the development of an argument and identify the type(s) of reasoning used to support the argument.				
LAE.7.RI.6 Answer literal and inferential questions about an informational text.	0-2	0-4	0-2	0-4

Vocabulary				
Acquisition and Use: Build and use a range of conversational, academic, and discipline-specific grade-level vocabulary and apply to reading, writing, speaking, and listening.				
LA.7.V.1 Integrate grade-level academic vocabulary appropriately for a variety of tasks and purposes.				
LAE.7.V.1.a Use context clues (e.g., definitions, examples, restatements, comparisons in text, the overall meaning of a sentence, a word's position in a sentence, cause/effect) to determine the meanings of words and phrases.	0-2	0-4	0-2	0-4
LAE.7.V.1.b Use commonly occurring affixes and roots to determine the meanings of words.	0-2	0-4	0-2	0-4
Context and Connotation: Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies.				
LA.7.V.2 Interpret an author's use of figurative, connotative, and technical language in grade-level literary and informational text.				
LAE.7.V.2.a Use context clues to determine the meaning of figurative language (e.g., alliteration, onomatopoeia, similes, metaphors, personification).	0-2	0-4	0-2	0-4
LAE.7.V.2.c Identify commonly occurring synonyms, antonyms, homographs, and homophones.	0-2	0-4	0-2	0-4
Writing				
Productions of Writing: Use a recursive writing process to produce clear and coherent writing appropriate to the discipline, audience, and/or context.				
LA.7.W.1 Create grammatically correct multi-paragraph compositions with varied sentence structures.				
LAE.7.W.1.a Capitalize proper nouns in complex sentences.	0-2	0-4	0-2	0-4
LAE.7.W.1.b Use ending punctuation (limited to a period, question mark, and exclamation point) and commas in a series (limited to three items).	0-2	0-4	0-2	0-4
Modes of Writing: Write in a variety of modes for a variety of purposes and audiences across disciplines.				
LA.7.W.3 Write in a variety of literary forms to convey real or imagined experiences or events in which the development and structure are appropriate to the task, purpose, and audience.				
LAE.7.W.3.d Use precise words, phrases, and descriptive details to describe experiences and events.	0-2	0-4	0-2	0-4
LA.7.W.4 Write arguments that develop a perspective with supporting reasons and evidence, organized as appropriate to the task, purpose, and audience.				
LAE.7.W.4.b Identify evidence that answers a question about a given topic.	0-2	0-4	0-2	0-4
LAE.7.W.4.c Determine a word or phrase that shows a connection between a claim and supporting evidence (e.g., because, as a result, so, this means).	0-2	0-4	0-2	0-4
LA.7.W.6 Gather and use credible evidence from trustworthy sources and assess its relevance in answering a research question.				
LAE.7.W.6.b Identify credible print and digital sources of information to research a topic.	0-2	0-4	0-2	0-4

ELA Grade 8 Alternate Assessment Table of Specifications				
	DOK Stage 2	**DOK Stage 3**	**DOK Stage 4**	**Item Total**
Reading Comprehension				
Reading Prose and Poetry				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level literary texts.				
LA.8.RP.1 Determine two or more implied or explicit themes of a text and how they develop over the course of a literary text, including their relationship to supporting ideas.				
LAE.8.RP.1 Determine the explicit or implied main idea or theme of a literary text and/or a key detail that supports that main idea or theme.	0-2	0-4	0-2	0-4
LA.8.RP.2 Analyze how particular events, lines of dialogue, or descriptive details develop the plot, reveal aspects of characters, or create meaning.				
LAE.8.RP.2 Identify a key detail that develops the plot of a literary text.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level literary text.				
LA.8.RP.3 Analyze how an author establishes, conveys, and contrasts the points of view of the audience and the characters to create effects such as suspense, humor, or dramatic irony in a literary text.				
LAE.8.RP.3 Compare two characters' points of view in a literary text.	0-2	0-4	0-2	0-4
LA.8.RP.4 Compare and contrast the structure of two or more literary texts and how their structures contribute to style and meaning.				
LAE.8.RP.4 Determine the structure (e.g., narrative, compare/contrast, cause/effect, sequential/chronological) of a literary text or a portion of a literary text.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary text.				
LA.8.RP.5 Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works.				
LAE.8.RP.5 Identify similarities or differences in themes, patterns of events, or character types between two fictional texts.	0-2	0-4	0-2	0-4
LA.8.RP.6 Synthesize the implied or stated theme(s) in a literary text to draw conclusions and deepen understanding of self and others.				
LAE.8.RP.6 Answer literal and inferential questions about a literary text.	0-2	0-4	0-2	0-4

Reading Informational Text				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level informational text.				
LA.8.RI.1 Determine two or more implied or explicit central ideas and how they develop over the course of an informational text, including their relationship to supporting ideas.				
LAE.8.RI.1 Determine the explicit or implied central idea of an informational text and/or a key detail that supports that central idea.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level informational text.				
LA.8.RI.3 Analyze how an author establishes, conveys, and contrasts perspective or purpose in a text and how the author acknowledges and responds to conflicting evidence or viewpoints.				
LAE.8.RI.3 Identify an author's perspective or purpose in an informational text.	0-2	0-4	0-2	0-4
LA.8.RI.4 Compare and contrast the structure of a specific paragraph in an informational text, including the role of particular sentences in developing and refining a key concept.				
LAE.8.RI.4 Determine the structure (e.g., compare/contrast, cause/effect, sequential/chronological) of an informational text or a portion of an informational text.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level informational text.				
LA.8.RI.5 Analyze how two or more texts provide conflicting information on the same topic, including where the texts disagree on matters of evidence or interpretation.				
LAE.8.RI.5 Identify conflicting information or other differences between two informational texts on the same topic written by different authors.	0-2	0-4	0-2	0-4
LA.8.RI.6 Analyze the development of an argument and evaluate the effectiveness of the type(s) of reasoning used to support the argument.				
LAE.8.RI.6 Answer literal and inferential questions about a persuasive text or other types of informational text.	0-2	0-4	0-2	0-4

Vocabulary				
Acquisition and Use: Build and use a range of conversational, academic, and discipline-specific grade-level vocabulary and apply to reading, writing, speaking, and listening.				
LA.8.V.1 Integrate grade-level academic vocabulary appropriately for a variety of tasks and purposes.				
LAE.8.V.1.a Use context clues (e.g., definitions, examples, restatements, comparisons in text, the overall meaning of a sentence, a word's position in a sentence, cause/effect) to determine the meanings of words and phrases.	0-2	0-4	0-2	0-4
LAE.8.V.1.b Use commonly occurring affixes and roots to determine the meanings of words.	0-2	0-4	0-2	0-4
Context and Connotation: Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies.				
LA.8.V.2 Interpret an author's use of figurative, connotative, and technical language in grade-level literary and informational text.				
LAE.8.V.2.a Use context clues to determine the meaning of figurative language (e.g., alliteration, onomatopoeia, similes, metaphors, personification, idioms).	0-2	0-4	0-2	0-4
LAE.8.V.2.c Identify commonly occurring synonyms, antonyms, homographs, and homophones.	0-2	0-4	0-2	0-4
Writing				
Productions of Writing: Use a recursive writing process to produce clear and coherent writing appropriate to the discipline, audience, and/or context.				
LA.8.W.1 Create grammatically correct multi-paragraph compositions with varied sentence structures.				
LAE.8.W.1.a Capitalize proper nouns in complex sentences.	0-2	0-4	0-2	0-4
LAE.8.W.1.b Use ending punctuation (limited to a period, question mark, and exclamation point) and commas in a series (limited to three items).	0-2	0-4	0-2	0-4
Modes of Writing: Write in a variety of modes for a variety of purposes and audiences across disciplines.				
LA.8.W.3 Write in a variety of literary forms to convey real or imagined experiences or events in which the development and structure are appropriate to the task, purpose, and audience.				
LAE.8.W.3.d Use precise words, phrases, and descriptive details to describe experiences and events.	0-2	0-4	0-2	0-4
LA.8.W.4 Write arguments that develop a perspective with supporting reasons and evidence, organized as appropriate to the task, purpose, and audience.				
LAE.8.W.4.b Identify a claim made about a given topic.	0-2	0-4	0-2	0-4
LAE.8.W.4.c Use relevant evidence to support a claim.	0-2	0-4	0-2	0-4
LA.8.W.6 Gather and use credible evidence from multiple trustworthy sources and assess its relevance in answering the research question(s).				
LAE.8.W.6.b Identify and/or use credible print and digital sources of information to ask and answer questions about a given topic.	0-2	0-4	0-2	0-4

ELA High School Alternate Assessment Table of Specifications				
	DOK Stage 2	**DOK Stage 3**	**DOK Stage 4**	**Item Total**
Reading Comprehension				
Reading Prose and Poetry				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level literary texts.				
LA.12.RP.1 Evaluate the development of two or more implied or explicit themes over the course of a literary text or texts.				
LAE.12.RP.1 Determine the explicit or implied main idea or theme of a literary text and/or a key detail that supports that main idea or theme.	0-2	0-4	0-2	0-4
LA.12.RP.2 Analyze the development and interaction of literary elements such as characterization, setting, and plot, and how they contribute to the meaning of the work as a whole.				
LAE.12.RP.2 Answer literal and inferential questions about key elements (e.g., characters, setting, plot) in a literary text, and/or identify how a relationship between key elements (e.g., characters, setting, plot) in a literary text contributes to the meaning of a story.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level literary text.				
LA.12.RP.3 Evaluate an author's use of point of view and how it contributes to the meaning, significance, or aesthetic of a literary text.				
LAE.12.RP.3 Determine the author's point of view that contributes to the overall meaning of a literary text.	0-2	0-4	0-2	0-4
LA.12.RP.4 Evaluate how an author develops structure in a literary text to contribute to its overall meaning and aesthetic impact.				
LAE.12.RP.4 Determine the structure (e.g., narrative, compare/contrast, cause/effect, sequential/chronological) of a literary text or a portion of a literary text.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level literary text.				
LA.12.RP.6 Evaluate themes within and across literary texts to draw conclusions, deepen understanding of self and others, and generate questions for further inquiry.				
LAE.12.RP.6 Determine how the themes of two literary texts are related.	0-2	0-4	0-2	0-4

Reading Informational Text				
Central Ideas and Details: Citing relevant and thorough textual evidence to support ideas, evaluate the development of themes or central ideas in grade-level informational text.				
LA.12.RI.1 Evaluate the development of central ideas over the course of an informational text or texts.				
LAE.12.RI.1 Determine the explicit or implied central idea of an informational text and/or a key detail that supports that central idea.	0-2	0-4	0-2	0-4
Author's Craft: Citing relevant and thorough evidence to support ideas, evaluate the development and interaction of individuals, ideas, and events in grade-level informational text.				
LA.12.RI.3 Evaluate an author's perspective or purpose and how it contributes to the meaning, significance, or aesthetic of an informational text.				
LAE.12.RI.3 Determine an author's perspective or purpose that contributes to the overall meaning of an informational text.	0-2	0-4	0-2	0-4
LA.12.RI.4 Evaluate the effectiveness of the structure an author uses in an exposition or argument, including whether the structure makes the points clear, convincing, and engaging.				
LAE.12.RI.4 Determine the structure (e.g., compare/contrast, cause/effect, sequential/chronological) of an informational text or a portion of an informational text.	0-2	0-4	0-2	0-4
Knowledge and Ideas: Citing relevant and thorough textual evidence to support ideas, evaluate how an author's perspective or use of point of view shapes the style and meaning of grade-level informational text.				
LA.12.RI.6 Compare and contrast the development of multiple arguments in texts of related topics, evaluating the effectiveness and validity of the claims.				
LAE.12.RI.6 Determine how the central ideas of two informational texts are related.	0-2	0-4	0-2	0-4

Vocabulary				
Acquisition and Use: Build and use a range of conversational, academic, and discipline-specific grade-level vocabulary and apply to reading, writing, speaking, and listening.				
LA.12.V.1 Integrate grade-level academic vocabulary appropriately for a variety of tasks and purposes.				
LAE.12.V.1.a Use context clues (e.g., definitions, examples, restatements, comparisons in text, the overall meaning of a sentence, a word's position in a sentence, cause/effect) to determine the meanings of words and phrases.	0-2	0-4	0-2	0-4
Context and Connotation: Determine or clarify the meaning of unknown and multiple-meaning words and phrases, choosing flexibly from a range of strategies.				
LA.12.V.2 Interpret an author's use of figurative, connotative, and technical language in grade-level literary and informational text.				
LAE.12.V.2.a Use context clues to determine the meaning of figurative language (e.g., alliteration, onomatopoeia, similes, metaphors, personification, idioms).	0-2	0-4	0-2	0-4
Writing				
Modes of Writing: Write in a variety of modes for a variety of purposes and audiences across disciplines.				
LA.12.W.3 Write in a variety of literary forms to convey real or imagined experiences or events, themes, and perspectives in which the development, structure, and style are appropriate to the task, purpose, and discipline.				
LAE.12.W.3.d Use precise word choice, descriptive details, and/or figurative language to describe experiences, events, ideas, or to tell a story.	0-2	0-4	0-2	0-4
LA.12.W.4 Write arguments that develop a perspective with supporting reasons and evidence, organized as appropriate to the task, purpose, and audience.				
LAE.12.W.4.b Identify a claim made about a given topic.	0-2	0-4	0-2	0-4
LAE.12.W.4.c Use words, phrases, or sentences to connect a claim and supporting evidence.	0-2	0-4	0-2	0-4
LA.12.W.6 Gather and use credible evidence from multiple authoritative sources, evaluate the strengths and limitations of sources in terms of the task, purpose, and audience, and assess their relevance in answering the research question(s).				
LAE.12.W.6.b Identify and/or use credible print and digital sources of information to ask and answer questions about a given topic.	0-2	0-4	0-2	0-4

Appendix B: NSCAS- AAM Test Blueprint

NSCAS Alternate Math Table of Specifications - Grade 3

MA 3.1	NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 3.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among whole numbers and simple fractions within the base-ten number system.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 3.1.1.a	Read, write and demonstrate multiple equivalent representations for numbers up to 100,000 using objects, visual representations, including standard form, word form, expanded form, and expanded notation. *Extended: Read, write, and demonstrate whole numbers up to 20 that are equivalent representations including visual models, standard form, and word form.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.1.1.b	Compare whole numbers through the hundred thousands and represent the comparisons using the symbols >, < or =. *Extended: Compare and order whole numbers, 1-20.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.1.1.c	Round a whole number to the tens or hundreds place, using place value understanding or a visual representation. *Extended: Identify a number closer to a given number on a number line, 1-20.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.1.1.d	Represent and understand a fraction as a number on a number line. *Extended: Represent halves and wholes on a number line.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.1.1.e	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Extended: Given a model, represent a whole number (1–3) as a fraction with a denominator of 2, 3, or 4.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.1.1.g	Find parts of a whole and parts of a set using visual representations. *Extended: Identify parts of a set as one-half, one-fourth, or the whole of the set, limited to four objects.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 3.1.1.i	Compare and order fractions having the same numerators or denominators using visual representations, comparison symbols, and verbal reasoning. *Extended: Use a model to compare unit fractions one-half, one-third, and one-fourth.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.1.2	**Operations: Students will demonstrate the meaning of multiplication and division with whole numbers and compute accurately.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 3.1.2.a	Add and subtract within 1,000 with or without regrouping. *Extended: Add and subtract, through 20 without regrouping.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.1.2.c	Use drawings, words, arrays, symbols, repeated addition, equal groups, and number lines to explain the meaning of multiplication. *Extended: Use a model to show multiplication as repeat addition with a product no greater than 20.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.1.2.e	Multiply one digit whole numbers by multiples of 10 in the range of 10 to 90. *Extended: Multiply one and two by ten, twenty, and thirty up to 60.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.1.2.f	Use objects, drawings, arrays, words and symbols to explain the relationship between multiplication and division (e.g., if 3 x 4 = 12 then 12 ÷ 3 = 4). *Extended: Count the number of twos in four, six, and eight and the number of threes in six and nine, using a model.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 3.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 3.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 3.2.1.a	Identify arithmetic patterns (including patterns in the addition or multiplication tables) using properties of operations. *Extended: Identify the next term in numeric and non-numeric AB patterns.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.2.1.b 2	Interpret a multiplication equation as equal groups (e.g., interpret 4 × 6 as the total number of objects in four groups of six objects each). Represent verbal statements of equal groups as multiplication equations. *Extended: Identify a multiplication equation as representing equal groups up to 20.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.2.2	**Algebraic Processes: Student will apply the operational properties when multiplying and dividing.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 3.2.2.b 2	Solve one-step whole number equations involving addition, subtraction, multiplication, or division, including the use of a letter to represent the unknown quantity. *Extended: Solve a one-step equation for sums and differences 0–9.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.2.3	**Applications: Students will solve real-world problems involving equations with whole numbers.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 3.2.3.a	Solve real-world problems involving two-step equations (involving two operations) involving whole numbers using addition and subtraction. *Extended: Solve a one-step real-world problem using addition or subtraction 0–9.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.2.3.b 2	Write an equation (e.g., one operation, one variable) to represent real-world problems involving whole numbers. *Extended: Identify a one-step equation that represents a real-world problem with a variable limited to addition or subtraction with sums and differences 0–9.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 3.3	**GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 3.3.1	**Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 3.3.1.a	Identify the number of sides, angles, and vertices of two-dimensional shapes. *Extended: Identify the number of sides or angles in a regular polygon.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.3.1.b	Sort quadrilaterals into categories (e.g., rhombuses, squares, and rectangles). *Extended: Identify two-dimensional shapes, circles, triangles, rectangles, or squares from a collection of circles, rectangles, and squares.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.3.1.c	Draw lines to separate two-dimensional figures into equal areas, and express the area of each part as a unit fraction of the whole. *Extended: Identify a line that separates a symmetric two-dimensional shape into halves.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**					
MA 3.3.3	**Measurement: Students will perform and compare measurements and apply formulas.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 3.3.3.a	Find the perimeter of polygons given the side lengths, and find an unknown side length. *Extended: Find the perimeter of a rectangle given the side lengths and a figure.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.3.3.b	Tell and write time to the minute using both analog and digital clocks. *Extended: Tell time to the hour.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.3.3.c	Solve real-world problems involving addition and subtraction of time intervals and find elapsed time. *Extended: Add whole numbers of hours to find elapsed time.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 3.3.3.e	Estimate and measure length to the nearest half inch, quarter inch, and centimeter. *Extended: Measure length to the nearest inch using a model of an object.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.3.3.g	Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths. *Extended: Find the area of a square by counting whole number unit squares.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.3.3.h	Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters. *Extended: Identify congruent non-square rectangles.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 3.4	**DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 3.4.1	**Representations: Students will create displays that represent data.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 3.4.1.a	Create scaled pictographs and scaled bar graphs to represent a data set—including data collected through observations, surveys, and experiments—with several categories. *Extended: Identify a characteristic of a bar graph or a pictograph. (e.g., quantities, comparisons)*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.4.1.b	Represent data using line plots where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. *Extended: Identify the scale of a bar graph and/or the key of a pictograph.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.4.2	**Analysis & Applications: Students will analyze data to address the situation.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 3.4.2.a	Solve problems and make simple statements about quantity differences (e.g., how many more and how many less) using information represented in pictographs and bar graphs. *Extended: Solve a problem using a bar graph or a pictograph.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 3.4.3	**Probability: Students will interpret and apply concepts of probability.**					

NSCAS Alternate Math Table of Specifications - Grade 4						
MA 4.1	**NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 4.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions and decimals within the base-ten number system.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 4.1.1.a	Read, write, and demonstrate multiple equivalent representations for whole numbers up to one million and decimals to the hundredths, using objects, visual representations, standard form, word form, and expanded notation. *Extended: Identify representations of numbers 0–100*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.1.c	Classify a number up to 100 as prime or composite. *Extended: Identify odd and even numbers up to 20.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.1.d	Determine whether a given whole number up to 100 is a multiple of a given one-digit number. *Extended: Count by twos and fives, and tens with numbers, models, or objects up to 40.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.1.e	Determine factors of any whole number up to 100. *Extended: Identify the factors of 4, 6, 10, 15, and 20.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.1.f	Compare whole numbers up to one million and decimals through the hundredths place using >, <, and = symbols, and visual representations. *Extended: Use symbols <, >, and = to compare whole numbers up to 40.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.1.g	Round a multi-digit whole number to any given place. Extended: Round a 2-digit number, 1–100, to the nearest ten using a number line.		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.1.h	Use decimal notation for fractions with denominators of 10 or 100. *Extended: Identify decimals on a number line from 0 to 1 (tenths only).*		0 — 2	0 — 1	0 — 1	0 — 4

MA 4.1.1.k	Compare and order fractions having unlike numerators and unlike denominators using visual representations (number line), comparison symbols and verbal reasoning (e.g., using benchmarks or common numerators or common denominators). *Extended: Compare and order mixed numbers with fourths and halves less than 3.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.2	**Operations: Students will demonstrate the meaning of addition and subtraction of whole numbers and fractions and compute accurately.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 4.1.2.b	Multiply a four-digit whole number by a one-digit whole number. *Extended: Multiply 2's, 5's and 10's by a single digit number.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.2.c	Multiply a two-digit whole number by a two-digit whole number using the standard algorithm. *Extended: Multiply two-digit multiples of 10 by 2 or 5.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.2.d	Divide up to a four-digit whole number by a one-digit divisor with and without a remainder. *Extended: Identify numbers 2-20 in equal-size groups.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.1.2.f	Add and subtract fractions and mixed numbers with like denominators. *Extended: Add and subtract halves to halves, thirds to thirds, fourths to fourths, and fifths to fifths…to a whole.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 4.2	**ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 4.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 4.2.1.a	Create a simple algebraic expression or equation using a variable for an unknown number to represent a math process (e.g., 3 + n = 15, 81 ÷ n = 9). *Extended: Solve simple one-step single-digit equations using addition or subtraction.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations.**					
MA 4.2.2.a	Solve one-and two-step problems that use any or all of the four basic operations and include the use of a letter to represent the unknown quantity. *Extended: Evaluate numerical expressions using order of operations using numbers 1 through 5.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.2.3	**Applications: Students will solve real-world problems involving equations with fractions and mixed numbers.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 4.2.3.a	Solve real-world problems involving multi-step equations comprised of whole numbers using the four operations, including interpreting remainders. *Extended: Solve addition and subtraction real-world problems with addition and subtraction up to 40 without regrouping.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.2.3.b	Solve real-world problems involving addition and subtraction of fractions and mixed numbers with like denominators. *Extended: Solve addition real-world problems with halves and fourths.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 4.3	GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 4.3.1	**Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 4.3.1.b	Classify an angle as acute, obtuse, or right. *Extended: Compare larger and smaller angles.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.3.1.c	Identify and draw points, lines, line segments, rays, angles, parallel lines, perpendicular lines, and intersecting lines, and recognize them in two-dimensional figures. Extended: Identify parallel and intersecting lines.Identify parallel and intersecting lines.		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.3.1.d	Classify two-dimensional shapes based on the presence or absence of parallel and perpendicular lines, or the presence or absence of specific angles. *Extended: Identify acute, right, and obtuse triangles.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.3.1.e	Identify right triangles. *Extended: Identify right angles.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.3.1.g	Sketch angles of a specified measure. *Extended: Identify 45°, 90° and 180° angles without measuring.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.3.1.h	Recognize and draw lines of symmetry in two-dimensional shapes. *Extended: Identify a line of symmetry in a rectangle, square, or circle.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**					
MA 4.3.3	**Measurement: Students will perform and compare measurements and apply formulas.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 4.3.3.a	Apply perimeter and area formulas for rectangles. *Extended: Identify the area of a rectangle by counting unit squares.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.3.3.c	Generate simple conversions from a larger unit to a smaller unit within the customary and metric systems of measurement. *Extended: Identify the number of inches in one or two feet using a model of a ruler.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 4.4	**DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 4.4.1	**Representations: Students will create displays that represent data.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 4.4.1.a	Represent data using line plots where the horizontal scale is marked off in appropriate units (e.g., whole numbers, halves, quarters, or eighths). *Extended: Interpret information in a line plot using two data points.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.4.2	**Analysis & Applications: Students will analyze data to address the situation.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 4.4.2.a	Solve problems involving addition or subtraction of fractions using information presented in line plots. *Extended: Solve a problem with addition or subtraction of whole numbers using information from a line plot.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 4.4.3	**Probability: Students will interpret and apply concepts of probability.**					

NSCAS Alternate Math Table of Specifications - Grade 5						
MA 5.1	**NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 5.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among whole numbers, fractions, and decimals within the base-ten number system.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 5.1.1.a	Determine multiple equivalent representations for whole numbers and decimals through the thousandths place using standard form, word form, and expanded notation. *Extended: Identify representations of whole numbers up to 200.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.1.1.b	Compare whole numbers, fractions, mixed numbers, and decimals through the thousandths place and represent comparisons using symbols <,>, or =. *Extended: Compare and order whole numbers using symbols <, >, and = up to 200.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.1.1.c	Round whole numbers and decimals to any given place. *Extended: Round whole numbers to the nearest tens place up to 200.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.1.1.d	Recognize and generate equivalent forms of commonly used fractions, decimals, and percents (e.g., halves, thirds, fourths, fifths, and tenths). *Extended: Use models to identify equivalent fractions between thirds, fourths, halves, and one whole.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.1.2	**Operations: Students will demonstrate the meaning of operations and compute accurately with whole numbers, fractions, and decimals.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 5.1.2.a	Multiply multi-digit whole numbers using the standard algorithm. *Extended: Multiply a two-digit number by a single-digit number.*		0 — 2	0 — 1	0 — 1	0 — 4

		Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 5.1.2.b	Divide four-digit whole numbers by a two-digit divisor, with and without remainders using the standard algorithm. *Extended: Divide a two-digit whole number by a single-digit number with no remainder.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.1.2.c	Multiply a whole number by a fraction or a fraction by a fraction using models and visual representations. *Extended: Multiply 1/3, 1/2, or 1/4 by 2, 3, and 4.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.1.2.d	Divide a unit fraction by a whole number and a whole number by a unit fraction. *Extended: Divide a whole number by 1/3, 1/2, or 1/4 using a visual model (e.g., 3 divided by one-half).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.1.2.h	Add and subtract fractions and mixed numbers with unlike denominators. *Extended: Add and subtract fractions with like denominators using a visual model without regrouping.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.1.2.j	Multiply and divide by powers of 10. *Extended: Multiply a one-digit whole number by 100.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 5.2	**ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 5.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions and equations.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 5.2.1.a	Form ordered pairs from a rule such as y=2x, and graph the ordered pairs on a coordinate plane. *Extended: Identify the location of the ordered pairs on a coordinate plane (1st quadrant).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving equations.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 5.2.2.a	Interpret and evaluate numerical or algebraic expressions using order of operations (excluding exponents). *Extended: Evaluate a numerical expression with addition or subtraction and multiplication, 1–5.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.2.3	**Applications: Students will solve real-world problems involving equations with fractions and mixed numbers.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 5.2.3.a	Solve real-world problems involving addition and subtraction of fractions and mixed numbers with like and unlike denominators. *Extended: Solve real-world problems with addition or subtraction of fractions limited to like denominators without regrouping involving halves, thirds, and fourths.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 5.3	GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 5.3.1	**Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 5.3.1.a	Identify three-dimensional figures including cubes, cones, pyramids, prisms, spheres, and cylinders. *Extended: Identify three-dimensional models limited to cube, cylinder, and cone.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.3.1.b	Identify faces, edges, and vertices of rectangular prisms. *Extended: Identify the faces, edges, and vertices of a cube.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.3.1.c	Justify the classification of two-dimensional figures based on their properties. *Extended: Sort triangles, rectangles, and squares by number of sides and/or angles.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 5.3.2.b	Graph and name points in the first quadrant of the coordinate plane using ordered pairs of whole numbers. *Extended: Identify the x- or y-coordinate of whole-numbered points in quadrant I.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.3.3	**Measurement: Students will perform and compare measurements and apply formulas.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 5.3.3.b	Use concrete models to measure the volume of rectangular prisms in cubic units by counting cubic units. *Extended: Find the volume of a rectangular prism by counting unit cubes.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.3.3.c	Generate conversions within the customary and metric systems of measurement. *Extended: Convert whole-numbers of feet to inches using a model.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 5.4	**DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 5.4.1	**Representations: Students will create displays that represent data.**					
MA 5.4.2	**Analysis & Applications: Students will analyze data to address the situation.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 5.4.2.a	Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (e.g., frequency charts) and bar graphs. *Extended: Interpret information in a bar graph using at least two data points.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.4.2.b	Formulate questions that can be addressed with data and make predictions about the data. *Extended: Solve a problem with addition or subtraction of whole numbers using information from a bar graph.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 5.4.3	**Probability: Students will interpret and apply concepts of probability.**					

NSCAS Alternate Math Table of Specifications - Grade 6						
MA 6.1	**NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 6.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among fractions, decimals, percents, and integers within the base-ten number system.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 6.1.1.a	Determine common factors and common multiples using prime factorization of numbers with and without exponents. *Extended: Identify the common factors of 4 and 6, 6 and 9, 8 and 10, given the factors of both numbers.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.1.1.b	Represent non-negative whole numbers using exponential notation. *Extended: Represent 10, 100, 1,000, or 10,000 as a power of 10.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.1.1.c	Compare and order rational numbers both on the number line and not on the number line. *Extended: Compare and order halves, quarters, and tenths of whole numbers 0–1 on a number line.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.1.1.d	Convert among fractions, decimals, and percents using multiple representations. *Extended: Convert halves, fourths, and tenths to decimals using a model.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.1.1.g	Model integers using drawings, words, manipulatives, number lines, and symbols. *Extended: Identify models of integers –10 to 10 using drawings, words, manipulatives, number lines and symbols.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.1.1.h	Compare and order integers and absolute value both on the number line and not on the number line. *Extended: Compare and order integers (–10 to 10) on a number line.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.1.1.i	Determine absolute value of rational numbers. *Extended: Identify the absolute value of an integer –10 to 10.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 6.1.2	Operations: Students will compute with fractions and decimals accurately.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 6.1.2.a	Multiply and divide non-negative fractions and mixed numbers. *Extended: Multiply and divide positive fractions, halves, fourths, thirds and tenths using models.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.1.2.c	Divide multi-digit whole numbers using the standard algorithm. *Extended: Divide a two-digit number by a one-digit number with a remainder.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.1.2.d	Add, subtract, multiply, and divide decimals using the standard algorithms. *Extended: Add and subtract numbers 0–10 with one decimal place without regrouping.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.1.2.e	Estimate and check reasonableness of answers using appropriate strategies and tools. *Extended: Estimate the sum of two decimal numbers with tenths (e.g., 5.2 + 3.7 is about 9).*		0 — 2	0 — 1	0 — 1	0 — 4

MA 6.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 6.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions, equations, and inequalities.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 6.2.1.a	Create algebraic expressions (e.g., one operation, one variable as well as multiple operations, one variable) from word phrases. *Extended: Match a simple word phrase with an input/output box.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 6.2.2.a	Simplify expressions using the distributive property and combining like terms. *Extended: Identify whole number expressions using the distributive property (e.g., 2(3 + 4)).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.2.2.c	Evaluate numerical expressions, including absolute value and exponents, with respect to order of operations. *Extended: Demonstrate understanding of order of operations involving addition, subtraction, and multiplication.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.2.2.e	Solve one-step equations with non-negative rational numbers using addition, subtraction, multiplication and division. *Extended: Solve a one-step equation using addition and subtraction.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.2.2.f	Use equivalent ratios relating quantities with whole numbers to create a table. Find missing values in the table. *Extended: Find a missing number in a table with the ratio of 1:2, 1:3, or 1:10.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.2.2.g	Represent inequalities on a number line (e.g., graph x > 3). *Extended: Identify a solution to an inequality on a number line (–10 to 10).*		0 — 2	0 — 1	0 — 1	0 — 4

MA 6.2.3	**Applications: Students will solve real-world problems involving ratios, unit rates, and percents.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 6.2.3.b	Solve real-world problems involving non-negative rational numbers. *Extended: Solve real-world problems with addition and subtraction of decimal numbers to the hundredth without regrouping.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.2.3.d	Solve real-world problems using ratios and unit rates. *Extended: Solve real-world problems using ratios up to 1:3.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 6.3	**GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 6.3.1	**Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 6.3.1.a	Identify and create nets to represent two-dimensional drawings of prisms, pyramids, cylinders, and cones. *Extended: Identify a cube, cylinder, or cone from a given two-dimensional representation.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 6.3.2.c	Identify the quadrant of a given point in the coordinate plane. *Extended: Identify a point on a 4 by 4 grid in quadrant 1.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.3.2.d	Draw polygons in the coordinate plane given coordinates for the vertices. *Extended: Identify the location of one vertex of a triangle in quadrant 1 with one vertex on the origin.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 6.3.3	Measurement: Students will perform and compare measurements and apply formulas.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 6.3.3.a	Determine the area of quadrilaterals, including parallelograms, trapezoids, and triangles by composition and decomposition of polygons as well as application of formulas. *Extended: Find the area of a rectangle using its whole number side lengths.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.3.3.b	Determine the surface area of rectangular prisms and triangular prisms using nets. *Extended: Find the surface area of a rectangular prism by counting unit squares in a net.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.3.3.c	Apply volume formulas for rectangular prisms. *Extended: Find the volume of a rectangular prism using the volume formula.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 6.4	**DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 6.4.1	**Representations: Students will create displays that represent data.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 6.4.2	**Analysis & Applications: Students will analyze data to address the situation.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 6.4.2.a	Solve problems using information presented in line plots, dot plots, box plots, and histograms. *Extended: Interpret a histogram that matches a data set.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.4.2.b	Compare and interpret data sets based upon their graphical representations (e.g., center, spread, and shape). *Extended: Solve basic problems using histograms (e.g., How many times did Sara knock down 9 pins? How many more students have 1 pet than have 2 pets?).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.4.2.c	Find and interpret the mean, median, mode, and range for a set of data. *Extended: Find the mode of a set of ordered whole number data.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.4.2.d	Compare the mean, median, mode, and range from two sets of data. *Extended: Find the median of a set of ordered whole number data.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 6.4.3	**Probability: Students will interpret and apply concepts of probability.**					

NSCAS Alternate Math Table of Specifications - Grade 7

MA 7.1	**NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 7.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among rational numbers within the base-ten number system.**					
MA 7.1.2	**Operations: Students will compute with rational numbers accurately.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 7.1.2.a	Solve problems using proportions and ratios (e.g., cross products, percents, tables, equations, and graphs). *Extended: Given a fraction 1/4, 1/2, or 3/4, write the corresponding percentage.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.1.2.b	Add, subtract, multiply, and divide rational numbers (e.g., positive and negative fractions, decimals, and integers). *Extended: Add and subtract positive rational numbers with like denominators up to 10 without regrouping.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.1.2.d	Use multiple strategies to add, subtract, multiply, and divide integers. *Extended: Add positive and negative integers (–10 to 10).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.1.2.e	Estimate and check reasonableness of answers using appropriate strategies and tools. *Extended: Estimate addition and subtraction results to the nearest 10 up to 100.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 7.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 7.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions, equations, and inequalities.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 7.2.1.a	Describe and create an inequality from words and pictures (e.g., one-step, one-variable). *Extended: Identify a solution to a given inequality.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.2.1.b	Represent real-world situations with proportions. *Extended: Identify a ratio between two quantities using a model.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 7.2.2.b	Use factoring and properties of operations to create equivalent algebraic expressions (e.g., $2x + 6 = 2(x + 3)$). *Extended: Identify equivalent expressions with one variable (2n + 3n is the same as 5n).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.2.2.c	Given the value of the variable(s), evaluate algebraic expressions (including absolute value). *Extended: Given the positive integer value of the single variable, evaluate an addition or subtraction expression.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.2.2.d	Solve two-step equations involving rational numbers which include the integers. *Extended: Solve a one-step equation using multiplication.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.2.2.e	Solve one-step inequalities involving integers and rational numbers and represent solutions on a number line. *Extended: Identify a solution to an inequality involving multiplication using a number line (–10 to 10).*		0 — 2	0 — 1	0 — 1	0 — 4

MA 7.2.3	Applications: Students will solve real-world problems involving expressions, equations, and inequalities.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 7.2.3.b	Write a two-step equation to represent real-world problems involving rational numbers in any form. *Extended: Identify a one-step linear equation containing a positive integer that represents a solution to a real-world problem.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.2.3.c	Solve real-world problems with equations that involve rational numbers in any form. *Extended: Solve a one-step linear equation using a positive integer that represents a solution to a real-world problem.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.2.3.d	Solve real-world problems with inequalities. *Extended: Identify an inequality that represents a solution to a real-world problem using a model.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.2.3.e	Use proportional relationships to solve real-world problems, including percent problems, (e.g., % increase, % decrease, mark-up, tip, simple interest). *Extended: Identify the percent for a discount problem (10%, 25%, or 50%).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.2.3.f	Solve real-world problems involving scale drawings using a proportional relationship. *Extended: Identify the measure of a scale drawing using the scale of 1/4, 1/3, or 1/2.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 7.3	**GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 7.3.1	**Characteristics: Students will identify and describe geometric characteristics of two-dimensional shapes.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 7.3.1.a	Apply and use properties of adjacent, complementary, supplementary, and vertical angles to find missing angle measures. *Extended: Identify a pair of congruent angles in two intersecting lines.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**					
MA 7.3.3	**Measurement: Students will perform and compare measurements and apply formulas.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 7.3.3.a	Solve real-world problems involving perimeter and area of composite shapes made from triangles, quadrilaterals and polygons. *Extended: Find the perimeter of two adjoining rectangles by counting unit lengths.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.3.3.b	Solve real-world problems involving surface area and volume of composite shapes made from rectangular and triangular prisms. *Extended: Find the area of two adjoining rectangles by counting unit squares.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.3.3.c	Determine the area and circumference of circles both on and off the coordinate plane. *Extended: Identify the center and radius of a circle.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 7.4	**DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 7.4.1	**Representations: Students will create displays that represent data.**					
MA 7.4.2	**Analysis & Applications: Students will analyze data to address the situation.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 7.4.2.a	Solve problems using information presented in circle graphs. *Extended: Solve problems with thirds and fourths of a circle using a circle graph.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 7.4.3	**Probability: Students will interpret and apply concepts of probability.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 7.4.3.c	Find theoretical probabilities for independent events. *Extended: Identify the probability of an event as always, sometimes, or never.*		0 — 2	0 — 1	0 — 1	0 — 4

NSCAS Alternate Math Table of Specifications - Grade 8						
MA 8.1	**NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 8.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among real numbers within the base-ten number system.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.1.1.a	Determine subsets of numbers as natural, whole, integer, rational, irrational, or real, based on the definitions of these sets of numbers. *Extended: Distinguish among whole numbers, fractions, and decimals.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.1.1.b	Represent numbers with positive and negative exponents and in scientific notation. *Extended: Represent numbers with the base of 2, 3, 4, or 5 and positive exponents of 2 and 3 in expanded form (e.g., 4^3 = 4 x 4 x 4).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.1.1.d	Approximate, compare, and order real numbers (both rational and irrational) and order real numbers both off and on the number line. *Extended: Compare and order tenths, fourths, thirds, halves, and whole numbers 1–100 with a number line.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.1.2	**Operations: Students will compute with exponents and roots.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.1.2.a	Evaluate the square roots of perfect squares less than or equal to 400 and cube roots of perfect cubes less than or equal to 125. *Extended: Identify the squares of whole numbers up to 5.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.1.2.c	Simplify numerical expressions involving absolute value. *Extended: Determine absolute value using a model (e.g., temperature below zero).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.1.2.e	Estimate and check reasonableness of answers using appropriate strategies and tools. *Extended: Estimate multiplication results to the nearest 10 up to 100.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 8.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 8.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions, equations, and inequalities.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.2.1.a	Create algebraic expressions, equations, and inequalities (e.g., two-step, one variable) from word phrases, tables, and pictures. *Extended: Identify an expression with two different operations that matches the description.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.2.1.b	Determine and describe the rate of change for given situations through the use of tables and graphs. *Extended: Describe the rate of change of a proportional relationship given a table.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.2.1.c	Describe equations and linear graphs as having one solution, no solution, or infinitely many solutions. *Extended: Identify the point of intersection (solution) for intersecting lines on a coordinate plane.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.2.1.d	Graph proportional relationships and interpret the slope. *Extended: Given a graph of a line through the origin and a point on the line, determine another point on the line.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating expressions and solving expressions, equations, and inequalities.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.2.2.a	Solve multi-step equations involving rational numbers with the same variable appearing on both sides of the equal sign. *Extended: Solve a two-step equation using whole numbers (e.g., $2n - 8 = 0$; $n = 4$).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.2.2.b	Solve two-step inequalities involving rational numbers and represent solutions on a number line. *Extended: Solve a two-step inequality using whole numbers (e.g., $2n - 8 > 0$; $n > 4$).*		0 — 2	0 — 1	0 — 1	0 — 4

MA 8.2.3	**Applications: Students will solve real-world problems involving multi-step equations and multi-step inequalities.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.2.3.a	Describe and write equations from words, patterns, and tables. *Extended: Identify an equation that represents a number pattern.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.2.3.b	Write a multi-step equation to represent real-world problems using rational numbers in any form. *Extended: Identify an equation that represents a real-world problem with fractions.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.2.3.c	Solve real-world multi-step problems involving rational numbers in any form. *Extended: Solve a real-world problem with fractions.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 8.3	GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 8.3.1	**Characteristics: Students will identify and describe geometric characteristics of two-dimensional shapes.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.3.1.a	Determine and use the relationships of the interior angles of a triangle to solve for missing measures. *Extended: Identify the missing angle measure in 45-45-90 triangles and 30-60-90 triangles given two of the angles and a drawing of the triangle.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.3.2.a	Perform and describe positions and orientation of shapes under single transformations including rotations (in multiples of 90 degrees about the origin), translations, reflections, and dilations on and off the coordinate plane. *Extended: Identify the orientation of a shape or letter following a reflection.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.3.2.b	Find congruent two-dimensional figures and define congruence in terms of a series of transformations. *Extended: Distinguish between pairs of congruent and non-congruent two-dimensional shapes.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.3.2.c	Find similar two-dimensional figures and define similarity in terms of a series of transformations. *Extended: Distinguish between pairs of similar and non-similar two-dimensional shapes.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 8.3.3	**Measurement: Students will perform and compare measurements and apply formulas.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.3.3.c	Find the distance between any two points on the coordinate plane using the Pythagorean Theorem. *Extended: Find the distance between two points on the x- or y-axis in quadrant I.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.3.3.d	Determine the volume of cones, cylinders, and spheres, and solve real-world problems using volumes. Extended: Identify the cone, cylinder, or sphere with the greatest volume when given three cones with either the same base or the same height, three *cylinders with either the same base or the same height, or three spheres.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 8.4	**DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 8.4.1	**Representations: Students will create displays that represent data.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.4.1.a	Represent bivariate data (i.e. ordered pairs) using scatter plots. *Extended: Identify a scatter plot from graphical representations.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.4.2	**Analysis & Applications: Students will analyze data to address the situation.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 8.4.2.a	Solve problems and make predictions using an approximate line of best fit. *Extended: Identify the line of best fit for a scatter plot.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 8.4.3	**Probability: Students will interpret and apply concepts of probability.**					

NSCAS Alternate Math Table of Specifications – High School						
MA 11.1	**NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.**					
MA 11.1.1	**Numeric Relationships: Students will demonstrate, represent, and show relationships among the subsets of real numbers and the complex number system.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 11.1.1.a	Compare and contrast subsets of the complex number system, including imaginary, rational, irrational, integers, whole, and natural numbers. *Extended: Sort fractions, decimals, and whole numbers by type (e.g., 3/5, 4, 1.7).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.1.2	**Operations: Students will compute with real and complex numbers.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 11.1.2.a	Compute with subsets of the complex number system, including imaginary, rational, irrational, integers, whole, and natural numbers. *Extended: Add and subtract two-digit numbers with regrouping.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.1.2.b	Simplify expressions with rational exponents. *Extended: Rewrite a repeated multiplication problem as an exponential expression with a whole number base and a whole number exponent (e.g., 3 x 3 x 3 x 3 = 3^4).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.1.2.c	Select, apply, and explain the method of computation when problem solving using real numbers (e.g., models, mental computation, paper-pencil, or technology). *Extended: Given a real-world problem, identify an operation that leads to a solution.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 11.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines. MA 11.2.1 Algebraic Relationships					
MA 11.2.1	**Algebraic Relationships: Students will demonstrate, represent, and show relationships with functions.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 11.2.1.b	Analyze a relation to determine if it is a function given graphs, tables, or algebraic notation. *Extended: Identify a graph that represents a given linear function from a table.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.2.1.c	Classify a function given graphs, tables, or algebraic notation, as linear, quadratic, or neither. *Extended: Identify a linear function from a graph.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.2.1.e	Analyze and graph linear functions and inequalities (point-slope form, slope-intercept form, standard form, intercepts, rate of change, parallel and perpendicular lines, vertical and horizontal lines, and inequalities). *Extended: Given an x-, y- table of values, determine if the graph of the values forms a horizontal line or a vertical line.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.2.1.g	Analyze and graph quadratic functions (standard form, vertex form, finding zeros, symmetry, transformations, determine intercepts, and minimums or maximums). *Extended: Use the graph of a linear function to locate the ordered pair where y = 0.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.2.2	**Algebraic Processes: Students will apply the operational properties when evaluating rational expressions, and solving linear and quadratic equations, and inequalities.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 11.2.2.a	Convert equivalent rates (e.g., miles per hour to feet per second). *Extended: Convert equivalent rate using money.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.2.2.d	Perform operations on rational expressions (add, subtract, multiply, divide, and simplify). *Extended: Add two linear expressions (e.g., (2x + 1) + (3x + 2) = 5x + 3).*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.2.2.e	Evaluate expressions at specified values of their variables (polynomial, rational, radical, and absolute value). *Extended: Evaluate a linear expression at a specified value of the variable. Include cases where combining like terms or using the distributive property is necessary (e.g., Evaluate 3x + 8 – 2x when x = 5. Evaluate 2(x – 1) when x = 8).*		0 — 2	0 — 1	0 — 1	0 — 4

		Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 11.2.2.g	Solve linear and absolute value equations and inequalities. *Extended: Identify the absolute value of a negative integer.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.2.2.h	Analyze and solve systems of two linear equations and inequalities in two variables algebraically and graphically. *Extended: Identify the ordered pair of the graphical solution to a system of two linear equations.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.2.3	**Applications: Students will solve real-world problems involving linear equations and inequalities, systems of linear equations, quadratic, exponential, square root, and absolute value functions.**					

MA 11.3	GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 11.3.1	**Characteristics: Students will identify and describe geometric characteristics and create two- and three-dimensional shapes.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 11.3.1.c	Apply geometric properties to solve problems involving similar triangles, congruent triangles, quadrilaterals, and other polygons. *Extended: Identify corresponding angles of congruent triangles.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.3.1.d	Identify and apply right triangle relationships including sine, cosine, tangent, special right triangles, and the converse of the Pythagorean Theorem. *Extended: Distinguish between right triangles and non-right triangles.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.3.2	**Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.**	**Max DOK Level**	**DOK 1 Stage 1 Stage 2**	**DOK 1 Stage 3**	**DOK 2 Stage 4**	**Item Total**
MA 11.3.2.b	Use coordinate geometry to analyze linear relationships to determine if lines are parallel or perpendicular. *Extended: Distinguish between perpendicular, intersecting, and parallel lines.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.3.2.c	Given a line, write the equation of a line that is parallel or perpendicular to it. *Extended: Identify graphs of linear equations that have parallel lines or same slopes.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.3.2.d	Derive and apply the distance formula. *Extended: Identify the hypotenuse of right triangles.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.3.2.e	Use coordinate geometry to prove triangles are right, acute, obtuse, isosceles, equilateral, or scalene. *Extended: Identify isosceles, equilateral, or scalene triangles.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.3.2.f	Use coordinate geometry to prove quadrilaterals are trapezoids, isosceles trapezoids, parallelograms, rectangles, rhombi, kites, or squares. *Extended: Identify the quadrilateral on the coordinate grid as a trapezoid, a rectangle, or a kite.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 11.3.3	Measurement: Students will perform and compare measurements and apply formulas.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 11.3.3.d	Find arc length and area of sectors of a circle. *Extended: Find the arc length of a circle as one-fourth, one-half, or three-fourths of the circle.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.3.3.e	Determine surface area and volume of spheres, cones, pyramids, and prisms using formulas and appropriate units. *Extended: Find the surface area of one face of a rectangular prism.*		0 — 2	0 — 1	0 — 1	0 — 4

MA 11.4	DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.					
MA 11.4.1	Representations: Students will create displays that represent data.					
MA 11.4.2	Analysis & Applications: Students will analyze data to address the situation.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 11.4.2.a	Identify and compute measures of central tendency (mean, median, mode) when provided data both with and without technology. *Extended: Find the mean or median of an odd-numbered set of ordered data.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.4.3	Probability: Students will interpret and apply concepts of probability.	Max DOK Level	DOK 1 Stage 1 Stage 2	DOK 1 Stage 3	DOK 2 Stage 4	Item Total
MA 11.4.3.b	Use appropriate counting techniques to determine the probability of an event. *Extended: Use the appropriate counting principle to determine the combinations for an event.*		0 — 2	0 — 1	0 — 1	0 — 4
MA 11.4.3.c	Determine if events are mutually exclusive and calculate their probabilities in either case. *Extended: Identify a pair of mutually exclusive outcomes.*		0 — 2	0 — 1	0 — 1	0 — 4

Appendix C: NSCAS-AAS Test Blueprint

Science – Grade 5 Physical Science					
SC.5.3 Structure and Properties of Matter			**Access Points**		
Standard / Indicator	**Extension**				
SC.5.3.1 Gather, analyze, and communicate evidence of structure and properties of matter.			**A**	**B**	**C**
SC.5.3.1.A Develop a model to describe that matter is made of particles too small to be seen. Assessment does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.	Participate in investigations to describe that matter is made of particles too small to see without magnification.		Observe models or objects to describe that matter of all sizes and shapes is made of many tiny particles that can be seen only when magnified.	Using real-world objects, identify that the object is made of many smaller parts.	Given a real-world, familiar object, recognize the difference between a part of the object and the object as a whole.
	Points	**0-2**			
SC.5.3.1.B Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. Assessment does not include distinguishing mass and weight.	Participate in investigations to demonstrate that heating, cooling, and mixing substances does not change their total weight.		Use data/observation to identify that the weight of a substance before and after it is heated or cooled remains the same, and that the total weight of materials that are mixed together is equal to the weight of the individual parts of the mixture.	Identify that when a solid is melted, it has the same weight, and when a liquid is frozen, it has the same weight.	Recognize that the weight of an object is measured using a scale.
	Points	**0-2**			

SC.5.3.1.C Make observations and measurements to identify materials based on their properties. Assessment does not include density or distinguishing mass and weight.	Participate in investigations to identify materials based on physical properties (color, shape, size, texture, weight, temperature) that can be observed or measured.		Given materials, use observable/measurable physical properties to identify the materials or categorize the materials based on common properties.	Given a material, identify two or more physical properties of the material.	Given two materials with opposite physical properties, recognize the material with a specified physical property.
	Points	**0-2**			
SC.5.3.1.D Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	Participate in investigations to determine whether mixing two or more substances results in the formation of a new substance.		Compare the observable properties of two or more substances before and after they are mixed to explain whether a new substance with different properties was formed.	Identify evidence of the formation of a new substance after two or more substances are mixed.	Recognize when two or more substances have been mixed or not mixed.
	Points	**0-2**			

Science – Grade 5 Life Science					
SC.5.8 Matter and Energy in Organisms and Ecosystems			**Access Points**		
Standard / Indicator	**Extension**				
SC.5.8.2 Gather and analyze data to communicate understanding of matter and energy in organisms and ecosystems.			**A**	**B**	**C**
SC.5.8.2.A Use models to describe that energy in animals' food (used for body repair, growth, and motion and to maintain body warmth) was once energy from the sun.	Explain that energy from food is used for body repair, growth, and motion and to maintain body warmth for both animals and humans.		Describe that energy from food is used by animals and humans for body repair, growth, and motion and to maintain body warmth.	Recognize that animals, including humans, eat food for energy to grow and move.	Recognize that all animals and humans need energy to survive.
	Points	**0-2**			
SC.5.8.2.B Support an argument that plants get the materials they need for growth chiefly from air and water.	Use evidence to support the claim that plants get materials for growth from air and water.		Use data/observation to explain that plants need air and water to live and grow.	Identify water and air as the two materials plants need to live or grow.	Given an unrelated material and water, recognize that plants need water to live.
	Points	**0-2**			
SC.5.8.2.C Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. Assessment does not include molecular explanations or the biochemical mechanisms of photosynthesis.	Use information and models to describe the flow of matter among plants and animals.		Given information about three organisms (plants, plant-eating animals, and animal-eating animals), describe the flow of matter between them.	Use a simple food chain to identify the source of food for a given organism.	Given information, recognize that animals depend on other organisms (plants or animals) for food.
	Points	**0-2**			

Science – Grade 5 Earth and Space Sciences					
SC.5.11. Space Systems: Earth's Stars and Solar System			**Access Points**		
Standard / Indicator	**Extension**				
SC.5.11.3 Gather and analyze data to communicate understanding of space systems: Earth's stars and solar system.			**A**	**B**	**C**
SC.5.11.3.A Support an argument that the gravitational force exerted by Earth on objects is directed down. Assessment does not include mathematical representation of gravitational force.	Use evidence (data and observation) to support the claim that gravity pulls objects on Earth downward.		Use data/observation to describe that objects dropped from a height are pulled toward Earth by gravity.	Use observation to predict that dropped objects are pulled down due to gravity.	Identify the direction that dropped objects will fall (down/toward the ground).
	Points	**0-2**			
SC.5.11.3.B Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, and stage).	Use models to explain that the sun appears brighter than other stars because it is much closer to Earth.		Use models to explain that the sun appears brighter than other stars because it is much closer to Earth.	Given a model of the sun and one or more stars, identify which is brightest/closest to Earth.	Given two objects that emit light, recognize which object is brighter.
	Points	**0-2**			

SC.5.11.3.C Represent data in graphical displays to reveal patterns of daily changes in the length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. Assessment does not include causes of seasons.	Use data to investigate patterns in the relative location of the sun, the hours of daylight, and the day-and-night cycle.		Use data and observation to describe daily patterns in the sun's location (sunrise, noon, sunset), and seasonal differences in the hours of daylight and darkness.	Identify the relative location of the sun at different times of the day and the relative length of day and night in summer and winter.	Recognize that the sun is present in the local sky during the day but is not present in the local sky at night.
	Points	**0-2**			

Science – Grade 5 Earth and Space Sciences					
SC.5.13. Earth's Systems			**Access Points**		
Standard / Indicator	**Extension**				
SC.5.13.4 Gather and analyze data to communicate understanding of Earth's systems.			**A**	**B**	**C**
SC.5.13.4.A Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. Assessment is limited to the interactions of two systems at a time.	Use models of natural Earth processes to identify ways that two systems (geosphere [land], biosphere [organisms], hydrosphere [water], atmosphere [air]) interact, resulting in observable changes.		Given a model of a natural Earth process, identify which two systems interact and one or more changes that are likely to occur.	Given a picture or model of an Earth system, identify one or more parts of that system.	Given a picture or model of an Earth system and two possible parts of that system, recognize a part of the system.
	Points	**0-2**			
SC.5.13.4.B Describe and graph the amounts of saltwater and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. Assessment is limited to oceans, lakes, rivers, glaciers, groundwater, and polar ice caps but does not include the atmosphere.	Use graphs or charts to describe that most water on Earth is saltwater (about 97%) and is found in oceans, while fresh water (about 3%) is found in lakes, rivers, groundwater, and glaciers/ice.		Given a graph or chart, identify which type of water, saltwater or fresh water, is more abundant, and where each type of water is usually found (oceans vs. lakes, rivers, groundwater, glaciers/ice).	Given the location of a body of water (ocean, river, lake), identify whether it contains saltwater or fresh water.	Given a sample or picture of water and two other objects, recognize water.
	Points	**0-2**			

SC.5.13.4.C Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	Use information about Earth's resources, the environments in which they are found, and ways that resources and environments can be protected or conserved.		Use information about Earth's resources in the student's environment to identify one or more ways that a resource or its source can be conserved (reduce, reuse, recycle).	Given an Earth resource used by the student (e.g., water, electricity, paper, fossil fuels), identify one way to conserve it.	Recognize that Earth resources in the student's environment (e.g., water, metal, wood) are limited.
	Points	**0-2**			
SC.5.13.4.E Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	Given a simple and relevant problem or need within the student's community, participate in designing a solution that meets specified criteria and constraints on materials, time, or cost.		Given a simple, relevant problem or need with one or more criteria and constraints, identify tools and/or materials that could be used to design a solution.	Given a common tool or material within the student's environment, identify ways that it can be used to solve a problem.	Given a simple scenario, recognize the function or use of a tool or material.
	Points	**0-2**			

Science – Grade 8 Physical Science					
SC.8.1 Forces and Interactions			**Access Points**		
Standard / Indicator	**Extension**				
SC.8.1.1 Gather, analyze, and communicate evidence of forces and interactions.			**A**	**B**	**C**
SC.8.1.1.A Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. Assessment is limited to vertical or horizontal interactions in one dimension.	Participate in investigations to describe the cause-and-effect relationship between two colliding objects.		Participate in guided investigations to describe the relative motions (direction and speed) of two colliding objects.	Identify that the speed and/or direction of one object changes when two objects collide.	Recognize that an object changes direction or speed when a moving object and a stationary object collide.
	Points	**0-2**			
SC.8.1.1.C Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. Assessment is limited to forces and changes in motion in one-dimension in an inertial reference frame and to change in one variable at a time; does not include use of trigonometry.	Participate in investigations to explain that a change in the motion of a stationary object depends on the amount of force applied to the object and the mass of the object.		Participate in a guided investigation to explain that an object with a large mass requires more force to move than an object with a smaller mass.	Identify which object requires the least or most force to make it move when given objects of three different masses (small, medium, large).	Recognize there is a difference in force to move a small object versus a large object.
	Points	**0-2**			
SC.8.1.1.D Ask questions about data to determine the factors that affect the strength of electrical and magnetic forces. Assessment about questions that require quantitative answers is limited to	Participate in investigations to describe factors that affect the attraction and/or repulsion of a magnetic or static electric force on an object across a distance.		Participate in a guided investigation to describe how the pull or push of a magnetic or static electric force can be affected by the strength of the magnet or charge, the type of charge (positive/negative), or the distance between an object	Use a model to identify that changing the distance between the source of a magnetic or static electric force and an object affects	Recognize that magnets pull on magnetic objects.

SC.8.1.1.E Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. Assessment does not include Newton's Law of Gravitation or Kepler's Laws.	Use evidence to support the claim that each object on Earth is affected by the force of gravity and that the strength of the force is dependent on the object's mass.		Use evidence to explain that each object on Earth is pulled toward the ground by the force of gravity and that the strength of the pull is dependent on the object's mass.	Identify which of two objects with different masses experiences a stronger pull from gravity.	Recognize that dropped objects fall down/toward the ground.
	Points	**0-2**			

Science – Grade 8 Physical Science					
SC.8.2 Waves and Electromagnetic Radiation			**Access Points**		
Standard / Indicator	**Extension**				
SC.8.2.2 Gather, analyze, and communicate evidence of waves and electromagnetic radiation.			**A**	**B**	**C**
SC.8.2.2.A Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. Assessment does not include electromagnetic waves and is limited to standard repeating waves.	Use models to investigate the relationship between the amplitude of waves and the amount of energy in waves.		Use models to describe the relationship between the amplitude of waves and the energy of waves.	When given the amplitude of two or more waves, identify the wave that is the largest or has the most energy.	Recognize a wave.
	Points	**0-2**			
SC.8.2.2.B Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. Assessment is limited to qualitative applications pertaining to light and mechanical waves.	Participate in investigations to identify when sound or light waves are reflected, absorbed, or transmitted through different materials.		Participate in a guided investigation to identify whether sound or light waves are reflected, absorbed, or transmitted through different materials.	When given an object or material, identify whether a sound or light wave is transmitted through or reflected by the object or material.	Recognize when light or sound passes through a material.
	Points	**0-2**			
SC.8.2.2.C Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals. Assessment does not include binary counting. Assessment does not include the specific mechanism of any given device.	Use evidence to support the claim that information can be sent from one place to another using digital or analog signals (waves).		Use evidence to explain that waves (analog or digital signals) can be used to send information across a distance.	Identify familiar forms of analog or digital communication used to send information across a distance.	Recognize a communication device.
	Points	**0-2**			

Science – Grade 8 Physical Science					
SC.8.4 Energy			**Access Points**		
Standard / Indicator	**Extension**				
SC.8.4.3 Gather, analyze, and communicate evidence of energy.			**A**	**B**	**C**
SC.8.4.3.A Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.	Use data to describe the relationships between kinetic (motion) energy and the mass and speed of an object.		Use data to describe that the speed and mass of a moving object affect the kinetic energy (motion) of the object.	Use data to identify that an object traveling at a greater speed will have more kinetic energy than an object with the same mass traveling at a slower speed. Use data to identify that an object with a greater mass will have more kinetic energy than an object with less mass that is traveling at the same speed.	Recognize that an object with greater mass or greater speed has more kinetic energy.
	Points	**0-2**			
SC.8.4.3.B Develop a model to describe that when the arrangement of objects interacting at a distance changes, then different amounts of potential energy are stored in the system. Assessment is limited to two objects and electric, magnetic, and gravitational interactions.	Use data to describe the relationship between potential (stored) energy and the height of an object.		Use data to describe that the amount of potential (stored) energy in a stationary object increases with increasing height and decreases with decreasing height.	Use data to identify which object has more or less potential energy based on its distance from the bottom of a surface.	Recognize that an object has greater potential energy at a greater height.
	Points	**0-2**			

Science – Grade 8 Life Sciences					
SC.8.9 Heredity: Inheritance and Variation of Traits			**Access Points**		
Standard / Indicator	**Extension**				
SC.8.9.4 Gather, analyze, and communicate evidence of the inheritance and variation of traits.			**A**	**B**	**C**
SC.8.9.4.A Develop and use a model to describe why structural changes to genes (mutations) may result in harmful, beneficial, or neutral effects to structure and function of organisms. Assessment does not include specific changes at the molecular level, mechanisms for protein synthesis, or specific types of mutations.	Use models to observe that changes in the physical traits of organisms of the same species (caused by genetic mutation) may or may not affect their ability to survive.		Use models to identify changes in the physical traits of individuals of the same species and describe how changes may affect an organism's ability to survive or not.	Using a model of a typical organism and a changed organism of the same species; identify the physical trait that changed or whether the change is helpful or harmful.	Recognize the changed organism when given a model of a typical organism and a changed organism of the same species.
	Points	**0-2**			
SC.8.9.4.B Gather and synthesize information about technologies that have changed the way humans influence inheritance of desired traits in organisms.	Use information to describe ways that humans have influenced the physical traits of plants and animals.		Describe physical traits that may be desirable or undesirable and identify a way humans select that trait for future generations of offspring.	Identify which individual would most likely produce offspring with a given desired trait.	Recognize an organism that has a trait that fits a given need.
	Points	**0-2**			

Science – Grade 8 Life Sciences					
SC.8.10 Natural Selection and Adaptations			**Access Points**		
Standard / Indicator	**Extension**				
SC.8.10.5 Gather, analyze, and communicate evidence of natural selection and adaptations.			**A**	**B**	**C**
SC.8.10.5.A Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past. Assessment does not include the names of individual species or geological eras in the fossil record.	Use data and evidence in Earth's fossil record (fossils found in rock or ice layers) to investigate changes in Earth's environments and life forms over time.		Use evidence of the fossil record (types of organisms) to identify that different environments and organisms existed at a given location over time.	Identify one or more fossils that would be found in an environment, or given one or more fossils, identify an environment in which the fossil or fossils could be found.	Recognize a fossil in its environment.
	Points	**0-2**			
SC.8.10.5.B Apply scientific ideas to construct an explanation for the anatomical similarities and differences among and between modern and fossil organisms to infer evolutionary relationships.	Use models and information about the physical traits of fossilized organisms and modern organisms to investigate the evolutionary relationships between organisms.		Describe one or more similarities or differences that show modern organisms are related to or unrelated to fossilized organisms.	Identify a physical trait of a modern organism that is most similar to a fossilized organism.	Recognize an organism that could have formed a given fossil.
	Points	**0-2**			

SC.8.10.5.C Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.	Use evidence to identify physical traits of organisms that help them survive and reproduce in a specific environment.		Identify one or more physical traits of an organism or organisms that will be helpful or harmful to the survival and/or reproduction of the organism or organisms in a specific environment.	Identify one or more physical traits that would help organisms survive and reproduce in a specific environment.	Recognize the organism that would best survive in a specific environment.
	Points	**0-2**			
SC.8.10.5.D Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. Assessment does not include Hardy Weinberg calculations.	Use data to explain that individual organisms with a beneficial physical trait are better able to survive and reproduce than individuals without the trait, which increases the number of individuals with that trait.		Use data to determine whether the number of individuals with or without a specific physical trait will increase or decrease within a population over time.	Identify that the number of individuals with a beneficial physical trait will increase within a population over time.	Recognize whether a given organism has a specific physical trait.
	Points	**0-2**			

Science – Grade 8 Earth and Space Sciences					
SC.8.11 Space Systems			**Access Points**		
Standard / Indicator	**Extension**				
SC.8.11.6 Gather, analyze, and communicate evidence of the interactions among bodies in space.			**A**	**B**	**C**
SC.8.11.6.A Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.	Use models of the Earth-sun-moon system to investigate cycles that cause observable monthly lunar patterns and yearly seasonal patterns on Earth.		Use models of the Earth-sun-moon system to observe and describe the cycles that cause the illumination of the moon (new, quarter, half, full), and the seasons (winter, spring, summer, autumn) on Earth.	Identify moon phases (new, half, full) or seasons (winter, spring, summer, autumn) and recognize that they occur in a recurring pattern.	Recognize the moon when it is lit by the sun, or recognize summer and winter as recurring seasons.
	Points	**0-2**			
SC.8.11.6.B Develop and use a model to describe the role of gravity in the motions within the galaxy and the solar system. Assessment does not include Kepler's Laws of orbital motion or the apparent retrograde motion of planets as viewed from Earth.	Use simple models of the solar system to investigate the motion of the moon around Earth and Earth around the sun due to the pull of gravity.		Use models of the sun, Earth, and the moon to describe that these bodies are kept in predictable orbits by the pull of gravity.	Use a model to identify the sun, Earth, and the moon as parts of the solar system or that they orbit together.	Recognize the sun or Earth as parts of the solar system.
	Points	**0-2**			
SC.8.11.6.C Analyze and interpret data to determine scale properties of objects in the solar system. Assessment does not include recalling facts about properties of the planets and other solar system bodies.	Use scaled models to compare and describe the size of the sun, planets, and moons in the solar system.		Use scaled models to compare and describe the sizes of the sun, Earth, and the moon.	Use scaled objects or pictures representing the sun, Earth, and the moon to identify which is largest or smallest.	Recognize which of two objects in the Earth-sun-moon system is larger.
	Points	**0-2**			

Science – Grade 8 Earth and Space Sciences					
SC.8.14 History of Earth			**Access Points**		
Standard / Indicator	**Extension**				
SC.8.14.7 Gather, analyze, and communicate evidence to explain Earth's history.			**A**	**B**	**C**
SC.8.14.7.A Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. Assessment does not include recalling the names of specific periods or epochs and events within them.	Participate in making or using models of Earth's rock strata to explain that rock layers are very old and that their age is relative to their position within rock strata.		Participate in making or using models to explain that Earth's surface is made of rock layers that are very old and that older rock layers are found below younger rock layers.	Identify which layers are the oldest and the youngest when using a model of rock strata with more than two layers.	Recognize the bottom layer as older when using a model of rock strata with two distinct layers.
	Points	**0-2**			

Science – Grade 11 Physical Science					
SC.HS.1 Forces and Interactions			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.1.1 Gather, analyze, and communicate evidence of forces and interactions.			**A**	**B**	**C**
SC.HS.1.1.A **Analyze data** to support the claim that Newton's Second Law of Motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration. Assessment is limited to one dimensional motion and to macroscopic objects moving at non-relativistic speeds.	Use observations to identify the relationship of mass and speed to produce the force of an object.		Use observations to identify the relationship of mass and speed to produce the force of an object.	Identify that mass or force influence speed.	Recognize that an object with a large mass is more difficult to move than an object with a smaller mass.
	Points	**0-2**			
SC.HS.1.1.B **Use mathematical representations** to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system. Assessment is limited to systems of two macroscopic bodies moving in one dimension.	Use a model to determine the result of two objects colliding.		Describe the result of two objects with the same mass or with the same speed colliding.	Identify the result of two objects with the same mass but different speeds colliding.	Recognize the result of two objects with the same speed but different masses colliding.
	Points	**0-2**			

SC.HS.1.1.C **Apply science and engineering ideas to design, evaluate, and refine** a device that minimizes the force on a macroscopic object during a collision. Assessment is limited to qualitative evaluations and/or algebraic manipulations.	Evaluate a design that minimizes a force of an object during a collision.		Use evidence to explain why a design minimizes the force of an object during a collision.	Identify the design that would minimize the force of an object during a collision.	Given the results, recognize the design that minimized the force of an object during a collision.
	Points	**0-2**			

Science – Grade 11 Physical Science					
SC.HS.3 Structure and Properties of Matter			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.3.3 Gather, analyze, and communicate evidence of the structure, properties, and interactions of matter.			**A**	**B**	**C**
SC.HS.3.3.B **Plan and conduct an investigation** to gather evidence to compare the structure of substances at the macro scale to infer the strength of electrical forces between particles. Assessment does not include Raoult's law calculations of vapor pressure.	Use models to compare the spacing of particles in solids, liquids, and gases.		Use a model to determine whether the spacing of particles represents a solid, liquid, or gas.	Identify the relationship between the spacing of particles in a solid or liquid.	Recognize that objects are made of particles.
	Points	**0-2**			
SC.HS.3.3.D **Communicate scientific and technical information** about why the molecular-level structure is important in the functioning of designed materials. Assessment is limited to provided molecular structures of specific designed materials.	Identify the differences between metals and nonmetals in allowing heat and energy to pass through. Ensure that SC.5.3.1.C is extended at grade level.		Identify the differences between metals and nonmetals (e.g., fabric, wood, plastic) in allowing heat and energy to pass through.	Recognize that metals allow heat or electricity to pass through.	Recognize a metal from a nonmetal.
	Points	**0-2**			

Science – Grade 11 Physical Science					
SC.HS.4 Energy			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.4.4 Gather, analyze, and communicate evidence of the interactions of energy.			**A**	**B**	**C**
SC.HS.4.4.A **Create a computational model** to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known. Assessment is limited to basic algebraic expressions or computations; to systems of two or three components; and to thermal energy, kinetic energy, and/or the energies in gravitational, magnetic, or electric fields.	Energy can be converted into heat, light, or sound.		Predict whether electrical energy will be converted into heat, light, or sound energy.	Identify examples of electrical energy being converted into heat and/or light energy.	Recognize the evidence that electrical energy was transferred (e.g., light is coming from a bulb, a pan is warm).
	Points	**0-2**			
SC.HS.4.4.E **Plan and conduct an investigation** to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics). Assessment is limited to investigations based on materials and tools provided to students.	Evaluate appropriate methods and/or tools to use in a thermal energy investigation.		Using evidence, explain which object (e.g., thermos, lunch box, paper bag) retains thermal energy for a fixed amount of time.	Identify the tool used to measure a change in thermal energy.	Recognize a tool used to measure thermal energy.
	Points	**0-2**			

Science – Grade 11 Physical Science					
SC.HS.5 Chemical Reactions			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.5.5 Gather, analyze, and communicate evidence of chemical reactions.			**A**	**B**	**C**
SC.HS.5.5.C **Apply scientific principles** and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs. Assessment is limited to simple reactions in which there are only two reactants; evidence from temperature, concentration, and rate data; and qualitative relationships between rate and temperature.	Describe that a change in a reactant affects the rate at which the reaction occurs.		Identify that changing temperature affects the rate of a reaction.	Identify that an increase in temperature results in a faster reaction (e.g., soak one glow stick in warm water and one glow stick in cold water and then snap the glow sticks and observe the brightness).	Recognize a chemical reaction (e.g., fizzing antacid tablet in water).
	Points	**0-2**			
SC.HS.5.5.D **Refine the design** of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium. Assessment is limited to specifying the change in only one variable at a time. Assessment does not include calculating equilibrium constants and concentrations.	Evaluate how changes in the amount of reactants result in an increased amount of product.		Distinguish between multiple models and identify which model results in the greatest amount of product.	Identify that an increase in reactants results in an increase in product.	Recognize an increase in a product.
	Points	**0-2**			
SC.HS.5.5.E **Design a solution** to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.	Evaluate an applicable life skill task that requires a solution.		Identify up to three steps, in the correct order, to solve a problem.	Identify one step to solve a problem.	Recognize that a problem exists.
	Points	**0-2**			

SC.HS.5.5.F **Use mathematical representations** to support the claim that atoms, and therefore mass, are conserved during a chemical reaction. Assessment does not include complex chemical reactions.	Use models to determine that weight does not change during a chemical reaction.		Using numerical data in a graph, identify whether there was a change in weight during a chemical reaction.	Recognize that weight does not change in a chemical reaction.	Recognize that matter has weight.
	Points	**0-2**			

Science – Grade 11 Life Sciences					
SC.HS.6 Structure and Function			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.6.1 Gather, analyze, and communicate evidence of the relationship between structure and function in living things.			**A**	**B**	**C**
SC.HS.6.1.B **Develop and use a model** to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. Assessment does not include interactions and functions at the molecular or chemical reaction level.	Use a model to identify different organs in the human body and describe how they work to support bodily functions. (Assessment Boundary: Limited to either circulatory, respiratory, or digestive systems.)	**Points**	**0-2**	Identify an organ system and its functions.	Recognize an organ system.	Recognize major human organs.
SC.HS.6.1.C **Plan and conduct an investigation** to provide evidence that feedback mechanisms maintain homeostasis. Assessment does not include the cellular processes involved in the feedback mechanism.	Provide evidence about how an organism will respond when exposed to changing conditions.	**Points**	**0-2**	Provide evidence about how an organism will respond to changes in its environment (e.g., changes in temperature, varying water levels).	Identify that organisms change in response to their environment.	Recognize that organisms need water when they feel thirsty and food when they feel hungry.
SC.HS.6.1.D **Use a model** to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. Assessment does not include specific gene control mechanisms or rote memorization of the steps of mitosis.	Use a model to explain that the human body is made of many types of cells and that cells divide.	**Points**	**0-2**	Use a model to explain why cells divide (e.g., to replace dead or damaged cells, to grow, to produce different cell types).	Identify that cells divide through a process.	Recognize that the body is made of cells.

Science – Grade 11 Life Sciences					
SC.HS.7 Interdependent Relationships in Ecosystems			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.7.2 Gather, analyze, and communicate evidence of interdependent relationships in ecosystems.			**A**	**B**	**C**
SC.HS.7.2.C **Evaluate the claims, evidence, and reasoning** that the interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.	Evaluate a claim about living or nonliving factors in an environment and how those factors affect a population.		Predict how an environmental change will influence a population.	Recognize that changes in an environment will cause changes in the number of organisms (plants or animals) in an environment.	Recognize that, to survive, plants and animals need specific factors in an environment.
	Points	**0-2**			
SC.HS.7.2.D **Evaluate the evidence** for the role of group behavior on individual and species' chances to survive and reproduce.	Describe how individual and group behaviors in species impact the chances for survival and reproduction.		Use evidence to describe how individual and group behaviors affect survival and reproduction.	Recognize individual and group behaviors that help with survival and reproduction.	Recognize individual behaviors that ensure survival and reproduction.
	Points	**0-2**			

Science – Grade 11 Life Sciences					
SC.HS.8 Matter and Energy in Organisms and Ecosystems			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.8.3 Gather, analyze, and communicate evidence of the flow of energy and cycling of matter in organisms and ecosystems.			**A**	**B**	**C**
SC.HS.8.3.A **Use a model** to illustrate how photosynthesis transforms light energy into stored chemical energy. Assessment does not include specific biochemical steps.	Use a model to explain how plants change light energy into chemical energy. Assessment does not include the word photosynthesis.		Use a model to explain how plants change light energy into chemical energy.	Recognize that water, sunlight, and carbon dioxide are used by plants to make food and to grow.	Recognize that plants use the sun to make food.
	Points	**0-2**			
SC.HS.8.3.C **Use a model** to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules are broken and bonds in new compounds are formed resulting in a net transfer of energy. Assessment should not include identification of the steps or specific processes involved in cellular respiration.	Use a model to explain that different types of food can be used to produce energy for survival. Note: This does not include the cellular level.		Use a model to explain that different types of foods can be used to produce energy for survival. (Students are not expected to know the molecular structures of sugars, fats, and proteins.)	Recognize that when living things eat, food is broken down and energy is produced.	Recognize that living things need food for survival.
	Points	**0-2**			
SC.HS.8.3.D **Construct and revise an explanation** based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. Assessment does not include the specific chemical processes of either aerobic or anaerobic respiration.	Use models to show the cycling of matter among organisms within an ecosystem.		Use a model to complete a food chain.	Identify the correct order of a simple food chain.	Recognize the correct order in a simple food chain (from producer to consumer).
	Points	**0-2**			

Science – Grade 11 Life Sciences					
SC.HS.9 Heredity: Inheritance and Variation of Traits			***Access Points***		
Standard / Indicator	***Extension***				
SC.HS.9.4 Gather, analyze, and communicate evidence of the inheritance and variation of traits.			**A**	**B**	**C**
SC.HS.9.4.A. **Develop and use a model** to explain the relationships between the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring. Assessment does not include the phases of meiosis or the molecular mechanism of specific steps in the process.	Construct an explanation of how some traits are inherited and some are acquired.		Construct an explanation of how some traits are inherited and some are acquired.	Recognize traits acquired from the environment.	Recognize inherited traits.
	Points	***0-2***			

Science – Grade 11 Life Sciences					
SC.HS.10 Biological Evolution			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.10.5 Gather, analyze, and communicate evidence of biological evolution.			**A**	**B**	**C**
SC.HS.10.5.B **Construct an explanation** based on evidence that natural selection primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment. Assessment does not include other mechanisms of evolution, such as genetic drift, gene flow through migration, and co-evolution.	Demonstrate how a population can adapt or change to survive when the environment changes.		Demonstrate how a population can adapt or change to survive when the environment changes.	Given an animal and an environment, identify the traits of that animal that make it best suited for that environment.	Match an animal to its most suitable environment.
	Points	**0-2**			
SC.HS.10.5.E **Evaluate the evidence** supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.	Use evidence to support a claim of how a change in the environment can cause a change in a population.		Identify environmental conditions that increase or decrease populations in an environment.	Identify conditions that would decrease populations in an environment.	Recognize a healthy population in an environment.
	Points	**0-2**			

Science – Grade 11 Earth and Space Sciences					
SC.HS.11 Space Systems			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.11.1. Gather, analyze, and communicate evidence to defend that the universe changes over time.			**A**	**B**	**C**
SC.HS.11.1.A **Develop a model** based on evidence to illustrate the stages of stars, like the sun**,** and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation. Assessment does not include details of the atomic and sub-atomic processes involved with the sun's nuclear fusion.	Construct an explanation to describe that the sun is a star and energy from the sun reaches Earth.		Given a model, explain that energy from the sun (a star) reaches Earth in the form of heat and light.	Recognize that light and heat are forms of energy from the sun (a star) that reach Earth.	Recognize that the sun is a star and its light or heat reaches Earth.
	Points	**0-2**			
SC.HS.11.1.D **Use mathematical or computational representations** to predict the motion of orbiting objects in the solar system. Mathematical representations for the gravitational attraction of bodies and Kepler's Laws of orbital motions should not deal with more than two bodies, nor involve calculus.	Use a model to predict the motion of orbiting objects in the solar system.		Recognize that objects in the solar system (e.g., planets, moons, satellites) orbit in predictable patterns.	Recognize that moons orbit planets in patterns while planets orbit the sun in patterns.	Recognize that planets orbit the sun.
	Points	**0-2**			

Science – Grade 11 Earth and Space Sciences					
SC.HS.12 Weather and Climate			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.12.2 Gather, analyze, and communicate evidence to support that Earth's climate and weather are influenced by energy flow through Earth systems.			**A**	**B**	**C**
SC.HS.12.2.B **Use a model** to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate. Assessment of the results of changes in climate is limited to changes in surface temperatures, precipitation patterns, glacial ice volumes, sea levels, and biosphere distribution.	Use a model to describe differences in energy and climate on Earth.		Explain that while Earth orbits around the sun, Earth's tilt/position impacts energy differences between the poles and the equator, producing different climates.	Identify that Earth's position impacts energy differences between the poles and the equator, producing different climates.	Recognize that the sun's energy is different at the poles and at the equator, producing different climates.
	Points	**0-2**			
SC.HS.12.2.C **Analyze geoscience data** and the results from global climate models to make an evidence-based forecast of the current rate and scale of global or regional climate changes.	Interpret simple graphs or illustrations to identify trends in global climate over time.		Given graphs or illustrations, identify the patterns of global temperatures and pollution to explain trends.	Given graphs or illustrations, identify the patterns of global temperatures and pollution. .	Given a graph or an illustration, recognize the pattern of global temperature.
	Points	**0-2**			

Science – Grade 11 Earth and Space Sciences					
SC.HS.13 Earth's Systems			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.13.3 Gather, analyze, and communicate evidence to defend the position that Earth's systems are interconnected and impact one another.			**A**	**B**	**C**
SC.HS.13.3.A **Analyze geoscience data** to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.	Explain that atmospheric changes cause changes to Earth's surface. (temperature, water, and wind)		Explain that atmospheric changes cause changes to Earth's surface. (temperature, water and wind)	Recognize that water and wind change the surface of Earth over time.	Recognize that water changes the surface of Earth.
	Points	**0-2**			
SC.HS.13.3.B **Develop a model** based on evidence of Earth's interior to describe the cycling of matter.	Use a model to describe Earth's three layers.		Identify that Earth has layers with different characteristics.	Identify that Earth has different layers.	Recognize that Earth has different layers.
	Points	**0-2**			
SC.HS.13.3.C **Construct an argument based on evidence** to explain the multiple processes that cause Earth's plates to move.	Describe how the motion of Earth's tectonic plates causes different features or events.		Describe evidence of earthquakes and volcanoes.	Identify that Earth's tectonic plates move, causing earthquakes and volcanoes.	Recognize that Earth's tectonic plates move.
	Points	**0-2**			
SC.HS.13.3.D **Plan and conduct an investigation** of the properties of water and their effects on Earth materials, surface processes, and groundwater systems.	Make observations to understand that water's properties impact Earth's materials.		Identify that water can change Earth's materials by freezing or transporting materials.	Recognize that water changes Earth's surface by freezing or transporting materials.	Recognize that water freezes, changing Earth's surface.
	Points	**0-2**			

Science – Grade 11 Earth and Space Sciences					
SC.HS.15 Sustainability			**Access Points**		
Standard / Indicator	**Extension**				
SC.HS.15.5 **Gather, analyze, and communicate evidence** to describe the interactions between society, environment, and economy.			**A**	**B**	**C**
SC.HS.15.5.A **Construct an explanation based on evidence** for how the availability of natural resources, occurrence of natural hazards, and <u>changes in climate</u> have influenced human activity.	Construct an explanation of how the availability of natural resources influences human activity. Construct an explanation of how natural hazards influence human activity.		Use evidence to construct an explanation of how the availability of renewable and nonrenewable resources impacts human society. Use evidence to construct an explanation of how natural hazards impact humans.	Identify renewable and nonrenewable resources that impact one's life. Identify ways natural hazards impact humans.	Recognize that natural resources impact one's life. Recognize natural hazards.
	Points	**0-2**			
SC.HS.15.5.D **Evaluate or refine a technological solution** that increases positive impacts of human activities on <u>natural systems</u>.	Construct an explanation to describe how humans positively and negatively impact Earth.		Explain ways humans positively and negatively impact Earth.	Identify ways humans impact Earth.	Recognize that humans impact Earth.
	Points	**0-2**			
SC.HS.15.5.E **Evaluate a solution to a complex real-world problem** based on prioritized criteria and tradeoffs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible <u>social, cultural, and environmental impacts</u>.	Explain how humans can reduce their impact on the environment.		Explain how humans can reduce their impact on the environment.	Identify a solution to reduce human impact on the environment.	Recognize the solution to an environmental problem.
	Points	**0-2**			

Appendix D: Confidentiality and Security Agreements

Form #08-4747
Revised 9-23-21

NEBRASKA
DEPARTMENT OF EDUCATION

2021-2022 Nebraska Student-Centered Assessment System (NSCAS) Tests
District Assessment Contact (DAC) Confidentiality of Information Agreement

The DAC must sign, via Echosign, and submit this NSCAS Confidentiality of Information Agreement to the Statewide Assessment Office prior to the distribution of testing materials to schools within the DAC's district. The Echosigned form is due by October 15, 2021.

Under this agreement, you will have access to secure and confidential NSCAS assessment materials.

I acknowledge that authorized employees and representatives of the schools within this district will have access to secure materials for the purpose of administering NSCAS assessments. I understand that because the materials are highly secure, it is my professional responsibility to protect their security. Further, I will assure that all principals in my school district sign, via Echosign, the Principal Security Agreement, and I will see that the agreements are returned according to the directions provided.

I will inform district staff that any breach of security must be reported to NDE. Contact NDE with questions at: nde.stateassessment@nebraska.gov or 402-314-3013.

Please indicate the school district for which you are the District Assessment Contact:

District Code:_____ District Name: _____

_____ _____
Signature of District Assessment Contact Date

_____ _____
Email Direct Bus. Phone Number

_____
Print Name

Questions about this form may be addressed to margaret.sis@nebraska.gov.

Nebraska Department of Education, Fall 2021 Security Attachment A

NEBRASKA
DEPARTMENT OF EDUCATION

Form #08-9861
Revised 9-23-21

2021-2022 Nebraska Student-Centered Assessment System (NSCAS) Tests
Building Principal Security Agreement

The building principal must read, sign via Echosign, and submit this Test Security Agreement before administering any 2021-2022 NSCAS tests. The Test Security Agreement is due October 15, 2021. Questions about this form may be addressed to margaret.sis@nebraska.gov.

1. I will protect the contents of the test from any improper access and disclosure.
2. I will handle test items or test booklets and answer sheets in accordance with security instructions. Copying or taking notes on any statewide assessment is not allowed.
3. I will return all specified secure materials to the proper test-vendor. I will destroy any designated secure printed and digital materials.
4. I will carefully restrict access to the test materials to authorized persons.
5. I will assure students' responses are accurate reflections of their own work.
6. I will assure that students' answers to test items are their own and that no one offers any improper assistance to students.
7. I acknowledge that discussing with teachers or students, examining items, or answering any test questions contained in the assessment before, during, or after the administration of the test is a violation of test security.
8. For online tests, I understand the usernames and passwords assigned to school personnel afford access to confidential student information, are secure, and must remain confidential.
9. I am responsible for overseeing appropriate training for staff, security, and testing procedures for any of the following NSCAS assessments that are administered in my building:

Security Documents available at NSCAS Administration and Security.

NSCAS Growth English Language Arts	NSCAS AA English Language Arts	NSCAS ACT
NSCAS Growth Mathematics	NSCAS AA Mathematics	English Language Proficiency Assessment for the 21st Century (ELPA21)
NSCAS Science	NSCAS AA Science	NSCAS Growth Winter Pilot

10. I will inform district staff that any breach of security must be reported to NDE. Any questions, contact NDE at: nde.stateassessment@nebraska.gov or 402-314-3013.

Please indicate the school district in which you are principal:

District Code: _____ District Name: _____

By my signature below, I certify that as the principal of the aforementioned school(s), I will read the test security procedures before administration of NSCAS tests in my school(s), and the procedures will be followed for the 2021-2022 administrations.

Signed:_____ Date:_____

Print Name:_____ Email:_____

Direct Phone:_____

Nebraska Department of Education, Fall 2021 Security Attachment B

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.

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

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?

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Appendix F:

ELA Key Verification and Foil Analysis

Grade 3 ELA

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	A	229	0.66	0.66	0.13	0.21	0.00	0.00	0.48	0.48	-0.29	-0.29
2	OP	B	229	0.66	0.12	0.66	0.20	0.02	0.00	0.38	-0.16	0.38	-0.22
3	OP	C	229	0.57	0.29	0.12	0.57	0.02	0.00	0.23	-0.02	-0.18	0.23
4	OP	B	229	0.55	0.19	0.55	0.25	0.02	0.00	0.42	-0.25	0.42	-0.17
5	OP	C	229	0.67	0.16	0.15	0.67	0.02	0.00	0.49	-0.19	-0.33	0.49
6	OP	A	229	0.49	0.49	0.26	0.24	0.02	0.00	0.39	0.39	-0.22	-0.15
7	OP	C	229	0.70	0.11	0.17	0.70	0.02	0.00	0.35	-0.08	-0.25	0.35
8	OP	A	229	0.55	0.55	0.12	0.31	0.02	0.00	0.42	0.42	-0.08	-0.29
9	OP	B	229	0.46	0.18	0.46	0.34	0.03	0.00	0.42	-0.22	0.42	-0.17
10	OP	C	229	0.54	0.28	0.17	0.54	0.02	0.00	0.26	-0.10	-0.12	0.26
11	OP	C	229	0.65	0.07	0.26	0.65	0.03	0.00	0.28	-0.21	-0.13	0.28
12	OP	A	229	0.42	0.42	0.24	0.31	0.03	0.00	0.29	0.29	-0.21	0.00
13	OP	C	229	0.49	0.26	0.23	0.49	0.02	0.00	0.26	-0.02	-0.18	0.26
14	OP	B	229	0.77	0.08	0.77	0.11	0.04	0.00	0.46	-0.31	0.46	-0.15
15	OP	C	229	0.64	0.12	0.21	0.64	0.02	0.00	0.32	-0.23	-0.08	0.32
16	OP	A	229	0.54	0.54	0.20	0.25	0.02	0.00	0.46	0.46	-0.18	-0.27
17	OP	C	229	0.58	0.19	0.20	0.58	0.03	0.00	0.36	-0.08	-0.21	0.36
18	OP	B	229	0.59	0.11	0.59	0.26	0.03	0.00	0.52	-0.20	0.52	-0.29
19	OP	A	229	0.42	0.42	0.22	0.31	0.04	0.00	0.45	0.45	-0.14	-0.18
20	OP	B	229	0.39	0.18	0.39	0.39	0.04	0.00	0.26	-0.03	0.26	-0.10
21	OP	C	229	0.69	0.10	0.16	0.69	0.05	0.00	0.36	-0.12	-0.14	0.36
22	OP	B	229	0.24	0.29	0.24	0.42	0.05	0.00	0.04	0.15	0.04	-0.01
23	OP	A	229	0.43	0.43	0.21	0.31	0.04	0.00	0.33	0.33	-0.04	-0.16
24	OP	C	229	0.64	0.15	0.17	0.64	0.04	0.00	0.40	-0.06	-0.28	0.40
25	OP	C	229	0.68	0.14	0.14	0.68	0.04	0.00	0.31	-0.07	-0.14	0.31
26	OP	B	229	0.47	0.19	0.47	0.30	0.04	0.00	0.40	-0.01	0.40	-0.28
27	OP	A	229	0.46	0.46	0.18	0.31	0.04	0.00	0.35	0.35	-0.02	-0.20
28	OP	B	229	0.45	0.12	0.45	0.39	0.04	0.00	0.33	-0.15	0.33	-0.11
29	FT	B	104	0.42	0.19	0.42	0.31	0.08	0.00	0.50	-0.07	0.50	-0.23
30	FT	B	104	0.46	0.20	0.46	0.28	0.06	0.00	0.26	0.08	0.26	-0.14
31	FT	A	104	0.33	0.33	0.19	0.41	0.07	0.00	0.46	0.46	-0.14	-0.08
32	FT	C	104	0.69	0.13	0.13	0.69	0.06	0.00	0.49	-0.11	-0.26	0.49
33	FT	B	104	0.39	0.15	0.39	0.39	0.07	0.00	0.35	0.07	0.35	-0.15
34	FT	A	104	0.28	0.28	0.28	0.39	0.06	0.00	0.33	0.33	-0.07	-0.02
35	FT	A	104	0.37	0.37	0.21	0.36	0.07	0.00	0.45	0.45	0.12	-0.31
36	FT	B	104	0.43	0.20	0.43	0.31	0.06	0.00	0.25	-0.10	0.25	0.03
37	FT	C	125	0.44	0.26	0.26	0.44	0.04	0.00	-0.04	0.06	0.12	-0.04
38	FT	A	125	0.59	0.59	0.18	0.20	0.02	0.00	0.46	0.46	-0.21	-0.29
39	FT	B	125	0.40	0.14	0.40	0.43	0.02	0.00	0.06	0.01	0.06	-0.01
40	FT	B	125	0.28	0.15	0.28	0.54	0.03	0.00	0.38	-0.10	0.38	-0.18
41	FT	A	125	0.22	0.22	0.31	0.44	0.03	0.00	0.10	0.10	0.04	-0.02
42	FT	B	125	0.46	0.23	0.46	0.28	0.02	0.00	0.14	-0.07	0.14	-0.02
43	FT	B	125	0.30	0.27	0.30	0.39	0.04	0.00	0.08	0.23	0.08	-0.17
44	FT	C	125	0.53	0.15	0.28	0.53	0.04	0.00	0.31	-0.12	-0.14	0.31

Grade 4 ELA

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	A	248	0.68	0.68	0.14	0.18	0.00	0.00	0.51	0.51	-0.22	-0.40
2	OP	B	248	0.73	0.06	0.73	0.20	0.01	0.00	0.51	-0.11	0.51	-0.44
3	OP	C	248	0.57	0.15	0.27	0.57	0.01	0.00	0.39	-0.19	-0.24	0.39
4	OP	A	248	0.68	0.68	0.13	0.17	0.02	0.00	0.52	0.52	-0.26	-0.29
5	OP	C	248	0.69	0.15	0.14	0.69	0.02	0.00	0.26	-0.02	-0.17	0.26
6	OP	A	248	0.67	0.67	0.10	0.21	0.02	0.00	0.58	0.58	-0.20	-0.39
7	OP	A	248	0.64	0.64	0.22	0.12	0.02	0.00	0.49	0.49	-0.27	-0.20
8	OP	C	248	0.50	0.28	0.19	0.50	0.03	0.00	0.15	0.09	-0.14	0.15
9	OP	B	248	0.58	0.13	0.58	0.26	0.02	0.00	0.38	-0.01	0.38	-0.29
10	OP	A	248	0.47	0.47	0.20	0.30	0.03	0.00	0.49	0.49	-0.15	-0.26
11	OP	A	248	0.49	0.49	0.21	0.27	0.03	0.00	0.53	0.53	-0.23	-0.22
12	OP	C	248	0.52	0.21	0.23	0.52	0.03	0.00	0.17	-0.08	0.04	0.17
13	OP	A	248	0.47	0.47	0.21	0.28	0.03	0.00	0.40	0.40	-0.10	-0.19
14	OP	A	248	0.49	0.49	0.14	0.34	0.04	0.00	0.48	0.48	-0.05	-0.31
15	OP	B	248	0.36	0.25	0.36	0.35	0.04	0.00	0.42	-0.03	0.42	-0.22
16	OP	C	248	0.73	0.11	0.13	0.73	0.03	0.00	0.38	-0.17	-0.13	0.38
17	OP	B	248	0.41	0.15	0.41	0.41	0.03	0.00	0.35	-0.04	0.35	-0.17
18	OP	B	248	0.77	0.07	0.77	0.13	0.04	0.00	0.49	-0.16	0.49	-0.26
19	OP	A	248	0.40	0.40	0.17	0.40	0.04	0.00	0.45	0.45	-0.16	-0.17
20	OP	C	248	0.73	0.09	0.15	0.73	0.04	0.00	0.32	-0.05	-0.14	0.32
21	OP	B	248	0.39	0.25	0.39	0.33	0.04	0.00	0.42	-0.06	0.42	-0.22
22	OP	A	248	0.61	0.61	0.16	0.20	0.03	0.00	0.55	0.55	-0.24	-0.27
23	OP	A	248	0.48	0.48	0.17	0.32	0.04	0.00	0.29	0.29	-0.03	-0.12
24	OP	B	248	0.51	0.13	0.51	0.32	0.04	0.00	0.40	-0.08	0.40	-0.21
25	OP	B	248	0.53	0.17	0.53	0.25	0.04	0.00	0.46	-0.03	0.46	-0.30
26	OP	C	248	0.59	0.14	0.23	0.59	0.03	0.00	0.30	0.03	-0.21	0.30
27	OP	B	248	0.58	0.13	0.58	0.26	0.04	0.00	0.48	-0.03	0.48	-0.33
28	OP	A	248	0.40	0.40	0.23	0.34	0.04	0.00	0.30	0.30	-0.03	-0.13
29	FT	B	127	0.51	0.13	0.51	0.34	0.02	0.00	0.48	-0.14	0.48	-0.30
30	FT	B	127	0.41	0.32	0.41	0.24	0.02	0.00	0.40	-0.13	0.40	-0.20
31	FT	A	127	0.41	0.41	0.18	0.39	0.02	0.00	0.37	0.37	-0.05	-0.22
32	FT	B	127	0.42	0.28	0.42	0.28	0.02	0.00	0.31	0.01	0.31	-0.23
33	FT	A	127	0.45	0.45	0.15	0.38	0.02	0.00	0.17	0.17	-0.19	0.08
34	FT	C	127	0.59	0.24	0.14	0.59	0.03	0.00	0.24	-0.13	0.02	0.24
35	FT	B	127	0.32	0.35	0.32	0.31	0.03	0.00	0.29	0.13	0.29	-0.28
36	FT	C	127	0.57	0.21	0.19	0.57	0.03	0.00	-0.03	0.15	0.05	-0.03
37	FT	B	121	0.32	0.29	0.32	0.35	0.04	0.00	0.31	0.10	0.31	-0.21
38	FT	A	121	0.63	0.63	0.10	0.23	0.04	0.00	0.34	0.34	-0.07	-0.13
39	FT	C	121	0.59	0.21	0.17	0.59	0.04	0.00	0.14	0.16	-0.12	0.14
40	FT	B	121	0.54	0.15	0.54	0.27	0.04	0.00	0.47	-0.13	0.47	-0.22
41	FT	A	121	0.41	0.41	0.17	0.38	0.04	0.00	0.27	0.27	0.00	-0.08
42	FT	B	121	0.41	0.26	0.41	0.28	0.04	0.00	0.13	0.22	0.13	-0.15
43	FT	B	121	0.46	0.21	0.46	0.30	0.04	0.00	0.41	0.03	0.41	-0.27
44	FT	A	121	0.39	0.39	0.21	0.36	0.04	0.00	0.32	0.32	0.00	-0.13

Grade 5 ELA

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	C	247	0.69	0.14	0.15	0.69	0.02	0.00	0.38	-0.13	-0.28	0.38
2	OP	A	247	0.62	0.62	0.14	0.21	0.03	0.00	0.41	0.41	-0.23	-0.15
3	OP	C	247	0.79	0.09	0.10	0.79	0.02	0.00	0.42	-0.25	-0.19	0.42
4	OP	B	247	0.59	0.10	0.59	0.29	0.02	0.00	0.36	-0.12	0.36	-0.21
5	OP	A	247	0.79	0.79	0.07	0.13	0.02	0.00	0.47	0.47	-0.23	-0.30
6	OP	B	247	0.72	0.13	0.72	0.14	0.02	0.00	0.32	-0.08	0.32	-0.24
7	OP	C	247	0.75	0.09	0.14	0.75	0.02	0.00	0.36	-0.15	-0.17	0.36
8	OP	A	247	0.58	0.58	0.14	0.25	0.03	0.00	0.50	0.50	-0.25	-0.24
9	OP	A	247	0.60	0.60	0.14	0.23	0.03	0.00	0.53	0.53	-0.17	-0.32
10	OP	C	247	0.55	0.17	0.25	0.55	0.04	0.00	0.26	0.00	-0.13	0.26
11	OP	B	247	0.42	0.19	0.42	0.34	0.05	0.00	0.38	0.03	0.38	-0.23
12	OP	C	247	0.75	0.08	0.13	0.75	0.04	0.00	0.47	-0.10	-0.28	0.47
13	OP	B	247	0.65	0.10	0.65	0.22	0.03	0.00	0.47	-0.09	0.47	-0.32
14	OP	C	247	0.59	0.14	0.24	0.59	0.03	0.00	0.39	-0.14	-0.18	0.39
15	OP	A	247	0.50	0.50	0.24	0.22	0.04	0.00	0.41	0.41	0.05	-0.35
16	OP	B	247	0.54	0.17	0.54	0.25	0.04	0.00	0.51	-0.15	0.51	-0.27
17	OP	C	247	0.56	0.17	0.23	0.56	0.04	0.00	0.24	0.10	-0.20	0.24
18	OP	A	247	0.56	0.56	0.15	0.26	0.03	0.00	0.40	0.40	-0.06	-0.26
19	OP	C	247	0.48	0.21	0.26	0.48	0.05	0.00	0.27	0.01	-0.10	0.27
20	OP	A	247	0.53	0.53	0.24	0.18	0.05	0.00	0.47	0.47	-0.11	-0.29
21	OP	A	247	0.53	0.53	0.19	0.25	0.04	0.00	0.50	0.50	-0.24	-0.18
22	OP	B	247	0.38	0.29	0.38	0.29	0.05	0.00	0.33	0.05	0.33	-0.20
23	OP	A	247	0.51	0.51	0.18	0.25	0.06	0.00	0.41	0.41	0.03	-0.24
24	OP	B	247	0.33	0.23	0.33	0.39	0.05	0.00	0.20	-0.05	0.20	0.01
25	OP	A	247	0.54	0.54	0.13	0.28	0.04	0.00	0.45	0.45	-0.10	-0.25
26	OP	B	247	0.44	0.18	0.44	0.34	0.04	0.00	0.28	-0.09	0.28	-0.06
27	OP	A	247	0.41	0.41	0.24	0.32	0.04	0.00	0.41	0.41	-0.16	-0.12
28	OP	C	247	0.56	0.23	0.17	0.56	0.04	0.00	0.23	0.01	-0.10	0.23
29	FT	A	124	0.54	0.54	0.15	0.28	0.02	0.00	0.39	0.39	-0.05	-0.28
30	FT	C	124	0.33	0.44	0.20	0.33	0.03	0.00	-0.06	0.21	-0.06	-0.06
31	FT	B	124	0.36	0.30	0.36	0.32	0.02	0.00	0.10	0.12	0.10	-0.12
32	FT	A	124	0.46	0.46	0.23	0.28	0.03	0.00	0.46	0.46	-0.15	-0.22
33	FT	B	124	0.46	0.17	0.46	0.34	0.03	0.00	0.18	0.08	0.18	-0.14
34	FT	A	124	0.43	0.43	0.20	0.34	0.03	0.00	0.40	0.40	-0.19	-0.13
35	FT	C	124	0.71	0.18	0.08	0.71	0.03	0.00	0.27	-0.17	-0.01	0.27
36	FT	C	124	0.54	0.19	0.24	0.54	0.03	0.00	0.20	-0.19	0.08	0.20
37	FT	C	123	0.63	0.17	0.14	0.63	0.07	0.00	0.41	-0.07	-0.14	0.41
38	FT	A	123	0.44	0.44	0.23	0.29	0.05	0.00	0.45	0.45	-0.06	-0.23
39	FT	B	123	0.24	0.35	0.24	0.34	0.07	0.00	0.21	0.07	0.21	0.02
40	FT	A	123	0.40	0.40	0.15	0.37	0.07	0.00	0.24	0.24	-0.02	0.04
41	FT	A	123	0.45	0.45	0.15	0.33	0.08	0.00	0.44	0.44	-0.13	-0.05
42	FT	C	123	0.48	0.20	0.26	0.48	0.07	0.00	0.15	0.09	0.02	0.15
43	FT	A	123	0.29	0.29	0.20	0.43	0.07	0.00	0.22	0.22	0.06	0.01
44	FT	C	123	0.64	0.14	0.15	0.64	0.07	0.00	0.28	0.05	-0.05	0.28

Grade 6 ELA

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	B	227	0.62	0.23	0.62	0.15	0.00	0.00	0.30	-0.04	0.30	-0.34
2	OP	B	227	0.62	0.14	0.62	0.22	0.02	0.00	0.28	-0.11	0.28	-0.14
3	OP	C	227	0.67	0.12	0.18	0.67	0.03	0.00	0.36	-0.13	-0.18	0.36
4	OP	A	227	0.48	0.48	0.23	0.27	0.02	0.00	0.46	0.46	-0.15	-0.29
5	OP	B	227	0.69	0.09	0.69	0.20	0.02	0.00	0.34	-0.05	0.34	-0.26
6	OP	A	227	0.49	0.49	0.23	0.26	0.02	0.00	0.43	0.43	-0.03	-0.38
7	OP	C	227	0.46	0.26	0.26	0.46	0.02	0.00	0.08	0.00	0.02	0.08
8	OP	B	227	0.44	0.16	0.44	0.38	0.02	0.00	0.42	-0.05	0.42	-0.30
9	OP	B	227	0.49	0.20	0.49	0.29	0.03	0.00	0.46	-0.09	0.46	-0.30
10	OP	A	227	0.49	0.49	0.17	0.31	0.03	0.00	0.46	0.46	-0.05	-0.32
11	OP	B	227	0.43	0.24	0.43	0.30	0.04	0.00	0.38	-0.10	0.38	-0.17
12	OP	C	227	0.57	0.22	0.17	0.57	0.04	0.00	0.36	-0.15	-0.10	0.36
13	OP	A	227	0.73	0.73	0.09	0.14	0.04	0.00	0.51	0.51	-0.19	-0.29
14	OP	A	227	0.41	0.41	0.15	0.41	0.04	0.00	0.34	0.34	-0.13	-0.11
15	OP	B	227	0.51	0.15	0.51	0.30	0.04	0.00	0.41	-0.08	0.41	-0.21
16	OP	B	227	0.55	0.15	0.55	0.25	0.05	0.00	0.61	-0.21	0.61	-0.33
17	OP	C	227	0.52	0.24	0.19	0.52	0.05	0.00	0.36	-0.12	-0.09	0.36
18	OP	B	227	0.41	0.19	0.41	0.35	0.06	0.00	0.50	-0.09	0.50	-0.24
19	OP	B	227	0.53	0.20	0.53	0.22	0.05	0.00	0.49	-0.11	0.49	-0.26
20	OP	C	227	0.50	0.11	0.35	0.50	0.05	0.00	0.26	0.02	-0.10	0.26
21	OP	B	227	0.59	0.08	0.59	0.28	0.05	0.00	0.51	-0.17	0.51	-0.26
22	OP	A	227	0.45	0.45	0.18	0.32	0.05	0.00	0.36	0.36	-0.08	-0.11
23	OP	B	227	0.39	0.22	0.39	0.34	0.05	0.00	0.40	-0.07	0.40	-0.14
24	OP	C	227	0.61	0.19	0.14	0.61	0.06	0.00	0.29	-0.11	-0.01	0.29
25	OP	A	227	0.61	0.61	0.09	0.24	0.05	0.00	0.57	0.57	-0.21	-0.28
26	OP	C	227	0.51	0.24	0.19	0.51	0.06	0.00	0.37	-0.18	-0.02	0.37
27	OP	B	227	0.52	0.15	0.52	0.27	0.05	0.00	0.55	-0.11	0.55	-0.31
28	OP	A	227	0.58	0.58	0.12	0.25	0.05	0.00	0.46	0.46	-0.03	-0.28
29	FT	A	109	0.51	0.51	0.26	0.19	0.05	0.00	0.45	0.45	-0.02	-0.31
30	FT	C	109	0.68	0.17	0.10	0.68	0.05	0.00	0.48	-0.30	-0.07	0.48
31	FT	B	109	0.51	0.15	0.51	0.30	0.05	0.00	0.41	0.03	0.41	-0.27
32	FT	C	109	0.42	0.36	0.17	0.42	0.05	0.00	0.17	0.07	-0.08	0.17
33	FT	B	109	0.41	0.20	0.41	0.34	0.05	0.00	0.35	0.06	0.35	-0.22
34	FT	B	109	0.49	0.17	0.49	0.29	0.05	0.00	0.50	-0.10	0.50	-0.28
35	FT	A	109	0.44	0.44	0.28	0.23	0.06	0.00	0.44	0.44	0.01	-0.31
36	FT	B	109	0.31	0.24	0.31	0.40	0.05	0.00	0.33	0.07	0.33	-0.18
37	FT	B	118	0.27	0.40	0.27	0.27	0.06	0.00	0.29	0.31	0.29	-0.39
38	FT	C	118	0.51	0.14	0.29	0.51	0.06	0.00	0.06	-0.09	0.24	0.06
39	FT	B	118	0.47	0.13	0.47	0.34	0.07	0.00	0.59	-0.01	0.59	-0.38
40	FT	A	118	0.38	0.38	0.25	0.30	0.08	0.00	0.33	0.33	0.05	-0.14
41	FT	A	118	0.36	0.36	0.33	0.23	0.08	0.00	0.20	0.20	0.25	-0.22
42	FT	B	118	0.36	0.21	0.36	0.36	0.08	0.00	0.35	-0.05	0.35	-0.06
43	FT	C	118	0.46	0.34	0.13	0.46	0.08	0.00	0.25	0.04	-0.09	0.25
44	FT	A	118	0.43	0.43	0.25	0.25	0.08	0.00	0.30	0.30	0.10	-0.17

Grade 7 ELA

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	C	257	0.47	0.30	0.21	0.47	0.01	0.00	0.21	-0.03	-0.16	0.21
2	OP	A	257	0.65	0.65	0.13	0.20	0.02	0.00	0.47	0.47	-0.25	-0.21
3	OP	B	257	0.68	0.08	0.68	0.22	0.02	0.00	0.43	-0.23	0.43	-0.24
4	OP	A	257	0.46	0.46	0.26	0.25	0.03	0.00	0.33	0.33	-0.03	-0.22
5	OP	B	257	0.74	0.07	0.74	0.17	0.02	0.00	0.54	-0.19	0.54	-0.37
6	OP	B	257	0.55	0.18	0.55	0.24	0.03	0.00	0.55	-0.25	0.55	-0.26
7	OP	C	257	0.57	0.09	0.31	0.57	0.04	0.00	0.41	-0.09	-0.22	0.41
8	OP	C	257	0.77	0.07	0.13	0.77	0.03	0.00	0.45	-0.17	-0.22	0.45
9	OP	B	257	0.55	0.13	0.55	0.28	0.04	0.00	0.49	-0.10	0.49	-0.27
10	OP	A	257	0.35	0.35	0.24	0.38	0.04	0.00	0.43	0.43	-0.09	-0.18
11	OP	C	257	0.75	0.07	0.14	0.75	0.04	0.00	0.35	-0.04	-0.18	0.35
12	OP	C	257	0.61	0.21	0.14	0.61	0.03	0.00	0.41	-0.21	-0.11	0.41
13	OP	A	257	0.39	0.39	0.20	0.38	0.03	0.00	0.40	0.40	-0.08	-0.19
14	OP	C	257	0.63	0.15	0.19	0.63	0.03	0.00	0.25	-0.04	-0.09	0.25
15	OP	B	257	0.38	0.21	0.38	0.37	0.04	0.00	0.30	0.00	0.30	-0.13
16	OP	A	257	0.62	0.62	0.11	0.23	0.04	0.00	0.50	0.50	-0.23	-0.20
17	OP	C	257	0.62	0.19	0.16	0.62	0.04	0.00	0.46	-0.14	-0.21	0.46
18	OP	A	257	0.41	0.41	0.26	0.29	0.04	0.00	0.27	0.27	0.08	-0.18
19	OP	B	257	0.42	0.20	0.42	0.35	0.04	0.00	0.40	0.02	0.40	-0.22
20	OP	A	257	0.62	0.62	0.15	0.19	0.04	0.00	0.57	0.57	-0.21	-0.26
21	OP	C	257	0.56	0.16	0.24	0.56	0.04	0.00	0.29	-0.12	0.00	0.29
22	OP	B	257	0.32	0.19	0.32	0.45	0.05	0.00	0.22	0.07	0.22	-0.05
23	OP	C	257	0.60	0.14	0.20	0.60	0.05	0.00	0.20	-0.12	0.10	0.20
24	OP	A	257	0.58	0.58	0.14	0.23	0.05	0.00	0.48	0.48	-0.10	-0.22
25	OP	C	257	0.57	0.25	0.13	0.57	0.05	0.00	0.26	0.03	-0.09	0.26
26	OP	A	257	0.38	0.38	0.23	0.34	0.06	0.00	0.45	0.45	-0.02	-0.20
27	OP	C	257	0.60	0.19	0.16	0.60	0.05	0.00	0.51	-0.21	-0.15	0.51
28	OP	A	257	0.44	0.44	0.16	0.35	0.05	0.00	0.34	0.34	-0.14	-0.02
29	FT	A	133	0.28	0.28	0.32	0.37	0.03	0.00	0.13	0.13	0.13	-0.11
30	FT	B	133	0.67	0.11	0.67	0.20	0.03	0.00	0.50	-0.17	0.50	-0.29
31	FT	B	133	0.48	0.22	0.48	0.27	0.03	0.00	0.52	-0.11	0.52	-0.33
32	FT	C	133	0.43	0.25	0.29	0.43	0.04	0.00	0.11	0.16	-0.14	0.11
33	FT	A	133	0.35	0.35	0.17	0.45	0.03	0.00	0.33	0.33	-0.11	-0.10
34	FT	C	133	0.59	0.24	0.13	0.59	0.04	0.00	0.22	-0.05	-0.08	0.22
35	FT	B	133	0.53	0.13	0.53	0.32	0.03	0.00	0.37	0.02	0.37	-0.26
36	FT	B	133	0.40	0.23	0.40	0.35	0.03	0.00	0.17	0.03	0.17	-0.05
37	FT	A	124	0.47	0.47	0.24	0.22	0.07	0.00	0.44	0.44	-0.08	-0.10
38	FT	B	124	0.50	0.17	0.50	0.26	0.07	0.00	0.70	-0.24	0.70	-0.26
39	FT	B	124	0.36	0.29	0.36	0.28	0.07	0.00	0.27	0.05	0.27	-0.01
40	FT	C	124	0.61	0.17	0.15	0.61	0.07	0.00	0.35	0.08	-0.14	0.35
41	FT	A	124	0.35	0.35	0.23	0.35	0.07	0.00	0.24	0.24	-0.03	0.09
42	FT	B	124	0.36	0.15	0.36	0.41	0.07	0.00	0.46	-0.23	0.46	0.02
43	FT	A	124	0.41	0.41	0.15	0.36	0.07	0.00	0.35	0.35	0.08	-0.11
44	FT	A	124	0.48	0.48	0.19	0.26	0.07	0.00	0.41	0.41	-0.02	-0.12

Grade 8 ELA

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	B	232	0.48	0.31	0.48	0.21	0.00	0.00	0.27	0.08	0.27	-0.41
2	OP	A	232	0.56	0.56	0.23	0.20	0.01	0.00	0.43	0.43	-0.20	-0.26
3	OP	A	232	0.56	0.56	0.16	0.26	0.02	0.00	0.53	0.53	-0.12	-0.41
4	OP	B	232	0.66	0.12	0.66	0.20	0.02	0.00	0.52	-0.17	0.52	-0.37
5	OP	C	232	0.64	0.15	0.19	0.64	0.03	0.00	0.33	-0.01	-0.27	0.33
6	OP	B	232	0.39	0.27	0.39	0.32	0.02	0.00	0.40	-0.03	0.40	-0.29
7	OP	B	232	0.47	0.16	0.47	0.35	0.03	0.00	0.44	-0.05	0.44	-0.31
8	OP	C	232	0.60	0.23	0.15	0.60	0.03	0.00	0.33	-0.09	-0.20	0.33
9	OP	A	232	0.42	0.42	0.29	0.26	0.03	0.00	0.59	0.59	-0.14	-0.38
10	OP	A	232	0.71	0.71	0.13	0.13	0.03	0.00	0.57	0.57	-0.27	-0.32
11	OP	B	232	0.57	0.14	0.57	0.25	0.03	0.00	0.55	-0.19	0.55	-0.32
12	OP	B	232	0.51	0.17	0.51	0.28	0.03	0.00	0.53	-0.11	0.53	-0.34
13	OP	A	232	0.52	0.52	0.11	0.34	0.03	0.00	0.46	0.46	-0.15	-0.25
14	OP	C	232	0.68	0.15	0.13	0.68	0.03	0.00	0.46	-0.20	-0.22	0.46
15	OP	B	232	0.32	0.23	0.32	0.41	0.03	0.00	0.13	0.12	0.13	-0.08
16	OP	A	232	0.46	0.46	0.16	0.35	0.04	0.00	0.45	0.45	-0.06	-0.27
17	OP	C	232	0.63	0.14	0.19	0.63	0.04	0.00	0.48	-0.22	-0.19	0.48
18	OP	A	232	0.50	0.50	0.19	0.25	0.06	0.00	0.53	0.53	-0.12	-0.28
19	OP	A	232	0.40	0.40	0.24	0.31	0.06	0.00	0.42	0.42	-0.05	-0.20
20	OP	C	232	0.63	0.10	0.22	0.63	0.05	0.00	0.39	-0.05	-0.22	0.39
21	OP	A	232	0.48	0.48	0.22	0.24	0.07	0.00	0.41	0.41	-0.11	-0.14
22	OP	B	232	0.47	0.17	0.47	0.30	0.06	0.00	0.44	0.01	0.44	-0.28
23	OP	A	232	0.52	0.52	0.14	0.28	0.06	0.00	0.46	0.46	-0.13	-0.20
24	OP	C	232	0.60	0.14	0.21	0.60	0.06	0.00	0.45	-0.14	-0.19	0.45
25	OP	A	232	0.43	0.43	0.28	0.24	0.06	0.00	0.44	0.44	-0.05	-0.24
26	OP	A	232	0.41	0.41	0.19	0.34	0.06	0.00	0.35	0.35	-0.06	-0.12
27	OP	B	232	0.66	0.11	0.66	0.18	0.06	0.00	0.56	-0.13	0.56	-0.34
28	OP	C	232	0.60	0.17	0.18	0.60	0.05	0.00	0.28	-0.12	-0.01	0.28
29	FT	B	119	0.56	0.13	0.56	0.28	0.04	0.00	0.43	-0.17	0.43	-0.16
30	FT	C	119	0.62	0.22	0.12	0.62	0.04	0.00	0.49	-0.21	-0.21	0.49
31	FT	B	119	0.61	0.08	0.61	0.27	0.04	0.00	0.58	-0.08	0.58	-0.41
32	FT	A	119	0.36	0.36	0.19	0.42	0.03	0.00	0.40	0.40	-0.18	-0.11
33	FT	B	119	0.56	0.14	0.56	0.25	0.04	0.00	0.60	-0.14	0.60	-0.38
34	FT	A	119	0.22	0.22	0.38	0.37	0.03	0.00	0.20	0.20	0.21	-0.24
35	FT	C	119	0.61	0.13	0.21	0.61	0.04	0.00	0.31	0.07	-0.23	0.31
36	FT	A	119	0.41	0.41	0.20	0.35	0.03	0.00	0.29	0.29	0.02	-0.17
37	FT	B	113	0.66	0.08	0.66	0.20	0.07	0.00	0.52	-0.15	0.52	-0.25
38	FT	A	113	0.50	0.50	0.17	0.27	0.07	0.00	0.62	0.62	-0.19	-0.30
39	FT	C	113	0.56	0.15	0.22	0.56	0.07	0.00	0.38	-0.08	-0.12	0.38
40	FT	A	113	0.43	0.43	0.19	0.32	0.07	0.00	0.39	0.39	-0.08	-0.12
41	FT	C	113	0.58	0.13	0.22	0.58	0.07	0.00	0.26	-0.01	-0.04	0.26
42	FT	C	113	0.43	0.34	0.17	0.43	0.07	0.00	0.13	0.06	0.04	0.13
43	FT	B	113	0.55	0.14	0.55	0.24	0.07	0.00	0.52	-0.18	0.52	-0.20
44	FT	A	113	0.35	0.35	0.28	0.29	0.07	0.00	0.46	0.46	0.03	-0.28

High School ELA

GENERAL		COUNTS			PROPORTIONS						CORRELATIONS		
Item	Usage	Key	N	p-value	A	B	C	-	*	Total	A	B	C
1	OP	B	223	0.79	0.12	0.79	0.08	0.00	0.00	0.54	-0.32	0.54	-0.41
2	OP	B	223	0.61	0.05	0.61	0.33	0.00	0.00	0.58	-0.20	0.58	-0.48
3	OP	A	223	0.36	0.36	0.21	0.42	0.01	0.00	0.27	0.27	-0.17	-0.10
4	OP	C	223	0.67	0.20	0.13	0.67	0.00	0.00	0.37	-0.15	-0.31	0.37
5	OP	B	223	0.59	0.16	0.59	0.25	0.00	0.00	0.53	-0.21	0.53	-0.40
6	OP	B	223	0.43	0.24	0.43	0.32	0.00	0.00	0.43	-0.06	0.43	-0.38
7	OP	C	223	0.64	0.14	0.21	0.64	0.01	0.00	0.25	-0.14	-0.15	0.25
8	OP	A	223	0.62	0.62	0.15	0.22	0.00	0.00	0.47	0.47	-0.18	-0.37
9	OP	B	223	0.83	0.06	0.83	0.10	0.00	0.00	0.54	-0.27	0.54	-0.42
10	OP	B	223	0.48	0.14	0.48	0.37	0.01	0.00	0.44	-0.19	0.44	-0.30
11	OP	A	223	0.45	0.45	0.15	0.40	0.00	0.00	0.26	0.26	-0.12	-0.15
12	OP	A	223	0.70	0.70	0.08	0.21	0.00	0.00	0.53	0.53	-0.25	-0.40
13	OP	C	223	0.67	0.13	0.19	0.67	0.01	0.00	0.33	-0.15	-0.21	0.33
14	OP	B	223	0.53	0.24	0.53	0.22	0.01	0.00	0.46	-0.05	0.46	-0.45
15	OP	B	223	0.70	0.09	0.70	0.20	0.01	0.00	0.39	-0.16	0.39	-0.28
16	OP	C	223	0.68	0.15	0.17	0.68	0.01	0.00	0.38	-0.19	-0.23	0.38
17	OP	A	223	0.57	0.57	0.15	0.26	0.01	0.00	0.44	0.44	-0.14	-0.31
18	OP	C	223	0.77	0.11	0.11	0.77	0.01	0.00	0.37	-0.19	-0.23	0.37
19	OP	B	223	0.42	0.24	0.42	0.33	0.01	0.00	0.50	-0.13	0.50	-0.35
20	OP	B	223	0.58	0.16	0.58	0.25	0.01	0.00	0.48	-0.19	0.48	-0.34
21	OP	C	223	0.61	0.14	0.24	0.61	0.01	0.00	0.20	-0.14	-0.06	0.20
22	OP	A	223	0.63	0.63	0.18	0.18	0.01	0.00	0.41	0.41	-0.10	-0.35
23	OP	C	223	0.69	0.14	0.17	0.69	0.01	0.00	0.33	-0.18	-0.19	0.33
24	OP	A	223	0.58	0.58	0.14	0.27	0.01	0.00	0.49	0.49	-0.18	-0.36
25	OP	A	223	0.73	0.73	0.09	0.17	0.01	0.00	0.54	0.54	-0.23	-0.40
26	OP	B	223	0.62	0.13	0.62	0.25	0.01	0.00	0.58	-0.25	0.58	-0.41
27	OP	A	223	0.60	0.60	0.22	0.18	0.01	0.00	0.52	0.52	-0.12	-0.48
28	OP	A	223	0.66	0.66	0.06	0.27	0.01	0.00	0.49	0.49	-0.18	-0.37
29	FT	A	119	0.72	0.72	0.10	0.17	0.01	0.00	0.64	0.64	-0.23	-0.53
30	FT	C	119	0.67	0.21	0.11	0.67	0.01	0.00	0.34	-0.23	-0.15	0.34
31	FT	A	119	0.61	0.61	0.17	0.21	0.01	0.00	0.65	0.65	-0.29	-0.46
32	FT	A	119	0.41	0.41	0.26	0.32	0.01	0.00	0.21	0.21	-0.02	-0.16
33	FT	C	119	0.56	0.23	0.21	0.56	0.01	0.00	-0.10	0.04	0.13	-0.10
34	FT	C	119	0.40	0.34	0.25	0.40	0.01	0.00	0.28	0.00	-0.27	0.28
35	FT	B	119	0.32	0.19	0.32	0.48	0.01	0.00	0.17	0.07	0.17	-0.17
36	FT	C	119	0.57	0.21	0.21	0.57	0.01	0.00	0.39	-0.29	-0.14	0.39
37	FT	A	104	0.52	0.52	0.08	0.39	0.01	0.00	0.45	0.45	-0.24	-0.28
38	FT	C	104	0.77	0.12	0.11	0.77	0.01	0.00	0.47	-0.27	-0.28	0.47
39	FT	A	104	0.45	0.45	0.18	0.36	0.01	0.00	0.51	0.51	-0.18	-0.34
40	FT	B	104	0.55	0.21	0.55	0.23	0.01	0.00	0.51	-0.23	0.51	-0.32
41	FT	B	104	0.66	0.13	0.66	0.20	0.01	0.00	0.59	-0.20	0.59	-0.47
42	FT	A	104	0.57	0.57	0.16	0.26	0.01	0.00	0.53	0.53	-0.26	-0.32
43	FT	C	104	0.64	0.14	0.21	0.64	0.01	0.00	0.41	-0.25	-0.20	0.41
44	FT	A	104	0.56	0.56	0.19	0.24	0.01	0.00	0.45	0.45	-0.12	-0.35

Appendix G:

Mathematics Key Verification and Foil Analysis

Grade 3 Mathematics

GENERAL		COUNTS			PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	A	227	0.61	0.61	0.22	0.17	0.00	0.00	0.45	0.45	-0.27	-0.26
2	OP	A	227	0.58	0.58	0.21	0.21	0.00	0.00	0.45	0.45	-0.24	-0.29
3	OP	B	227	0.52	0.18	0.52	0.29	0.00	0.00	0.40	-0.17	0.40	-0.28
4	OP	C	227	0.58	0.24	0.16	0.58	0.02	0.00	0.16	0.02	-0.14	0.16
5	OP	C	227	0.77	0.11	0.10	0.77	0.03	0.00	0.34	-0.16	-0.16	0.34
6	OP	B	227	0.43	0.14	0.43	0.41	0.03	0.00	0.21	-0.11	0.21	-0.04
7	OP	A	227	0.53	0.53	0.17	0.29	0.02	0.00	0.54	0.54	-0.15	-0.38
8	OP	B	227	0.38	0.23	0.38	0.37	0.03	0.00	0.47	-0.15	0.47	-0.24
9	OP	A	227	0.52	0.52	0.26	0.21	0.02	0.00	0.40	0.40	-0.15	-0.23
10	OP	C	227	0.53	0.15	0.30	0.53	0.02	0.00	0.21	-0.22	0.02	0.21
11	OP	A	227	0.69	0.69	0.12	0.18	0.02	0.00	0.49	0.49	-0.27	-0.27
12	OP	A	227	0.51	0.51	0.22	0.26	0.02	0.00	0.32	0.32	-0.08	-0.19
13	OP	C	227	0.50	0.23	0.25	0.50	0.02	0.00	0.13	-0.12	0.05	0.13
14	OP	B	227	0.52	0.15	0.52	0.31	0.03	0.00	0.47	-0.20	0.47	-0.23
15	OP	B	227	0.43	0.20	0.43	0.35	0.03	0.00	0.42	-0.22	0.42	-0.13
16	OP	C	227	0.54	0.23	0.20	0.54	0.02	0.00	0.17	-0.08	0.00	0.17
17	OP	C	227	0.52	0.14	0.32	0.52	0.03	0.00	0.36	-0.21	-0.11	0.36
18	OP	B	227	0.52	0.14	0.52	0.31	0.03	0.00	0.51	-0.28	0.51	-0.22
19	OP	C	227	0.61	0.15	0.23	0.61	0.02	0.00	0.30	-0.10	-0.16	0.30
20	OP	C	227	0.54	0.21	0.23	0.54	0.02	0.00	0.22	-0.11	-0.05	0.22
21	OP	B	227	0.38	0.26	0.38	0.34	0.02	0.00	0.16	0.03	0.16	-0.10
22	OP	B	227	0.56	0.15	0.56	0.26	0.03	0.00	0.49	-0.16	0.49	-0.30
23	OP	B	227	0.46	0.18	0.46	0.33	0.03	0.00	0.44	-0.13	0.44	-0.24
24	OP	A	227	0.55	0.55	0.22	0.21	0.03	0.00	0.36	0.36	-0.10	-0.21
25	OP	B	227	0.61	0.10	0.61	0.26	0.03	0.00	0.55	-0.23	0.55	-0.34
26	FT	C	227	0.58	0.18	0.21	0.58	0.03	0.00	0.30	-0.16	-0.07	0.30
27	FT	A	227	0.32	0.32	0.26	0.40	0.03	0.00	0.36	0.36	-0.03	-0.21
28	FT	B	227	0.39	0.17	0.39	0.41	0.04	0.00	0.27	-0.09	0.27	-0.08
29	FT	A	227	0.29	0.29	0.34	0.34	0.03	0.00	0.21	0.21	0.03	-0.12
30	FT	B	227	0.60	0.11	0.60	0.27	0.03	0.00	0.53	-0.23	0.53	-0.30
31	FT	B	227	0.34	0.16	0.34	0.47	0.03	0.00	0.15	-0.16	0.15	0.08
32	FT	C	227	0.41	0.28	0.28	0.41	0.03	0.00	-0.01	0.19	-0.06	-0.01
33	FT	B	227	0.24	0.26	0.24	0.47	0.03	0.00	0.12	0.23	0.12	-0.19

Grade 4 Mathematics

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	A	246	0.68	0.68	0.13	0.19	0.00	0.00	0.30	0.30	-0.09	-0.28
2	OP	B	246	0.70	0.07	0.70	0.22	0.01	0.00	0.45	-0.11	0.45	-0.35
3	OP	C	246	0.75	0.12	0.12	0.75	0.02	0.00	0.46	-0.29	-0.21	0.46
4	OP	A	246	0.56	0.56	0.15	0.26	0.02	0.00	0.45	0.45	-0.16	-0.27
5	OP	A	246	0.50	0.50	0.17	0.31	0.02	0.00	0.41	0.41	-0.09	-0.27
6	OP	B	246	0.55	0.15	0.55	0.29	0.02	0.00	0.40	-0.06	0.40	-0.30
7	OP	A	246	0.44	0.44	0.26	0.28	0.02	0.00	0.42	0.42	-0.05	-0.31
8	OP	C	246	0.70	0.11	0.18	0.70	0.02	0.00	0.31	-0.14	-0.13	0.31
9	OP	A	246	0.44	0.44	0.20	0.33	0.02	0.00	0.41	0.41	-0.01	-0.31
10	OP	B	246	0.50	0.14	0.50	0.33	0.03	0.00	0.47	-0.14	0.47	-0.27
11	OP	B	246	0.42	0.12	0.42	0.43	0.03	0.00	0.38	-0.24	0.38	-0.08
12	OP	B	246	0.41	0.31	0.41	0.26	0.02	0.00	0.30	0.08	0.30	-0.29
13	OP	A	246	0.55	0.55	0.18	0.25	0.03	0.00	0.49	0.49	-0.17	-0.28
14	OP	C	246	0.52	0.19	0.26	0.52	0.03	0.00	0.28	-0.08	-0.11	0.28
15	OP	B	246	0.51	0.17	0.51	0.29	0.03	0.00	0.33	-0.04	0.33	-0.19
16	OP	C	246	0.73	0.13	0.12	0.73	0.02	0.00	0.38	-0.18	-0.17	0.38
17	OP	A	246	0.44	0.44	0.25	0.29	0.02	0.00	0.34	0.34	-0.03	-0.22
18	OP	C	246	0.48	0.14	0.35	0.48	0.03	0.00	0.13	-0.07	0.04	0.13
19	OP	A	246	0.36	0.36	0.23	0.39	0.02	0.00	0.39	0.39	-0.06	-0.22
20	OP	C	246	0.56	0.16	0.26	0.56	0.02	0.00	0.21	-0.07	-0.06	0.21
21	OP	C	246	0.59	0.16	0.22	0.59	0.02	0.00	0.33	-0.08	-0.19	0.33
22	OP	B	246	0.39	0.16	0.39	0.42	0.03	0.00	0.36	-0.16	0.36	-0.11
23	OP	B	246	0.53	0.15	0.53	0.30	0.03	0.00	0.34	-0.10	0.34	-0.17
24	OP	A	246	0.57	0.57	0.19	0.22	0.02	0.00	0.33	0.33	-0.02	-0.24
25	OP	B	246	0.35	0.19	0.35	0.44	0.02	0.00	0.17	0.02	0.17	-0.07
26	OP	C	246	0.63	0.18	0.16	0.63	0.03	0.00	0.30	-0.05	-0.20	0.30
27	OP	A	246	0.45	0.45	0.22	0.30	0.03	0.00	0.49	0.49	-0.10	-0.30
28	OP	C	246	0.66	0.13	0.18	0.66	0.04	0.00	0.28	-0.10	-0.10	0.28
29	OP	B	246	0.50	0.14	0.50	0.33	0.03	0.00	0.41	-0.13	0.41	-0.21
30	OP	B	246	0.61	0.12	0.61	0.25	0.03	0.00	0.55	-0.25	0.55	-0.31
31	FT	C	246	0.68	0.07	0.22	0.68	0.03	0.00	0.35	-0.21	-0.11	0.35
32	FT	B	246	0.49	0.14	0.49	0.35	0.03	0.00	0.42	-0.09	0.42	-0.25
33	FT	B	246	0.57	0.18	0.57	0.22	0.03	0.00	0.41	-0.10	0.41	-0.25
34	FT	C	246	0.57	0.20	0.20	0.57	0.03	0.00	0.09	-0.12	0.15	0.09
35	FT	B	246	0.24	0.28	0.24	0.45	0.03	0.00	0.12	0.16	0.12	-0.13
36	FT	B	246	0.41	0.17	0.41	0.39	0.03	0.00	0.38	0.00	0.38	-0.26
37	FT	C	246	0.58	0.18	0.21	0.58	0.03	0.00	0.29	-0.12	-0.09	0.29
38	FT	A	246	0.29	0.29	0.33	0.34	0.04	0.00	0.14	0.14	0.22	-0.21

Grade 5 Mathematics

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	A	245	0.58	0.58	0.20	0.20	0.02	0.00	0.51	0.51	-0.28	-0.27
2	OP	C	245	0.65	0.18	0.15	0.65	0.02	0.00	0.34	0.00	-0.32	0.34
3	OP	A	245	0.50	0.50	0.22	0.26	0.02	0.00	0.41	0.41	-0.16	-0.22
4	OP	C	245	0.49	0.24	0.25	0.49	0.02	0.00	0.19	-0.03	-0.07	0.19
5	OP	C	245	0.63	0.12	0.22	0.63	0.03	0.00	0.25	-0.22	0.05	0.25
6	OP	C	245	0.69	0.12	0.17	0.69	0.02	0.00	0.57	-0.24	-0.33	0.57
7	OP	C	245	0.67	0.11	0.18	0.67	0.04	0.00	0.39	-0.13	-0.15	0.39
8	OP	B	245	0.58	0.12	0.58	0.28	0.02	0.00	0.50	-0.34	0.50	-0.19
9	OP	A	245	0.42	0.42	0.25	0.30	0.02	0.00	0.28	0.28	-0.06	-0.12
10	OP	B	245	0.30	0.15	0.30	0.52	0.03	0.00	0.18	-0.21	0.18	0.14
11	OP	B	245	0.47	0.08	0.47	0.41	0.04	0.00	0.44	-0.24	0.44	-0.14
12	OP	B	245	0.65	0.17	0.65	0.15	0.04	0.00	0.41	-0.12	0.41	-0.19
13	OP	B	245	0.30	0.20	0.30	0.46	0.04	0.00	0.25	-0.12	0.25	0.04
14	OP	B	245	0.45	0.14	0.45	0.37	0.04	0.00	0.45	-0.15	0.45	-0.18
15	OP	C	245	0.60	0.19	0.16	0.60	0.05	0.00	0.29	-0.03	-0.09	0.29
16	OP	C	245	0.52	0.14	0.31	0.52	0.03	0.00	0.26	-0.10	-0.04	0.26
17	OP	A	245	0.74	0.74	0.11	0.12	0.03	0.00	0.48	0.48	-0.24	-0.19
18	OP	C	245	0.58	0.18	0.20	0.58	0.04	0.00	0.26	-0.07	-0.02	0.26
19	OP	A	245	0.36	0.36	0.24	0.36	0.04	0.00	0.28	0.28	0.07	-0.16
20	OP	C	245	0.57	0.16	0.23	0.57	0.04	0.00	0.33	-0.16	-0.02	0.33
21	OP	A	245	0.54	0.54	0.16	0.25	0.05	0.00	0.44	0.44	-0.12	-0.17
22	OP	A	245	0.45	0.45	0.21	0.29	0.05	0.00	0.37	0.37	-0.07	-0.13
23	OP	B	245	0.36	0.18	0.36	0.42	0.03	0.00	0.36	-0.06	0.36	-0.14
24	OP	C	245	0.53	0.16	0.27	0.53	0.04	0.00	0.25	-0.12	0.03	0.25
25	OP	B	245	0.49	0.13	0.49	0.34	0.04	0.00	0.50	-0.19	0.50	-0.19
26	OP	B	245	0.59	0.11	0.59	0.26	0.04	0.00	0.54	-0.17	0.54	-0.28
27	OP	C	245	0.75	0.08	0.13	0.75	0.05	0.00	0.49	-0.22	-0.17	0.49
28	OP	B	245	0.71	0.11	0.71	0.14	0.04	0.00	0.51	-0.16	0.51	-0.25
29	OP	C	245	0.59	0.20	0.18	0.59	0.04	0.00	0.24	0.00	-0.08	0.24
30	OP	A	245	0.66	0.66	0.09	0.21	0.04	0.00	0.53	0.53	-0.15	-0.28
31	FT	C	245	0.54	0.12	0.30	0.54	0.05	0.00	0.29	-0.23	0.07	0.29
32	FT	C	245	0.55	0.21	0.20	0.55	0.04	0.00	0.23	-0.03	-0.02	0.23
33	FT	B	245	0.38	0.16	0.38	0.42	0.04	0.00	0.37	-0.19	0.37	-0.04
34	FT	C	245	0.54	0.22	0.20	0.54	0.05	0.00	0.24	-0.02	-0.04	0.24
35	FT	A	245	0.38	0.38	0.21	0.37	0.04	0.00	0.37	0.37	-0.01	-0.16
36	FT	A	245	0.56	0.56	0.13	0.27	0.04	0.00	0.43	0.43	-0.10	-0.21
37	FT	B	245	0.25	0.15	0.25	0.56	0.05	0.00	0.19	-0.02	0.19	0.03
38	FT	C	245	0.67	0.15	0.14	0.67	0.04	0.00	0.31	-0.11	-0.03	0.31

Grade 6 Mathematics

GENERAL			COUNTS		PROPORTIONS					CORRELATIONS			
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	A	225	0.70	0.70	0.18	0.12	0.00	0.00	0.31	0.31	-0.14	-0.27
2	OP	C	225	0.71	0.12	0.16	0.71	0.01	0.00	0.40	-0.20	-0.24	0.40
3	OP	C	225	0.54	0.09	0.34	0.54	0.03	0.00	0.19	-0.17	0.00	0.19
4	OP	B	225	0.48	0.20	0.48	0.30	0.02	0.00	0.37	-0.16	0.37	-0.16
5	OP	C	225	0.55	0.22	0.20	0.55	0.03	0.00	0.26	-0.09	-0.11	0.26
6	OP	c	225	0.64	0.16	0.16	0.64	0.03	0.00	0.42	-0.18	-0.18	0.42
7	OP	C	225	0.57	0.20	0.19	0.57	0.05	0.00	0.22	-0.02	-0.01	0.22
8	OP	C	225	0.61	0.15	0.20	0.61	0.04	0.00	0.40	-0.19	-0.11	0.40
9	OP	B	225	0.62	0.15	0.62	0.18	0.05	0.00	0.49	-0.22	0.49	-0.15
10	OP	A	225	0.40	0.40	0.27	0.29	0.04	0.00	0.13	0.13	0.12	-0.05
11	OP	A	225	0.52	0.52	0.11	0.33	0.04	0.00	0.34	0.34	-0.09	-0.10
12	OP	A	225	0.28	0.28	0.28	0.39	0.04	0.00	0.14	0.14	0.09	0.00
13	OP	C	225	0.56	0.24	0.16	0.56	0.04	0.00	0.20	-0.03	0.04	0.20
14	OP	B	225	0.52	0.10	0.52	0.33	0.05	0.00	0.53	-0.19	0.53	-0.20
15	OP	B	225	0.33	0.27	0.33	0.36	0.04	0.00	0.30	-0.02	0.30	-0.05
16	OP	B	225	0.59	0.17	0.59	0.19	0.04	0.00	0.47	-0.12	0.47	-0.20
17	OP	C	225	0.48	0.24	0.24	0.48	0.05	0.00	0.13	-0.04	0.14	0.13
18	OP	B	225	0.40	0.21	0.40	0.35	0.04	0.00	0.44	-0.25	0.44	-0.01
19	OP	C	225	0.56	0.12	0.28	0.56	0.04	0.00	0.20	-0.08	0.07	0.20
20	OP	B	225	0.32	0.21	0.32	0.42	0.05	0.00	0.38	-0.10	0.38	-0.06
21	OP	B	225	0.50	0.12	0.50	0.34	0.04	0.00	0.53	-0.17	0.53	-0.22
22	OP	A	225	0.62	0.62	0.12	0.22	0.04	0.00	0.45	0.45	-0.17	-0.15
23	OP	A	225	0.32	0.32	0.30	0.33	0.05	0.00	0.22	0.22	0.07	-0.06
24	OP	B	225	0.36	0.20	0.36	0.40	0.05	0.00	0.24	-0.03	0.24	0.01
25	OP	C	225	0.56	0.12	0.27	0.56	0.05	0.00	0.23	-0.17	0.12	0.23
26	OP	A	225	0.44	0.44	0.20	0.30	0.06	0.00	0.32	0.32	0.05	-0.15
27	OP	B	225	0.47	0.21	0.47	0.26	0.06	0.00	0.31	-0.10	0.31	0.00
28	OP	C	225	0.56	0.14	0.25	0.56	0.06	0.00	0.30	-0.10	-0.01	0.30
29	OP	C	225	0.62	0.12	0.20	0.62	0.06	0.00	0.41	-0.09	-0.13	0.41
30	OP	B	225	0.41	0.17	0.41	0.36	0.06	0.00	0.34	-0.12	0.34	-0.02
31	FT	A	225	0.25	0.25	0.36	0.33	0.06	0.00	0.11	0.11	0.28	-0.13
32	FT	A	225	0.21	0.21	0.26	0.47	0.06	0.00	0.09	0.09	0.01	0.15
33	FT	C	225	0.40	0.30	0.24	0.40	0.07	0.00	0.12	-0.01	0.17	0.12
34	FT	B	225	0.44	0.12	0.44	0.37	0.07	0.00	0.45	-0.15	0.45	-0.10
35	FT	B	225	0.44	0.15	0.44	0.36	0.06	0.00	0.27	-0.04	0.27	0.01
36	FT	A	225	0.42	0.42	0.28	0.23	0.07	0.00	0.00	0.00	0.22	0.05
37	FT	A	225	0.30	0.30	0.28	0.36	0.06	0.00	0.24	0.24	0.06	-0.03
38	FT	B	225	0.38	0.12	0.38	0.44	0.06	0.00	0.35	-0.12	0.35	-0.02

Grade 7 Mathematics

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	C	255	0.70	0.17	0.13	0.70	0.01	0.00	0.31	-0.11	-0.32	0.31
2	OP	C	255	0.69	0.11	0.18	0.69	0.02	0.00	0.36	-0.19	-0.18	0.36
3	OP	A	255	0.55	0.55	0.15	0.29	0.02	0.00	0.46	0.46	-0.25	-0.24
4	OP	C	255	0.64	0.18	0.15	0.64	0.02	0.00	0.27	-0.09	-0.17	0.27
5	OP	A	255	0.61	0.61	0.17	0.21	0.01	0.00	0.44	0.44	-0.14	-0.33
6	OP	A	255	0.36	0.36	0.26	0.37	0.02	0.00	0.34	0.34	-0.03	-0.24
7	OP	A	255	0.40	0.40	0.31	0.28	0.02	0.00	0.35	0.35	0.03	-0.32
8	OP	B	255	0.58	0.18	0.58	0.22	0.02	0.00	0.56	-0.25	0.56	-0.34
9	OP	A	255	0.49	0.49	0.21	0.28	0.02	0.00	0.47	0.47	-0.20	-0.24
10	OP	B	255	0.44	0.20	0.44	0.33	0.02	0.00	0.33	-0.08	0.33	-0.17
11	OP	A	255	0.51	0.51	0.18	0.28	0.04	0.00	0.45	0.45	-0.13	-0.24
12	OP	A	255	0.46	0.46	0.20	0.31	0.03	0.00	0.15	0.15	-0.03	0.00
13	OP	B	255	0.52	0.14	0.52	0.31	0.03	0.00	0.51	-0.16	0.51	-0.30
14	OP	B	255	0.40	0.21	0.40	0.35	0.04	0.00	0.37	0.00	0.37	-0.22
15	OP	B	255	0.58	0.19	0.58	0.20	0.03	0.00	0.45	-0.08	0.45	-0.33
16	OP	B	255	0.45	0.21	0.45	0.31	0.03	0.00	0.37	-0.16	0.37	-0.12
17	OP	B	255	0.55	0.12	0.55	0.29	0.04	0.00	0.45	-0.14	0.45	-0.23
18	OP	B	255	0.55	0.17	0.55	0.24	0.05	0.00	0.53	-0.21	0.53	-0.22
19	OP	B	255	0.44	0.14	0.44	0.37	0.05	0.00	0.45	-0.14	0.45	-0.20
20	OP	C	255	0.58	0.16	0.21	0.58	0.04	0.00	0.30	-0.14	-0.04	0.30
21	OP	C	255	0.71	0.13	0.12	0.71	0.04	0.00	0.40	-0.14	-0.17	0.40
22	OP	A	255	0.35	0.35	0.29	0.31	0.05	0.00	0.37	0.37	0.07	-0.27
23	OP	B	255	0.38	0.18	0.38	0.39	0.04	0.00	0.47	-0.11	0.47	-0.21
24	OP	C	255	0.63	0.19	0.13	0.63	0.04	0.00	0.33	-0.14	-0.08	0.33
25	OP	A	255	0.46	0.46	0.19	0.31	0.04	0.00	0.44	0.44	-0.10	-0.22
26	OP	C	255	0.56	0.23	0.16	0.56	0.05	0.00	0.23	0.03	-0.10	0.23
27	OP	C	255	0.72	0.11	0.12	0.72	0.05	0.00	0.44	-0.14	-0.22	0.44
28	OP	C	255	0.55	0.11	0.29	0.55	0.05	0.00	0.21	-0.21	0.09	0.21
29	OP	C	255	0.58	0.15	0.22	0.58	0.05	0.00	0.27	-0.05	-0.09	0.27
30	OP	B	255	0.38	0.22	0.38	0.35	0.04	0.00	0.32	0.01	0.32	-0.16
31	FT	A	255	0.49	0.49	0.10	0.37	0.04	0.00	0.53	0.53	-0.17	-0.27
32	FT	B	255	0.48	0.16	0.48	0.33	0.04	0.00	0.51	0.02	0.51	-0.38
33	FT	C	255	0.48	0.22	0.25	0.48	0.04	0.00	0.15	0.07	-0.05	0.15
34	FT	A	255	0.25	0.25	0.27	0.44	0.04	0.00	0.31	0.31	0.00	-0.11
35	FT	C	255	0.52	0.14	0.30	0.52	0.04	0.00	0.20	-0.06	0.01	0.20
36	FT	A	255	0.24	0.24	0.29	0.43	0.04	0.00	0.13	0.13	0.27	-0.20
37	FT	B	255	0.42	0.17	0.42	0.37	0.04	0.00	0.42	0.02	0.42	-0.28
38	FT	C	255	0.47	0.20	0.29	0.47	0.04	0.00	0.00	0.08	0.10	0.00

Grade 8 Mathematics

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	C	227	0.70	0.12	0.19	0.70	0.00	0.00	0.42	-0.24	-0.30	0.42
2	OP	C	227	0.60	0.20	0.19	0.60	0.01	0.00	0.39	-0.21	-0.22	0.39
3	OP	A	227	0.55	0.55	0.21	0.23	0.01	0.00	0.46	0.46	-0.24	-0.24
4	OP	B	227	0.45	0.30	0.45	0.24	0.02	0.00	0.38	-0.05	0.38	-0.30
5	OP	C	227	0.57	0.25	0.16	0.57	0.02	0.00	0.34	-0.08	-0.25	0.34
6	OP	B	227	0.43	0.22	0.43	0.34	0.02	0.00	0.31	-0.09	0.31	-0.17
7	OP	C	227	0.52	0.16	0.30	0.52	0.02	0.00	0.13	-0.04	-0.02	0.13
8	OP	B	227	0.37	0.15	0.37	0.46	0.03	0.00	0.19	-0.16	0.19	0.03
9	OP	C	227	0.56	0.12	0.30	0.56	0.02	0.00	0.38	-0.16	-0.19	0.38
10	OP	A	227	0.36	0.36	0.23	0.38	0.02	0.00	0.30	0.30	-0.10	-0.11
11	OP	B	227	0.82	0.06	0.82	0.10	0.02	0.00	0.39	-0.18	0.39	-0.20
12	OP	C	227	0.63	0.18	0.17	0.63	0.02	0.00	0.39	-0.11	-0.26	0.39
13	OP	C	227	0.77	0.08	0.13	0.77	0.03	0.00	0.40	-0.17	-0.21	0.40
14	OP	B	227	0.43	0.17	0.43	0.38	0.02	0.00	0.29	-0.11	0.29	-0.11
15	OP	A	227	0.37	0.37	0.23	0.37	0.03	0.00	0.42	0.42	-0.23	-0.09
16	OP	A	227	0.56	0.56	0.21	0.21	0.03	0.00	0.37	0.37	-0.16	-0.15
17	OP	B	227	0.45	0.19	0.45	0.34	0.03	0.00	0.46	-0.19	0.46	-0.20
18	OP	A	227	0.34	0.34	0.26	0.37	0.03	0.00	0.45	0.45	-0.03	-0.27
19	OP	B	227	0.50	0.15	0.50	0.31	0.03	0.00	0.52	-0.22	0.52	-0.24
20	OP	C	227	0.54	0.15	0.29	0.54	0.03	0.00	0.25	-0.02	-0.11	0.25
21	OP	A	227	0.34	0.34	0.29	0.33	0.04	0.00	0.33	0.33	-0.01	-0.16
22	OP	C	227	0.82	0.07	0.08	0.82	0.04	0.00	0.48	-0.20	-0.24	0.48
23	OP	C	227	0.63	0.12	0.21	0.63	0.03	0.00	0.42	-0.22	-0.15	0.42
24	OP	B	227	0.35	0.19	0.35	0.42	0.03	0.00	0.34	-0.03	0.34	-0.17
25	OP	A	227	0.33	0.33	0.29	0.35	0.03	0.00	0.26	0.26	0.09	-0.20
26	OP	B	227	0.41	0.15	0.41	0.41	0.04	0.00	0.36	-0.07	0.36	-0.17
27	OP	B	227	0.59	0.17	0.59	0.21	0.04	0.00	0.41	-0.12	0.41	-0.21
28	OP	C	227	0.53	0.15	0.28	0.53	0.04	0.00	0.32	-0.03	-0.17	0.32
29	OP	A	227	0.39	0.39	0.23	0.34	0.04	0.00	0.25	0.25	0.01	-0.11
30	OP	A	227	0.55	0.55	0.19	0.22	0.04	0.00	0.36	0.36	-0.13	-0.13
31	FT	B	227	0.44	0.17	0.44	0.35	0.04	0.00	0.23	-0.01	0.23	-0.06
32	FT	C	227	0.48	0.28	0.19	0.48	0.05	0.00	0.07	0.22	-0.15	0.07
33	FT	C	227	0.57	0.11	0.28	0.57	0.04	0.00	0.25	-0.14	-0.01	0.25
34	FT	A	227	0.24	0.24	0.26	0.45	0.04	0.00	0.15	0.15	0.02	0.01
35	FT	A	227	0.38	0.38	0.21	0.37	0.04	0.00	0.38	0.38	-0.12	-0.13
36	FT	B	227	0.32	0.11	0.32	0.53	0.04	0.00	0.22	-0.05	0.22	-0.04
37	FT	B	227	0.39	0.23	0.39	0.33	0.04	0.00	0.17	0.14	0.17	-0.16
38	FT	B	227	0.39	0.16	0.39	0.41	0.05	0.00	0.32	-0.08	0.32	-0.11

High School Mathematics

GENERAL			COUNTS		PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	B	223	0.62	0.10	0.62	0.28	0.00	0.00	0.42	-0.12	0.42	-0.37
2	OP	C	223	0.83	0.10	0.07	0.83	0.01	0.00	0.30	-0.13	-0.22	0.30
3	OP	B	223	0.57	0.12	0.57	0.31	0.00	0.00	0.29	-0.17	0.29	-0.17
4	OP	A	223	0.53	0.53	0.23	0.23	0.01	0.00	0.36	0.36	-0.05	-0.35
5	OP	B	223	0.53	0.19	0.53	0.27	0.01	0.00	0.36	-0.13	0.36	-0.25
6	OP	A	223	0.52	0.52	0.16	0.32	0.00	0.00	0.49	0.49	-0.12	-0.40
7	OP	A	223	0.61	0.61	0.09	0.29	0.01	0.00	0.41	0.41	-0.13	-0.32
8	OP	B	223	0.53	0.17	0.53	0.30	0.01	0.00	0.54	-0.18	0.54	-0.40
9	OP	A	223	0.61	0.61	0.14	0.24	0.01	0.00	0.51	0.51	-0.12	-0.46
10	OP	C	223	0.78	0.09	0.12	0.78	0.01	0.00	0.29	-0.13	-0.19	0.29
11	OP	B	223	0.45	0.14	0.45	0.39	0.02	0.00	0.42	-0.06	0.42	-0.30
12	OP	C	223	0.73	0.12	0.14	0.73	0.01	0.00	0.36	-0.10	-0.29	0.36
13	OP	B	223	0.66	0.12	0.66	0.22	0.01	0.00	0.48	-0.07	0.48	-0.42
14	OP	A	223	0.46	0.46	0.21	0.32	0.01	0.00	0.39	0.39	-0.08	-0.29
15	OP	A	223	0.37	0.37	0.39	0.23	0.02	0.00	0.40	0.40	-0.08	-0.27
16	OP	C	223	0.58	0.22	0.19	0.58	0.01	0.00	0.13	-0.01	-0.08	0.13
17	OP	A	223	0.71	0.71	0.10	0.17	0.02	0.00	0.53	0.53	-0.27	-0.31
18	OP	C	223	0.62	0.18	0.19	0.62	0.02	0.00	0.27	-0.12	-0.13	0.27
19	OP	C	223	0.71	0.13	0.14	0.71	0.01	0.00	0.28	-0.14	-0.14	0.28
20	OP	B	223	0.54	0.15	0.54	0.29	0.02	0.00	0.42	-0.19	0.42	-0.23
21	OP	A	223	0.38	0.38	0.31	0.30	0.01	0.00	0.34	0.34	-0.01	-0.28
22	OP	C	223	0.66	0.15	0.18	0.66	0.02	0.00	0.39	-0.26	-0.15	0.39
23	OP	B	223	0.55	0.10	0.55	0.34	0.01	0.00	0.53	-0.13	0.53	-0.41
24	OP	A	223	0.51	0.51	0.20	0.27	0.02	0.00	0.51	0.51	-0.21	-0.30
25	OP	B	223	0.53	0.23	0.53	0.22	0.02	0.00	0.52	-0.10	0.52	-0.42
26	OP	B	223	0.68	0.05	0.68	0.25	0.02	0.00	0.60	-0.08	0.60	-0.52
27	OP	A	223	0.56	0.56	0.19	0.24	0.02	0.00	0.45	0.45	-0.09	-0.35
28	OP	C	223	0.66	0.09	0.22	0.66	0.02	0.00	0.16	-0.11	-0.02	0.16
29	OP	C	223	0.64	0.14	0.21	0.64	0.02	0.00	0.24	-0.16	-0.06	0.24
30	OP	A	223	0.38	0.38	0.27	0.33	0.02	0.00	0.24	0.24	0.08	-0.24
31	FT	A	223	0.33	0.33	0.30	0.35	0.02	0.00	0.32	0.32	0.04	-0.27
32	FT	C	223	0.54	0.15	0.30	0.54	0.02	0.00	0.04	0.08	-0.02	0.04
33	FT	C	223	0.47	0.31	0.21	0.47	0.02	0.00	0.12	0.12	-0.19	0.12
34	FT	A	223	0.23	0.23	0.47	0.27	0.02	0.00	0.19	0.19	0.18	-0.28
35	FT	C	223	0.68	0.13	0.18	0.68	0.02	0.00	0.31	-0.17	-0.13	0.31
36	FT	C	223	0.56	0.21	0.21	0.56	0.02	0.00	0.05	0.04	0.00	0.05
37	FT	B	223	0.36	0.22	0.36	0.41	0.02	0.00	0.39	0.09	0.39	-0.38
38	FT	C	223	0.52	0.18	0.28	0.52	0.02	0.00	0.09	0.00	-0.01	0.09

Appendix H:

Science Key Verification and Foil Analysis

Grade 5 Science

GENERAL			COUNTS		PROPORTIONS					CORRELATIONS			
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	B	245	0.64	0.14	0.64	0.21	0.02	0.00	0.56	-0.20	0.56	-0.42
2	OP	A	245	0.68	0.68	0.11	0.19	0.02	0.00	0.56	0.56	-0.26	-0.35
3	OP	C	245	0.75	0.13	0.11	0.75	0.01	0.00	0.35	-0.10	-0.28	0.35
4	OP	A	245	0.51	0.51	0.27	0.20	0.02	0.00	0.35	0.35	-0.01	-0.30
5	OP	C	245	0.69	0.10	0.18	0.69	0.03	0.00	0.38	-0.15	-0.17	0.38
6	OP	C	245	0.76	0.08	0.11	0.76	0.05	0.00	0.34	-0.09	-0.13	0.34
7	OP	B	245	0.62	0.13	0.62	0.22	0.03	0.00	0.44	-0.17	0.44	-0.23
8	OP	A	245	0.56	0.56	0.15	0.26	0.04	0.00	0.44	0.44	-0.11	-0.22
9	OP	B	245	0.38	0.17	0.38	0.40	0.05	0.00	0.26	-0.08	0.26	-0.02
10	OP	A	245	0.49	0.49	0.27	0.22	0.03	0.00	0.48	0.48	-0.12	-0.28
11	OP	B	245	0.82	0.05	0.82	0.10	0.03	0.00	0.51	-0.11	0.51	-0.33
12	OP	C	245	0.51	0.24	0.21	0.51	0.04	0.00	0.35	-0.18	-0.02	0.35
13	OP	B	245	0.62	0.09	0.62	0.26	0.04	0.00	0.56	-0.15	0.56	-0.31
14	OP	A	245	0.29	0.29	0.39	0.28	0.05	0.00	0.26	0.26	0.19	-0.24
15	OP	A	245	0.39	0.39	0.16	0.41	0.04	0.00	0.42	0.42	-0.07	-0.18
16	OP	C	245	0.36	0.29	0.32	0.36	0.04	0.00	0.15	-0.01	0.05	0.15
17	OP	B	245	0.40	0.25	0.40	0.31	0.04	0.00	0.43	-0.15	0.43	-0.12
18	OP	C	245	0.55	0.20	0.20	0.55	0.05	0.00	0.27	-0.04	-0.06	0.27
19	OP	A	245	0.60	0.60	0.16	0.19	0.05	0.00	0.50	0.50	-0.07	-0.31
20	OP	A	245	0.40	0.40	0.23	0.33	0.05	0.00	0.14	0.14	0.07	0.01
21	OP	C	245	0.79	0.10	0.06	0.79	0.05	0.00	0.47	-0.14	-0.21	0.47
22	OP	B	245	0.44	0.15	0.44	0.37	0.05	0.00	0.38	-0.02	0.38	-0.17
23	OP	A	245	0.73	0.73	0.11	0.11	0.05	0.00	0.56	0.56	-0.25	-0.20
24	OP	A	245	0.43	0.43	0.22	0.29	0.05	0.00	0.33	0.33	-0.09	-0.05
25	OP	C	245	0.60	0.18	0.17	0.60	0.05	0.00	0.35	-0.08	-0.11	0.35
26	FT	C	122	0.55	0.25	0.18	0.55	0.03	0.00	0.03	-0.07	0.19	0.03
27	FT	B	122	0.53	0.16	0.53	0.28	0.03	0.00	0.49	-0.03	0.49	-0.37
28	FT	B	122	0.66	0.07	0.66	0.24	0.03	0.00	0.51	-0.07	0.51	-0.38
29	FT	A	122	0.53	0.53	0.23	0.22	0.03	0.00	0.23	0.23	-0.02	-0.11
30	FT	C	122	0.68	0.12	0.17	0.68	0.03	0.00	0.43	-0.21	-0.18	0.43
31	FT	C	122	0.75	0.12	0.10	0.75	0.03	0.00	0.43	-0.20	-0.20	0.43
32	FT	B	122	0.52	0.11	0.52	0.34	0.03	0.00	0.49	-0.14	0.49	-0.28
33	FT	C	122	0.60	0.06	0.31	0.60	0.03	0.00	0.21	-0.06	-0.06	0.21
34	FT	B	123	0.49	0.18	0.49	0.27	0.07	0.00	0.49	0.02	0.49	-0.27
35	FT	A	123	0.64	0.64	0.11	0.19	0.07	0.00	0.64	0.64	-0.18	-0.30
36	FT	C	123	0.70	0.12	0.11	0.70	0.07	0.00	0.48	-0.15	-0.13	0.48
37	FT	B	123	0.54	0.20	0.54	0.20	0.07	0.00	0.46	-0.09	0.46	-0.12
38	FT	A	123	0.58	0.58	0.13	0.23	0.07	0.00	0.59	0.59	-0.23	-0.20
39	FT	C	123	0.51	0.20	0.22	0.51	0.07	0.00	0.41	-0.03	-0.11	0.41
40	FT	B	123	0.49	0.20	0.49	0.24	0.07	0.00	0.41	0.02	0.41	-0.16
41	FT	A	123	0.29	0.29	0.20	0.44	0.07	0.00	0.26	0.26	0.09	-0.01

Grade 8 Science

GENERAL		COUNTS			PROPORTIONS						CORRELATIONS		
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	C	231	0.76	0.13	0.11	0.76	0.00	0.00	0.38	-0.14	-0.34	0.38
2	OP	B	231	0.77	0.06	0.77	0.15	0.03	0.00	0.53	-0.28	0.53	-0.28
3	OP	A	231	0.58	0.58	0.17	0.23	0.03	0.00	0.48	0.48	-0.22	-0.22
4	OP	C	231	0.69	0.13	0.16	0.69	0.03	0.00	0.44	-0.19	-0.20	0.44
5	OP	B	231	0.58	0.13	0.58	0.26	0.04	0.00	0.44	-0.16	0.44	-0.20
6	OP	B	231	0.64	0.19	0.64	0.13	0.04	0.00	0.45	-0.14	0.45	-0.24
7	OP	C	231	0.75	0.10	0.11	0.75	0.04	0.00	0.43	-0.17	-0.19	0.43
8	OP	C	231	0.76	0.07	0.13	0.76	0.04	0.00	0.48	-0.20	-0.20	0.48
9	OP	A	231	0.52	0.52	0.17	0.27	0.04	0.00	0.51	0.51	-0.16	-0.23
10	OP	C	231	0.75	0.07	0.15	0.75	0.04	0.00	0.47	-0.15	-0.23	0.47
11	OP	B	231	0.49	0.21	0.49	0.25	0.05	0.00	0.43	-0.03	0.43	-0.27
12	OP	B	231	0.33	0.18	0.33	0.45	0.04	0.00	0.22	0.05	0.22	-0.06
13	OP	A	231	0.44	0.44	0.17	0.35	0.04	0.00	0.60	0.60	-0.12	-0.33
14	OP	A	231	0.49	0.49	0.17	0.30	0.04	0.00	0.49	0.49	-0.25	-0.12
15	OP	C	231	0.68	0.15	0.13	0.68	0.04	0.00	0.38	-0.08	-0.17	0.38
16	OP	B	231	0.46	0.16	0.46	0.35	0.04	0.00	0.35	-0.06	0.35	-0.14
17	OP	C	231	0.61	0.13	0.21	0.61	0.05	0.00	0.25	-0.09	0.02	0.25
18	OP	A	231	0.48	0.48	0.16	0.30	0.06	0.00	0.41	0.41	-0.05	-0.16
19	OP	C	231	0.46	0.06	0.43	0.46	0.06	0.00	0.14	-0.12	0.14	0.14
20	OP	A	231	0.37	0.37	0.21	0.36	0.06	0.00	0.29	0.29	-0.06	0.00
21	OP	B	231	0.41	0.20	0.41	0.34	0.06	0.00	0.46	-0.02	0.46	-0.22
22	OP	A	231	0.42	0.42	0.23	0.30	0.05	0.00	0.46	0.46	-0.14	-0.14
23	OP	B	231	0.46	0.17	0.46	0.33	0.06	0.00	0.40	0.01	0.40	-0.19
24	OP	C	231	0.67	0.11	0.17	0.67	0.05	0.00	0.37	-0.10	-0.11	0.37
25	OP	A	231	0.39	0.39	0.18	0.38	0.06	0.00	0.45	0.45	-0.02	-0.20
26	FT	C	116	0.65	0.15	0.19	0.65	0.02	0.00	0.25	0.08	-0.27	0.25
27	FT	A	116	0.39	0.39	0.24	0.35	0.02	0.00	0.34	0.34	-0.03	-0.24
28	FT	A	116	0.53	0.53	0.19	0.28	0.01	0.00	0.53	0.53	-0.21	-0.36
29	FT	B	116	0.71	0.07	0.71	0.21	0.02	0.00	0.40	-0.10	0.40	-0.29
30	FT	B	116	0.40	0.15	0.40	0.44	0.02	0.00	0.07	-0.09	0.07	0.08
31	FT	A	116	0.35	0.35	0.35	0.28	0.02	0.00	0.23	0.23	0.06	-0.22
32	FT	A	116	0.41	0.41	0.28	0.29	0.02	0.00	0.33	0.33	-0.03	-0.27
33	FT	B	116	0.53	0.15	0.53	0.31	0.02	0.00	0.33	-0.15	0.33	-0.16
34	FT	C	115	0.49	0.19	0.23	0.49	0.10	0.00	0.35	0.05	-0.06	0.35
35	FT	C	115	0.50	0.24	0.16	0.50	0.10	0.00	0.42	0.12	-0.22	0.42
36	FT	B	115	0.35	0.17	0.35	0.38	0.10	0.00	0.40	-0.01	0.40	-0.01
37	FT	A	115	0.68	0.68	0.09	0.13	0.10	0.00	0.61	0.61	-0.14	-0.20
38	FT	C	115	0.64	0.12	0.13	0.64	0.10	0.00	0.47	-0.02	-0.11	0.47
39	FT	B	115	0.70	0.09	0.70	0.11	0.10	0.00	0.57	-0.16	0.57	-0.12
40	FT	A	115	0.50	0.50	0.14	0.26	0.10	0.00	0.54	0.54	-0.03	-0.18
41	FT	A	115	0.33	0.33	0.17	0.38	0.11	0.00	0.31	0.31	0.02	0.06

High School Science

GENERAL			COUNTS		PROPORTIONS					CORRELATIONS			
Item	Usage	Key	*N*	p-value	A	B	C	-	*	Total	A	B	C
1	OP	B	220	0.77	0.06	0.77	0.17	0.00	0.00	0.50	-0.22	0.50	-0.42
2	OP	B	220	0.80	0.06	0.80	0.14	0.00	0.00	0.52	-0.24	0.52	-0.44
3	OP	A	220	0.70	0.70	0.12	0.18	0.00	0.00	0.35	0.35	-0.14	-0.29
4	OP	C	220	0.57	0.26	0.17	0.57	0.00	0.00	0.19	-0.09	-0.14	0.19
5	OP	B	220	0.37	0.21	0.37	0.42	0.00	0.00	0.27	0.02	0.27	-0.29
6	OP	A	220	0.57	0.57	0.23	0.21	0.00	0.00	0.34	0.34	-0.12	-0.30
7	OP	C	220	0.76	0.10	0.15	0.76	0.00	0.00	0.30	-0.19	-0.21	0.30
8	OP	A	220	0.46	0.46	0.22	0.33	0.00	0.00	0.41	0.41	-0.11	-0.34
9	OP	C	220	0.80	0.08	0.12	0.80	0.00	0.00	0.34	-0.25	-0.21	0.34
10	OP	B	220	0.32	0.36	0.32	0.33	0.00	0.00	0.28	0.01	0.28	-0.29
11	OP	B	220	0.51	0.10	0.51	0.39	0.01	0.00	0.45	-0.18	0.45	-0.34
12	OP	A	220	0.54	0.54	0.25	0.21	0.01	0.00	0.33	0.33	-0.05	-0.33
13	OP	C	220	0.73	0.10	0.16	0.73	0.01	0.00	0.37	-0.06	-0.35	0.37
14	OP	B	220	0.46	0.23	0.46	0.30	0.01	0.00	0.30	0.18	0.30	-0.46
15	OP	A	220	0.76	0.76	0.13	0.11	0.01	0.00	0.53	0.53	-0.31	-0.34
16	OP	C	220	0.85	0.09	0.06	0.85	0.01	0.00	0.39	-0.24	-0.24	0.39
17	OP	A	220	0.36	0.36	0.19	0.44	0.01	0.00	0.26	0.26	-0.18	-0.08
18	OP	B	220	0.56	0.20	0.56	0.23	0.01	0.00	0.48	-0.04	0.48	-0.48
19	OP	C	220	0.63	0.12	0.24	0.63	0.01	0.00	0.30	-0.23	-0.13	0.30
20	OP	A	220	0.54	0.54	0.21	0.24	0.01	0.00	0.56	0.56	-0.20	-0.42
21	OP	B	220	0.61	0.16	0.61	0.23	0.01	0.00	0.50	-0.01	0.50	-0.53
22	OP	A	220	0.53	0.53	0.21	0.26	0.01	0.00	0.39	0.39	0.00	-0.40
23	OP	A	220	0.70	0.70	0.11	0.18	0.01	0.00	0.68	0.68	-0.31	-0.51
24	OP	B	220	0.45	0.29	0.45	0.26	0.01	0.00	0.39	-0.04	0.39	-0.37
25	OP	A	220	0.49	0.49	0.20	0.31	0.01	0.00	0.48	0.48	-0.08	-0.42
26	OP	C	220	0.65	0.08	0.26	0.65	0.01	0.00	0.23	-0.08	-0.17	0.23
27	OP	A	220	0.69	0.69	0.11	0.20	0.01	0.00	0.59	0.59	-0.21	-0.48
28	OP	C	220	0.64	0.21	0.15	0.64	0.01	0.00	0.23	-0.08	-0.17	0.23
29	FT	B	118	0.52	0.17	0.52	0.31	0.01	0.00	0.52	-0.15	0.52	-0.41
30	FT	C	118	0.51	0.27	0.21	0.51	0.01	0.00	0.18	-0.15	-0.02	0.18
31	FT	B	118	0.70	0.11	0.70	0.19	0.01	0.00	0.59	-0.27	0.59	-0.45
32	FT	A	118	0.76	0.76	0.09	0.14	0.01	0.00	0.56	0.56	-0.16	-0.51
33	FT	C	118	0.49	0.26	0.24	0.49	0.01	0.00	0.08	0.06	-0.13	0.08
34	FT	B	118	0.38	0.22	0.38	0.38	0.02	0.00	0.39	0.13	0.39	-0.46
35	FT	A	118	0.60	0.60	0.15	0.23	0.02	0.00	0.39	0.39	-0.13	-0.30
36	FT	C	118	0.46	0.40	0.13	0.46	0.02	0.00	0.09	0.05	-0.14	0.09
37	FT	C	102	0.52	0.23	0.25	0.52	0.01	0.00	0.27	-0.08	-0.19	0.27
38	FT	B	102	0.41	0.18	0.41	0.40	0.01	0.00	0.43	-0.15	0.43	-0.27
39	FT	A	102	0.62	0.62	0.17	0.21	0.01	0.00	0.56	0.56	-0.17	-0.46
40	FT	A	102	0.58	0.58	0.17	0.25	0.01	0.00	0.67	0.67	-0.35	-0.42
41	FT	B	102	0.65	0.07	0.65	0.28	0.01	0.00	0.36	-0.02	0.36	-0.33
42	FT	C	102	0.71	0.17	0.12	0.71	0.01	0.00	0.27	-0.08	-0.22	0.27
43	FT	B	102	0.39	0.07	0.39	0.52	0.02	0.00	0.20	-0.02	0.20	-0.12
44	FT	B	102	0.56	0.12	0.56	0.31	0.01	0.00	0.45	0.05	0.45	-0.47

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 <u>any</u> 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. $$P(right \mid \beta_v, \delta_i) = \frac{e^{\beta_v - \delta_i}}{1 + e^{\beta_v - \delta_i}} = \frac{\mathrm{B}_v}{\mathrm{B}_v + \Delta_,}$$, where $\mathrm{B}_v = e^{\beta_v}$ 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 (2019) implements the joint maximum likelihood estimation procedure (Linacre, 2019) 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 Item Bank Difficulties

Grade 3 ELA

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.5390	0.1518	0.88	-2.00	0.92	-0.61
2	OP	-0.5390	0.1518	0.95	-0.79	0.97	-0.22
3	OP	-0.1033	0.1463	1.14	2.57	1.22	1.98
4	OP	0.0230	0.1456	0.93	-1.35	0.90	-0.96
5	OP	-0.5846	0.1527	0.85	-2.52	0.79	-1.66
6	OP	0.3160	0.1454	0.93	-1.40	0.94	-0.54
7	OP	-0.7729	0.1568	0.97	-0.37	0.98	-0.11
8	OP	0.0230	0.1456	0.94	-1.31	0.91	-0.90
9	OP	0.4425	0.1459	0.93	-1.41	0.90	-0.99
10	OP	0.0649	0.1454	1.10	1.94	1.13	1.24
11	OP	-0.4714	0.1506	1.05	0.85	1.20	1.52
12	OP	0.6353	0.1474	1.06	0.99	1.03	0.33
13	OP	0.2740	0.1453	1.09	1.81	1.06	0.65
14	OP	-1.1899	0.1697	0.86	-1.62	0.70	-1.94
15	OP	-0.4491	0.1503	1.01	0.11	1.05	0.47
16	OP	0.0439	0.1455	0.89	-2.25	0.86	-1.44
17	OP	-0.1245	0.1465	1.01	0.15	0.97	-0.27
18	OP	-0.2096	0.1472	0.84	-3.31	0.79	-2.00
19	OP	0.6136	0.1472	0.88	-2.14	0.84	-1.58
20	OP	0.7893	0.1492	1.06	1.05	1.05	0.49
21	OP	-0.7011	0.1551	0.94	-0.91	0.92	-0.58
22	OP	1.6418	0.1694	1.24	2.52	1.46	2.42
23	OP	0.5705	0.1468	1.03	0.54	1.04	0.37
24	OP	-0.4269	0.1499	0.93	-1.22	0.89	-0.91
25	OP	-0.6541	0.1541	1.01	0.11	1.01	0.12
26	OP	0.4002	0.1457	0.91	-1.80	0.85	-1.51
27	OP	0.4425	0.1459	0.98	-0.29	0.95	-0.44
28	OP	0.4849	0.1462	1.02	0.33	1.03	0.29
29	FT	0.5730	0.2229	0.89	-1.22	0.83	-0.88
30	FT	0.3766	0.2206	1.14	1.70	1.16	0.88
31	FT	1.0934	0.2350	0.89	-1.04	1.05	0.30
32	FT	-0.8238	0.2355	0.87	-1.23	0.82	-0.69
33	FT	0.7747	0.2265	1.05	0.55	0.99	0.03
34	FT	1.3816	0.2457	1.06	0.55	0.99	0.03
35	FT	0.8784	0.2289	0.95	-0.45	0.88	-0.55
36	FT	0.5235	0.2222	1.14	1.62	1.16	0.88
37	FT	0.5734	0.1952	1.34	4.42	1.37	3.14
38	FT	-0.1431	0.1961	0.87	-1.95	0.84	-1.53
39	FT	0.7662	0.1977	1.22	2.71	1.28	2.26
40	FT	1.3958	0.2145	0.94	-0.53	0.90	-0.54
41	FT	1.7929	0.2323	1.18	1.37	1.27	1.21
42	FT	0.4597	0.1942	1.13	1.90	1.13	1.24
43	FT	1.3052	0.2112	1.17	1.72	1.20	1.25
44	FT	0.1597	0.1937	1.01	0.13	1.01	0.11

Grade 4 ELA

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.6101	0.1508	0.85	-2.39	0.84	-0.96
2	OP	-0.9160	0.1583	0.88	-1.67	0.71	-1.82
3	OP	-0.0560	0.1430	1.01	0.25	1.00	0.03
4	OP	-0.6326	0.1512	0.83	-2.68	0.70	-1.99
5	OP	-0.6554	0.1517	1.14	2.04	1.12	0.74
6	OP	-0.5431	0.1494	0.79	-3.53	0.67	-2.30
7	OP	-0.3906	0.1468	0.89	-2.02	0.79	-1.47
8	OP	0.3102	0.1418	1.24	4.39	1.27	1.78
9	OP	-0.0971	0.1434	0.99	-0.14	0.98	-0.06
10	OP	0.4529	0.1421	0.91	-1.80	0.87	-0.86
11	OP	0.3712	0.1418	0.88	-2.34	0.81	-1.31
12	OP	0.1884	0.1419	1.26	4.69	1.26	1.72
13	OP	0.4529	0.1421	0.97	-0.58	0.88	-0.75
14	OP	0.3712	0.1418	0.91	-1.83	0.86	-0.94
15	OP	1.0479	0.1480	0.94	-0.97	0.88	-0.64
16	OP	-0.9160	0.1583	1.00	0.06	0.88	-0.64
17	OP	0.7860	0.1444	1.01	0.25	0.97	-0.13
18	OP	-1.1758	0.1668	0.85	-1.72	0.66	-2.05
19	OP	0.8288	0.1449	0.94	-1.07	0.91	-0.51
20	OP	-0.8914	0.1576	1.06	0.80	1.10	0.60
21	OP	0.8718	0.1454	0.97	-0.57	0.92	-0.44
22	OP	-0.2214	0.1446	0.82	-3.39	0.73	-2.02
23	OP	0.4120	0.1419	1.09	1.77	1.06	0.47
24	OP	0.2493	0.1418	0.97	-0.56	0.91	-0.60
25	OP	0.1478	0.1420	0.89	-2.14	0.80	-1.42
26	OP	-0.1590	0.1439	1.09	1.58	1.08	0.56
27	OP	-0.0765	0.1432	0.89	-2.13	0.79	-1.51
28	OP	0.8503	0.1452	1.11	1.84	1.13	0.77
29	FT	0.2693	0.1992	0.89	-1.51	0.80	-1.01
30	FT	0.7916	0.2030	0.99	-0.10	0.95	-0.14
31	FT	0.7916	0.2030	1.04	0.53	0.99	0.01
32	FT	0.7504	0.2025	1.10	1.20	1.11	0.55
33	FT	0.5881	0.2006	1.30	3.51	1.41	1.77
34	FT	-0.1304	0.2015	1.16	2.08	1.13	0.69
35	FT	1.3112	0.2146	1.12	1.13	1.17	0.77
36	FT	-0.0094	0.2003	1.47	5.55	1.94	3.78
37	FT	1.2024	0.2149	1.07	0.79	1.01	0.11
38	FT	-0.3557	0.2088	1.00	-0.02	1.29	1.31
39	FT	-0.1420	0.2050	1.27	3.32	1.42	1.88
40	FT	0.1065	0.2024	0.88	-1.74	0.79	-1.06
41	FT	0.7636	0.2052	1.11	1.35	1.06	0.32
42	FT	0.7216	0.2046	1.23	2.84	1.21	0.92
43	FT	0.5146	0.2025	0.96	-0.51	0.87	-0.51
44	FT	0.8484	0.2066	1.05	0.59	0.99	0.05

Grade 5 ELA

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.5999	0.1511	0.97	-0.37	0.89	-0.80
2	OP	-0.2523	0.1450	0.96	-0.79	1.02	0.22
3	OP	-1.2304	0.1704	0.96	-0.41	0.81	-1.09
4	OP	-0.0665	0.1429	1.02	0.31	1.01	0.12
5	OP	-1.2019	0.1693	0.87	-1.41	0.73	-1.67
6	OP	-0.7626	0.1551	1.05	0.70	0.97	-0.14
7	OP	-0.9600	0.1608	0.99	-0.09	0.94	-0.36
8	OP	-0.0258	0.1425	0.89	-2.18	0.82	-1.63
9	OP	-0.1485	0.1437	0.85	-3.00	0.77	-2.11
10	OP	0.1353	0.1415	1.09	1.81	1.13	1.18
11	OP	0.7574	0.1428	0.98	-0.44	0.95	-0.35
12	OP	-0.9345	0.1600	0.87	-1.66	0.96	-0.19
13	OP	-0.4010	0.1472	0.91	-1.50	0.81	-1.56
14	OP	-0.0869	0.1431	0.96	-0.84	0.89	-1.00
15	OP	0.3548	0.1410	0.97	-0.52	0.95	-0.44
16	OP	0.1553	0.1414	0.86	-2.91	0.79	-2.10
17	OP	0.0550	0.1419	1.13	2.38	1.12	1.12
18	OP	0.0952	0.1417	0.96	-0.77	0.97	-0.28
19	OP	0.4545	0.1411	1.09	1.82	1.06	0.55
20	OP	0.2153	0.1412	0.90	-2.08	1.01	0.15
21	OP	0.2352	0.1411	0.87	-2.66	0.81	-1.84
22	OP	0.9656	0.1451	1.05	0.89	1.02	0.20
23	OP	0.3349	0.1410	0.95	-0.95	0.89	-1.01
24	OP	1.2271	0.1493	1.15	2.21	1.15	1.13
25	OP	0.1553	0.1414	0.92	-1.55	0.94	-0.55
26	OP	0.6555	0.1420	1.06	1.20	1.15	1.26
27	OP	0.7985	0.1431	0.93	-1.25	0.88	-0.96
28	OP	0.0751	0.1418	1.13	2.37	1.09	0.80
29	FT	0.2140	0.1975	0.97	-0.40	0.94	-0.50
30	FT	1.2581	0.2089	1.35	3.43	1.49	3.05
31	FT	1.0870	0.2048	1.21	2.30	1.29	2.13
32	FT	0.6034	0.1979	0.89	-1.49	0.84	-1.64
33	FT	0.6034	0.1979	1.14	1.85	1.18	1.68
34	FT	0.7612	0.1994	0.96	-0.45	0.92	-0.74
35	FT	-0.6555	0.2141	1.06	0.63	1.08	0.52
36	FT	0.2140	0.1975	1.15	2.11	1.19	1.78
37	FT	-0.3290	0.2083	0.97	-0.36	1.01	0.13
38	FT	0.6211	0.2030	0.93	-0.99	0.86	-0.66
39	FT	1.7199	0.2326	1.13	1.09	1.26	0.98
40	FT	0.8295	0.2056	1.13	1.57	1.10	0.51
41	FT	0.5799	0.2026	0.93	-0.96	0.85	-0.74
42	FT	0.4165	0.2018	1.28	3.52	1.40	1.92
43	FT	1.4131	0.2202	1.20	1.85	1.22	0.95
44	FT	-0.4165	0.2103	1.11	1.21	1.06	0.34

Grade 6 ELA

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.4294	0.1523	1.09	1.51	1.12	0.98
2	OP	-0.4522	0.1526	1.08	1.32	1.18	1.39
3	OP	-0.7338	0.1572	1.03	0.51	0.94	-0.38
4	OP	0.2556	0.1490	0.93	-1.21	0.97	-0.21
5	OP	-0.8072	0.1588	1.05	0.68	1.06	0.49
6	OP	0.1898	0.1489	0.98	-0.41	1.10	0.83
7	OP	0.3437	0.1493	1.34	5.34	1.52	3.66
8	OP	0.4770	0.1501	0.96	-0.60	0.97	-0.22
9	OP	0.2336	0.1489	0.91	-1.55	0.83	-1.44
10	OP	0.2336	0.1489	0.94	-1.13	0.94	-0.46
11	OP	0.5219	0.1505	1.02	0.28	0.97	-0.16
12	OP	-0.1831	0.1499	1.03	0.46	0.99	-0.04
13	OP	-1.0638	0.1654	0.85	-1.94	0.69	-2.08
14	OP	0.6124	0.1514	1.05	0.80	1.01	0.09
15	OP	0.1022	0.1488	0.95	-0.92	0.90	-0.86
16	OP	-0.0949	0.1494	0.78	-4.22	0.69	-2.95
17	OP	0.0803	0.1488	1.02	0.38	0.95	-0.39
18	OP	0.6352	0.1516	0.89	-1.88	0.84	-1.18
19	OP	0.0147	0.1490	0.91	-1.64	0.83	-1.51
20	OP	0.1679	0.1488	1.17	2.87	1.19	1.57
21	OP	-0.2942	0.1508	0.88	-2.09	0.85	-1.31
22	OP	0.3880	0.1496	1.06	0.96	1.05	0.46
23	OP	0.7041	0.1524	1.03	0.42	0.99	-0.01
24	OP	-0.3840	0.1517	1.09	1.50	1.29	2.20
25	OP	-0.4067	0.1520	0.81	-3.44	0.70	-2.71
26	OP	0.1022	0.1488	1.02	0.32	0.97	-0.21
27	OP	0.0366	0.1489	0.84	-3.02	0.79	-1.92
28	OP	-0.2496	0.1504	0.94	-0.99	0.85	-1.28
29	FT	0.2640	0.2167	0.95	-0.55	0.89	-0.75
30	FT	-0.6584	0.2289	0.94	-0.64	0.77	-1.18
31	FT	0.2640	0.2167	0.96	-0.48	0.89	-0.74
32	FT	0.6913	0.2200	1.27	2.71	1.31	1.89
33	FT	0.7398	0.2206	1.07	0.74	0.98	-0.08
34	FT	0.3580	0.2170	0.90	-1.15	0.81	-1.39
35	FT	0.5951	0.2188	0.96	-0.40	0.88	-0.76
36	FT	1.3032	0.2336	1.10	0.92	1.04	0.25
37	FT	1.2524	0.2274	1.09	0.80	1.09	0.42
38	FT	0.0002	0.2046	1.32	4.01	1.30	1.62
39	FT	0.2096	0.2049	0.81	-2.63	0.74	-1.47
40	FT	0.6378	0.2099	1.03	0.38	0.98	-0.03
41	FT	0.7266	0.2116	1.16	1.80	1.14	0.63
42	FT	0.7716	0.2126	1.02	0.24	0.96	-0.07
43	FT	0.2516	0.2052	1.13	1.64	1.13	0.74
44	FT	0.3785	0.2062	1.08	1.06	1.02	0.15

Grade 7 ELA

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	0.3804	0.1396	1.21	3.98	1.45	2.74
2	OP	-0.5193	0.1457	0.89	-1.88	0.81	-1.46
3	OP	-0.6897	0.1490	0.95	-0.81	0.93	-0.44
4	OP	0.4381	0.1398	1.06	1.22	1.01	0.11
5	OP	-1.0603	0.1589	0.85	-1.96	0.69	-2.10
6	OP	-0.0026	0.1399	0.82	-3.88	0.76	-1.93
7	OP	-0.0992	0.1406	0.96	-0.71	0.93	-0.51
8	OP	-1.2142	0.1641	0.96	-0.46	0.75	-1.50
9	OP	-0.0026	0.1399	0.88	-2.59	0.84	-1.24
10	OP	0.9972	0.1456	0.91	-1.51	0.84	-0.88
11	OP	-1.0853	0.1597	1.02	0.24	0.96	-0.18
12	OP	-0.3156	0.1427	0.99	-0.17	0.97	-0.20
13	OP	0.7716	0.1424	0.93	-1.17	1.01	0.10
14	OP	-0.4164	0.1441	1.15	2.65	1.08	0.64
15	OP	0.8321	0.1432	1.08	1.40	1.06	0.40
16	OP	-0.3758	0.1435	0.88	-2.22	0.81	-1.47
17	OP	-0.3356	0.1429	0.95	-0.89	0.84	-1.25
18	OP	0.6720	0.1414	1.11	1.87	1.21	1.24
19	OP	0.6523	0.1412	0.94	-1.04	0.91	-0.50
20	OP	-0.3758	0.1435	0.80	-3.87	0.71	-2.44
21	OP	-0.0412	0.1402	1.11	2.15	1.06	0.47
22	OP	1.1908	0.1491	1.14	1.95	1.12	0.69
23	OP	-0.2757	0.1422	1.21	3.74	1.32	2.25
24	OP	-0.1576	0.1410	0.89	-2.16	0.79	-1.68
25	OP	-0.0992	0.1406	1.13	2.50	1.23	1.70
26	OP	0.8524	0.1434	0.91	-1.54	0.86	-0.75
27	OP	-0.2361	0.1418	0.89	-2.22	0.79	-1.68
28	OP	0.5155	0.1402	1.04	0.86	1.04	0.30
29	FT	1.4017	0.2125	1.23	2.08	1.28	1.35
30	FT	-0.5988	0.2011	0.84	-2.08	0.70	-2.14
31	FT	0.3375	0.1909	0.83	-2.65	0.76	-2.16
32	FT	0.5950	0.1930	1.27	3.44	1.29	2.09
33	FT	0.9790	0.1998	1.02	0.29	0.96	-0.18
34	FT	-0.2116	0.1934	1.13	1.82	1.09	0.72
35	FT	0.1193	0.1908	0.95	-0.84	0.93	-0.52
36	FT	0.7455	0.1951	1.15	1.91	1.18	1.28
37	FT	0.3998	0.2044	0.95	-0.64	0.84	-0.52
38	FT	0.2330	0.2041	0.66	-5.06	0.57	-1.89
39	FT	1.0016	0.2121	1.18	1.88	1.13	0.49
40	FT	-0.3183	0.2094	1.08	0.98	1.13	0.61
41	FT	1.0468	0.2131	1.21	2.10	1.20	0.67
42	FT	0.9568	0.2111	0.95	-0.59	0.87	-0.27
43	FT	0.6951	0.2068	1.06	0.77	0.97	0.01
44	FT	0.3163	0.2042	0.99	-0.08	0.91	-0.23

Grade 8 ELA

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	0.2702	0.1512	1.23	3.44	1.80	4.26
2	OP	-0.1531	0.1507	1.00	-0.05	1.11	0.73
3	OP	-0.1531	0.1507	0.90	-1.89	0.84	-1.01
4	OP	-0.6783	0.1558	0.86	-2.45	0.74	-1.44
5	OP	-0.5609	0.1541	1.07	1.14	1.02	0.19
6	OP	0.7557	0.1560	1.07	0.96	1.06	0.41
7	OP	0.3378	0.1516	0.99	-0.17	0.95	-0.27
8	OP	-0.3323	0.1517	1.11	1.92	1.15	0.91
9	OP	0.5901	0.1539	0.82	-2.77	0.76	-1.55
10	OP	-0.9481	0.1611	0.82	-2.84	0.62	-2.14
11	OP	-0.2200	0.1510	0.87	-2.41	0.73	-1.82
12	OP	0.0914	0.1505	0.88	-2.11	0.77	-1.59
13	OP	0.0692	0.1505	0.95	-0.86	0.88	-0.73
14	OP	-0.7987	0.1579	0.93	-1.15	0.75	-1.35
15	OP	1.1309	0.1627	1.43	4.64	1.54	2.62
16	OP	0.3604	0.1518	0.99	-0.16	1.05	0.34
17	OP	-0.5145	0.1535	0.94	-1.07	0.80	-1.15
18	OP	0.1806	0.1508	0.88	-2.02	0.79	-1.44
19	OP	0.7079	0.1554	1.03	0.39	0.96	-0.19
20	OP	-0.5145	0.1535	1.01	0.13	0.93	-0.36
21	OP	0.2702	0.1512	1.04	0.61	1.00	0.07
22	OP	0.2927	0.1513	1.00	-0.04	0.92	-0.45
23	OP	0.0470	0.1505	0.96	-0.71	0.90	-0.59
24	OP	-0.3548	0.1519	0.97	-0.58	0.83	-1.00
25	OP	0.5204	0.1531	0.99	-0.08	0.91	-0.51
26	OP	0.6134	0.1542	1.13	1.86	1.13	0.79
27	OP	-0.6546	0.1554	0.82	-3.22	0.66	-1.99
28	OP	-0.3548	0.1519	1.16	2.75	1.16	0.97
29	FT	-0.0175	0.2124	1.04	0.47	0.95	-0.15
30	FT	-0.3829	0.2158	0.96	-0.41	1.00	0.08
31	FT	-0.2904	0.2146	0.83	-2.13	0.76	-1.11
32	FT	1.0497	0.2231	1.05	0.48	1.02	0.15
33	FT	-0.0626	0.2126	0.83	-2.12	0.70	-1.48
34	FT	2.0046	0.2558	1.36	2.35	1.49	1.39
35	FT	-0.3365	0.2151	1.20	2.26	1.17	0.77
36	FT	0.7588	0.2175	1.22	2.12	1.17	0.77
37	FT	-0.7647	0.2208	0.85	-1.86	0.68	-1.15
38	FT	0.0683	0.2135	0.79	-2.75	0.69	-1.47
39	FT	-0.2499	0.2135	1.02	0.34	0.94	-0.17
40	FT	0.4383	0.2174	1.03	0.40	0.96	-0.09
41	FT	-0.3413	0.2141	1.16	2.02	1.17	0.73
42	FT	0.4383	0.2174	1.39	3.82	1.34	1.40
43	FT	-0.2044	0.2133	0.88	-1.58	0.76	-1.04
44	FT	0.8299	0.2259	0.98	-0.18	0.92	-0.24

High School ELA

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-1.0587	0.1808	0.82	-2.03	0.59	-1.84
2	OP	0.0254	0.1570	0.82	-2.99	0.70	-2.16
3	OP	1.3930	0.1627	1.23	2.77	1.39	2.62
4	OP	-0.2716	0.1605	1.06	0.94	0.99	0.01
5	OP	0.1700	0.1560	0.91	-1.44	0.90	-0.70
6	OP	1.0100	0.1578	1.02	0.31	0.98	-0.12
7	OP	-0.1215	0.1585	1.14	2.12	1.03	0.26
8	OP	-0.0233	0.1574	0.96	-0.55	0.92	-0.47
9	OP	-1.3335	0.1924	0.77	-2.25	0.48	-2.22
10	OP	0.7421	0.1558	0.98	-0.21	0.97	-0.18
11	OP	0.9116	0.1569	1.30	4.01	1.42	2.85
12	OP	-0.4789	0.1642	0.83	-2.47	0.73	-1.49
13	OP	-0.2716	0.1605	1.10	1.50	1.00	0.06
14	OP	0.4795	0.1552	1.00	0.08	0.96	-0.28
15	OP	-0.4789	0.1642	1.01	0.11	0.93	-0.33
16	OP	-0.3226	0.1613	1.01	0.17	0.87	-0.72
17	OP	0.2417	0.1556	1.01	0.17	0.95	-0.29
18	OP	-0.8722	0.1743	0.98	-0.20	0.87	-0.52
19	OP	1.0596	0.1583	0.93	-0.92	0.97	-0.21
20	OP	0.1939	0.1558	0.96	-0.61	0.97	-0.15
21	OP	0.0496	0.1568	1.29	4.17	1.30	1.90
22	OP	-0.0722	0.1579	1.00	0.05	1.10	0.69
23	OP	-0.4001	0.1627	1.10	1.38	1.06	0.39
24	OP	0.1939	0.1558	0.94	-0.95	1.04	0.32
25	OP	-0.6417	0.1679	0.83	-2.45	0.71	-1.49
26	OP	0.0011	0.1572	0.83	-2.71	0.71	-2.06
27	OP	0.1220	0.1563	0.90	-1.62	0.79	-1.48
28	OP	-0.2463	0.1601	0.89	-1.73	0.80	-1.20
29	FT	-0.5854	0.2276	0.74	-2.79	0.56	-1.96
30	FT	-0.2867	0.2195	1.05	0.59	0.99	0.03
31	FT	0.0408	0.2138	0.74	-3.32	0.63	-2.27
32	FT	1.1237	0.2161	1.27	2.62	1.44	2.56
33	FT	0.3563	0.2114	1.64	6.22	2.01	4.95
34	FT	1.1705	0.2168	1.12	1.23	1.22	1.34
35	FT	1.6630	0.2281	1.36	2.93	1.47	2.20
36	FT	0.2668	0.2118	1.04	0.43	0.96	-0.21
37	FT	0.5307	0.2289	1.04	0.45	1.00	0.10
38	FT	-0.9289	0.2580	0.91	-0.68	0.65	-1.00
39	FT	0.9007	0.2316	0.93	-0.67	0.83	-0.71
40	FT	0.3737	0.2288	0.95	-0.48	0.95	-0.16
41	FT	-0.2676	0.2357	0.79	-2.32	0.68	-1.26
42	FT	0.2690	0.2291	0.88	-1.31	0.78	-0.95
43	FT	-0.1575	0.2336	1.05	0.53	0.89	-0.35
44	FT	0.3214	0.2289	1.01	0.12	0.96	-0.11

Appendix K:

Mathematics Item Bank Difficulties

Grade 3 Mathematics

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.2231	0.1483	0.91	-1.80	0.98	-0.13
2	OP	-0.0511	0.1466	0.91	-1.87	0.89	-1.19
3	OP	0.2026	0.1454	0.94	-1.23	0.94	-0.62
4	OP	-0.0511	0.1466	1.17	3.21	1.19	1.96
5	OP	-1.0917	0.1693	0.95	-0.57	0.81	-1.28
6	OP	0.6498	0.1469	1.14	2.50	1.20	1.86
7	OP	0.1816	0.1454	0.81	-4.08	0.75	-2.97
8	OP	0.8937	0.1496	0.87	-2.22	0.82	-1.60
9	OP	0.2448	0.1453	0.94	-1.29	0.89	-1.27
10	OP	0.1605	0.1455	1.13	2.57	1.11	1.19
11	OP	-0.6062	0.1549	0.83	-2.75	0.70	-2.89
12	OP	0.2870	0.1453	1.02	0.46	0.99	-0.11
13	OP	0.3292	0.1454	1.21	3.82	1.23	2.40
14	OP	0.2448	0.1453	0.88	-2.43	0.83	-1.93
15	OP	0.6716	0.1471	0.90	-1.75	0.86	-1.42
16	OP	0.1183	0.1456	1.19	3.59	1.25	2.62
17	OP	0.2448	0.1453	0.99	-0.23	0.96	-0.38
18	OP	0.2026	0.1454	0.82	-3.78	0.75	-2.96
19	OP	-0.2014	0.1481	1.03	0.58	1.06	0.69
20	OP	0.1394	0.1456	1.10	2.00	1.07	0.83
21	OP	0.9164	0.1500	1.13	2.07	1.16	1.33
22	OP	0.0338	0.1460	0.84	-3.42	0.78	-2.52
23	OP	0.4990	0.1459	0.89	-2.06	0.84	-1.74
24	OP	0.0761	0.1458	0.98	-0.34	0.96	-0.37
25	OP	-0.2014	0.1481	0.79	-4.30	0.69	-3.54
26	FT	-0.0540	0.1466	1.05	1.05	1.02	0.21
27	FT	1.2372	0.1558	0.95	-0.65	0.97	-0.20
28	FT	0.8664	0.1493	1.05	0.79	1.01	0.12
29	FT	1.3861	0.1593	1.11	1.36	1.11	0.77
30	FT	-0.1404	0.1474	0.82	-3.70	0.74	-3.05
31	FT	1.0943	0.1529	1.17	2.39	1.17	1.30
32	FT	0.7560	0.1479	1.39	6.00	1.42	3.50
33	FT	1.7082	0.1689	1.21	2.28	1.21	1.27

Grade 4 Mathematics

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.6436	0.1484	1.04	0.73	1.36	2.82
2	OP	-0.7761	0.1513	0.90	-1.56	0.99	-0.05
3	OP	-1.0352	0.1585	0.87	-1.69	0.75	-1.86
4	OP	-0.0526	0.1407	0.91	-1.80	0.86	-1.53
5	OP	0.2392	0.1400	0.98	-0.50	0.92	-0.77
6	OP	0.0060	0.1404	0.95	-0.96	0.96	-0.43
7	OP	0.5529	0.1414	0.93	-1.30	0.96	-0.38
8	OP	-0.7313	0.1503	1.03	0.43	1.06	0.56
9	OP	0.5330	0.1412	0.95	-0.89	0.91	-0.83
10	OP	0.2198	0.1400	0.87	-2.68	0.82	-1.87
11	OP	0.6328	0.1421	0.99	-0.17	0.96	-0.30
12	OP	0.6731	0.1425	1.05	0.93	1.00	0.06
13	OP	0.0255	0.1404	0.88	-2.58	0.82	-1.97
14	OP	0.1227	0.1401	1.07	1.42	1.03	0.33
15	OP	0.1810	0.1400	1.02	0.34	0.99	-0.03
16	OP	-0.9144	0.1549	0.94	-0.81	0.87	-0.97
17	OP	0.5132	0.1411	1.02	0.49	1.00	0.05
18	OP	0.3171	0.1402	1.21	3.91	1.22	2.10
19	OP	0.9211	0.1457	0.96	-0.72	0.96	-0.27
20	OP	-0.0330	0.1406	1.14	2.70	1.12	1.19
21	OP	-0.2103	0.1419	1.00	0.02	0.91	-0.86
22	OP	0.7956	0.1439	0.99	-0.14	0.94	-0.44
23	OP	0.1033	0.1401	0.99	-0.13	0.97	-0.27
24	OP	-0.0722	0.1409	1.02	0.33	0.94	-0.55
25	OP	0.9852	0.1467	1.18	2.68	1.20	1.47
26	OP	-0.3915	0.1441	1.00	0.09	1.07	0.70
27	OP	0.4935	0.1410	0.89	-2.12	0.86	-1.32
28	OP	-0.5579	0.1467	1.03	0.53	0.96	-0.33
29	OP	0.2392	0.1400	0.94	-1.23	0.89	-1.14
30	OP	-0.2701	0.1426	0.80	-4.11	0.72	-3.12
31	FT	-0.6316	0.1481	0.98	-0.26	0.92	-0.63
32	FT	0.3003	0.1401	0.93	-1.46	0.88	-1.23
33	FT	-0.0932	0.1410	0.92	-1.76	0.84	-1.71
34	FT	-0.0932	0.1410	1.25	4.67	1.38	3.50
35	FT	1.6297	0.1627	1.20	2.25	1.22	1.27
36	FT	0.6782	0.1425	0.97	-0.54	0.93	-0.56
37	FT	-0.1530	0.1414	1.04	0.87	1.02	0.25
38	FT	1.3060	0.1534	1.21	2.71	1.29	1.86

Grade 5 Mathematics

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.2331	0.1430	0.90	-1.95	0.94	-0.36
2	OP	-0.5878	0.1480	1.02	0.27	0.96	-0.20
3	OP	0.1644	0.1409	0.95	-1.14	1.10	0.73
4	OP	0.2037	0.1409	1.17	3.28	1.21	1.46
5	OP	-0.4598	0.1458	1.09	1.49	1.17	1.15
6	OP	-0.7652	0.1517	0.81	-3.01	0.70	-2.08
7	OP	-0.6977	0.1502	0.96	-0.66	0.92	-0.43
8	OP	-0.2129	0.1428	0.88	-2.38	0.85	-1.10
9	OP	0.5609	0.1425	1.06	1.16	1.19	1.22
10	OP	1.2014	0.1528	1.09	1.29	1.41	2.20
11	OP	0.3220	0.1411	0.91	-1.88	0.85	-1.03
12	OP	-0.5662	0.1476	0.96	-0.66	0.92	-0.46
13	OP	1.2014	0.1528	1.05	0.72	1.08	0.54
14	OP	0.4210	0.1415	0.91	-1.74	0.86	-0.91
15	OP	-0.3351	0.1441	1.04	0.84	1.26	1.74
16	OP	0.0856	0.1410	1.09	1.85	1.07	0.57
17	OP	-1.0515	0.1595	0.90	-1.22	0.78	-1.41
18	OP	-0.1928	0.1426	1.09	1.66	1.17	1.19
19	OP	0.8490	0.1459	1.07	1.27	1.06	0.43
20	OP	-0.1727	0.1424	1.03	0.67	1.06	0.46
21	OP	0.0066	0.1413	0.92	-1.63	0.87	-0.91
22	OP	0.4012	0.1414	0.98	-0.41	0.95	-0.26
23	OP	0.8490	0.1459	0.99	-0.14	0.93	-0.35
24	OP	0.0461	0.1411	1.08	1.73	1.05	0.38
25	OP	0.2037	0.1409	0.87	-2.72	0.81	-1.37
26	OP	-0.2534	0.1432	0.85	-3.12	0.78	-1.62
27	OP	-1.1281	0.1620	0.84	-2.01	0.76	-1.48
28	OP	-0.9048	0.1553	0.86	-1.95	0.72	-1.88
29	OP	-0.2534	0.1432	1.11	2.13	1.15	1.09
30	OP	-0.6095	0.1484	0.86	-2.38	0.74	-1.82
31	FT	0.0060	0.1413	1.06	1.28	1.03	0.26
32	FT	-0.0740	0.1417	1.13	2.53	1.06	0.44
33	FT	0.7921	0.1451	0.98	-0.39	0.94	-0.31
34	FT	0.0060	0.1413	1.12	2.35	1.12	0.91
35	FT	0.7711	0.1448	1.00	-0.02	1.05	0.34
36	FT	-0.1344	0.1421	0.96	-0.82	0.92	-0.51
37	FT	1.5077	0.1613	1.11	1.34	1.17	0.95
38	FT	-0.7060	0.1504	1.02	0.35	1.14	0.88

Grade 6 Mathematics

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-1.0078	0.1581	1.05	0.67	1.02	0.17
2	OP	-1.0578	0.1596	0.95	-0.65	0.97	-0.19
3	OP	-0.1900	0.1446	1.12	2.68	1.13	0.97
4	OP	0.0765	0.1441	0.94	-1.49	1.26	1.84
5	OP	-0.2313	0.1448	1.04	0.99	1.02	0.22
6	OP	-0.7023	0.1509	0.92	-1.38	0.87	-0.88
7	OP	-0.3353	0.1457	1.11	2.18	1.09	0.71
8	OP	-0.5263	0.1479	0.95	-0.94	0.90	-0.67
9	OP	-0.5915	0.1489	0.83	-3.21	0.76	-1.67
10	OP	0.4712	0.1468	1.13	2.50	1.17	1.16
11	OP	-0.1283	0.1443	0.96	-0.99	0.92	-0.53
12	OP	1.0397	0.1581	1.07	0.99	1.09	0.54
13	OP	-0.2936	0.1453	1.13	2.76	1.09	0.66
14	OP	-0.0873	0.1442	0.81	-4.71	0.75	-2.02
15	OP	0.8016	0.1522	0.97	-0.48	0.95	-0.27
16	OP	-0.4407	0.1468	0.86	-2.99	0.79	-1.55
17	OP	0.0970	0.1441	1.20	4.21	1.14	1.05
18	OP	0.4712	0.1468	0.87	-2.80	0.80	-1.39
19	OP	-0.2728	0.1451	1.14	2.86	1.10	0.75
20	OP	0.8246	0.1527	0.91	-1.54	0.84	-0.94
21	OP	-0.0054	0.1440	0.80	-4.84	0.74	-2.08
22	OP	-0.5697	0.1486	0.86	-2.80	0.76	-1.75
23	OP	0.8478	0.1532	1.00	0.05	0.97	-0.12
24	OP	0.6664	0.1496	1.04	0.79	0.99	-0.03
25	OP	-0.2728	0.1451	1.11	2.25	1.10	0.78
26	OP	0.2616	0.1448	0.97	-0.59	0.92	-0.53
27	OP	0.1380	0.1442	0.98	-0.48	0.97	-0.15
28	OP	-0.2728	0.1451	1.02	0.51	0.98	-0.12
29	OP	-0.5697	0.1486	0.95	-0.99	0.93	-0.40
30	OP	0.3867	0.1458	0.93	-1.53	0.89	-0.76
31	FT	1.2617	0.1651	1.12	1.44	1.13	0.74
32	FT	1.4912	0.1740	1.09	0.92	1.30	1.43
33	FT	0.4768	0.1468	1.21	3.90	1.20	1.29
34	FT	0.2434	0.1447	0.86	-3.24	0.82	-1.36
35	FT	0.2854	0.1450	1.00	0.04	0.96	-0.26
36	FT	1.0527	0.1584	1.09	1.19	1.01	0.14
37	FT	0.9783	0.1564	1.02	0.30	1.06	0.40
38	FT	0.5419	0.1477	0.93	-1.36	0.87	-0.85

Grade 7 Mathematics

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.9442	0.1494	1.05	0.75	1.10	0.78
2	OP	-0.9223	0.1489	1.00	-0.04	0.96	-0.22
3	OP	-0.1779	0.1386	0.92	-1.74	0.89	-0.98
4	OP	-0.6485	0.1435	1.06	1.15	1.03	0.25
5	OP	-0.4684	0.1410	0.94	-1.27	0.89	-0.98
6	OP	0.7781	0.1440	0.99	-0.19	1.07	0.49
7	OP	0.5741	0.1412	1.00	0.10	1.03	0.27
8	OP	-0.3317	0.1396	0.84	-3.47	0.77	-2.10
9	OP	0.1078	0.1382	0.87	-2.72	0.91	-0.68
10	OP	0.3381	0.1391	1.04	0.70	1.02	0.18
11	OP	0.0317	0.1381	0.92	-1.70	0.88	-0.99
12	OP	0.2802	0.1388	1.21	3.84	1.20	1.51
13	OP	-0.0444	0.1382	0.87	-2.72	0.85	-1.24
14	OP	0.5342	0.1408	1.00	0.08	1.04	0.33
15	OP	-0.3511	0.1398	0.91	-1.84	0.90	-0.84
16	OP	0.2994	0.1389	1.01	0.12	0.97	-0.17
17	OP	-0.1970	0.1387	0.93	-1.48	0.86	-1.19
18	OP	-0.1588	0.1385	0.84	-3.45	0.78	-1.95
19	OP	0.3575	0.1392	0.91	-1.86	0.85	-1.12
20	OP	-0.3511	0.1398	1.05	1.00	1.04	0.37
21	OP	-0.9886	0.1505	0.92	-1.16	0.88	-0.87
22	OP	0.7990	0.1444	0.96	-0.63	0.95	-0.26
23	OP	0.6344	0.1420	0.89	-2.02	0.84	-1.06
24	OP	-0.5878	0.1426	0.99	-0.12	0.99	-0.02
25	OP	0.2417	0.1386	0.92	-1.62	0.88	-0.94
26	OP	-0.2162	0.1388	1.11	2.16	1.11	0.97
27	OP	-1.0793	0.1529	0.90	-1.47	0.75	-1.93
28	OP	-0.1588	0.1385	1.12	2.51	1.30	2.35
29	OP	-0.3511	0.1398	1.06	1.29	1.06	0.53
30	OP	0.6547	0.1422	1.03	0.56	1.00	0.08
31	FT	0.1089	0.1382	0.86	-3.10	0.79	-1.77
32	FT	0.1854	0.1384	0.88	-2.41	0.85	-1.24
33	FT	0.1471	0.1383	1.21	4.11	1.24	1.85
34	FT	1.4118	0.1588	1.02	0.27	1.00	0.06
35	FT	-0.0437	0.1382	1.16	3.14	1.16	1.28
36	FT	1.4886	0.1612	1.19	2.15	1.32	1.76
37	FT	0.4757	0.1402	0.95	-0.91	0.90	-0.66
38	FT	0.2237	0.1385	1.38	6.83	1.44	3.06

Grade 8 Mathematics

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.9262	0.1562	0.94	-0.94	0.94	-0.39
2	OP	-0.4486	0.1474	0.97	-0.59	0.99	-0.02
3	OP	-0.1713	0.1451	0.90	-2.23	0.90	-0.84
4	OP	0.3137	0.1458	0.98	-0.49	1.30	2.24
5	OP	-0.2983	0.1459	1.00	-0.05	0.93	-0.52
6	OP	0.3997	0.1466	1.03	0.55	1.02	0.20
7	OP	-0.0451	0.1447	1.18	3.69	1.17	1.36
8	OP	0.7098	0.1507	1.14	2.27	1.24	1.64
9	OP	-0.2558	0.1456	0.97	-0.55	0.95	-0.37
10	OP	0.7327	0.1511	1.04	0.70	1.08	0.58
11	OP	-1.6807	0.1843	0.89	-1.03	0.73	-1.38
12	OP	-0.6023	0.1496	0.95	-0.93	1.09	0.67
13	OP	-1.3429	0.1694	0.94	-0.64	0.81	-1.14
14	OP	0.3781	0.1464	1.03	0.59	1.07	0.57
15	OP	0.6643	0.1500	0.93	-1.13	0.95	-0.28
16	OP	-0.2347	0.1455	0.96	-0.88	0.89	-0.87
17	OP	0.2711	0.1455	0.87	-2.69	0.83	-1.48
18	OP	0.8492	0.1534	0.91	-1.34	0.86	-0.97
19	OP	0.0389	0.1447	0.86	-3.21	0.81	-1.64
20	OP	-0.1292	0.1450	1.07	1.48	1.00	0.03
21	OP	0.8256	0.1529	0.99	-0.19	0.96	-0.24
22	OP	-1.7490	0.1877	0.82	-1.59	0.61	-2.09
23	OP	-0.6023	0.1496	0.92	-1.47	0.85	-1.12
24	OP	0.7789	0.1520	0.97	-0.42	0.96	-0.21
25	OP	0.8968	0.1544	1.06	0.89	1.01	0.14
26	OP	0.5085	0.1478	0.95	-1.00	0.89	-0.82
27	OP	-0.3624	0.1465	0.95	-0.99	0.91	-0.70
28	OP	-0.1081	0.1449	1.02	0.51	1.03	0.26
29	OP	0.5970	0.1489	1.07	1.14	1.03	0.28
30	OP	-0.1713	0.1451	0.96	-0.93	0.91	-0.73
31	FT	0.3544	0.1462	1.06	1.25	1.06	0.49
32	FT	0.1429	0.1449	1.26	5.12	1.31	2.40
33	FT	-0.2987	0.1459	1.08	1.74	1.05	0.40
34	FT	1.4103	0.1693	1.12	1.33	1.18	1.04
35	FT	0.6157	0.1492	0.96	-0.76	0.91	-0.64
36	FT	0.9395	0.1554	1.07	0.99	1.06	0.47
37	FT	0.5713	0.1486	1.13	2.30	1.09	0.66
38	FT	0.5935	0.1489	0.98	-0.29	0.96	-0.23

High School Mathematics

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.2063	0.1512	0.98	-0.37	1.00	0.03
2	OP	-1.4349	0.1889	0.97	-0.20	0.87	-0.60
3	OP	0.0447	0.1487	1.08	1.42	1.16	1.52
4	OP	0.2462	0.1477	1.01	0.22	1.00	0.06
5	OP	0.2462	0.1477	1.03	0.61	1.04	0.40
6	OP	0.3353	0.1475	0.91	-1.60	0.90	-1.01
7	OP	-0.1141	0.1501	0.97	-0.60	1.00	0.02
8	OP	0.2907	0.1476	0.85	-3.01	0.80	-2.09
9	OP	-0.1141	0.1501	0.86	-2.66	0.86	-1.37
10	OP	-1.1104	0.1743	1.00	0.03	0.90	-0.56
11	OP	0.6481	0.1484	0.93	-1.22	0.90	-0.94
12	OP	-0.7988	0.1637	0.93	-0.91	0.85	-1.03
13	OP	-0.3710	0.1538	0.94	-1.06	0.99	-0.09
14	OP	0.6031	0.1481	0.98	-0.32	0.98	-0.19
15	OP	1.0878	0.1532	0.97	-0.45	1.01	0.13
16	OP	0.0222	0.1488	1.14	2.50	1.13	1.24
17	OP	-0.6677	0.1601	0.86	-1.98	0.74	-2.11
18	OP	-0.1832	0.1509	1.04	0.63	1.03	0.31
19	OP	-0.6935	0.1608	1.01	0.20	1.03	0.27
20	OP	0.2016	0.1478	0.96	-0.68	0.92	-0.79
21	OP	1.0164	0.1521	1.02	0.40	1.06	0.52
22	OP	-0.3950	0.1542	0.92	-1.25	0.84	-1.38
23	OP	0.1569	0.1480	0.85	-2.87	0.82	-1.88
24	OP	0.3575	0.1475	0.85	-2.83	0.82	-1.88
25	OP	0.2685	0.1476	0.86	-2.77	0.82	-1.87
26	OP	-0.4920	0.1561	0.79	-3.46	0.69	-2.85
27	OP	0.1346	0.1481	0.93	-1.26	0.90	-1.05
28	OP	-0.4190	0.1546	1.08	1.23	1.10	0.88
29	OP	-0.2998	0.1526	1.04	0.68	1.08	0.74
30	OP	1.0401	0.1525	1.08	1.31	1.14	1.21
31	FT	1.2775	0.1566	1.04	0.65	1.12	0.97
32	FT	0.2193	0.1478	1.26	4.50	1.23	2.23
33	FT	0.5460	0.1479	1.22	3.68	1.24	2.17
34	FT	1.8389	0.1721	1.15	1.60	1.27	1.62
35	FT	-0.5095	0.1564	0.98	-0.30	0.95	-0.40
36	FT	0.1098	0.1483	1.26	4.51	1.29	2.68
37	FT	1.1092	0.1535	1.00	-0.02	0.96	-0.31
38	FT	0.3282	0.1475	1.23	4.01	1.37	3.39

Appendix L:
Science Item Bank Difficulties

Grade 5 Science

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-0.4278	0.1496	0.83	-3.00	0.76	-1.88
2	OP	-0.6505	0.1534	0.82	-2.93	0.74	-1.89
3	OP	-1.0922	0.1648	1.05	0.57	1.35	1.86
4	OP	0.2162	0.1448	1.07	1.27	1.07	0.57
5	OP	-0.7199	0.1549	0.99	-0.08	1.32	1.95
6	OP	-1.1734	0.1675	1.04	0.45	0.99	0.00
7	OP	-0.3204	0.1482	0.93	-1.16	0.88	-0.90
8	OP	-0.0079	0.1455	0.97	-0.61	0.91	-0.65
9	OP	0.8575	0.1486	1.13	1.96	1.29	1.63
10	OP	0.3381	0.1449	0.90	-1.76	0.86	-0.98
11	OP	-1.5982	0.1848	0.79	-2.05	0.60	-1.99
12	OP	0.2365	0.1448	1.08	1.41	1.03	0.28
13	OP	-0.3204	0.1482	0.79	-3.79	0.67	-2.73
14	OP	1.4050	0.1582	1.09	1.22	1.17	0.93
15	OP	0.8147	0.1481	0.97	-0.45	0.88	-0.70
16	OP	1.0100	0.1506	1.26	3.67	1.60	3.07
17	OP	0.7722	0.1476	0.96	-0.58	0.93	-0.35
18	OP	0.0125	0.1454	1.15	2.54	1.22	1.55
19	OP	-0.2358	0.1472	0.87	-2.47	0.78	-1.71
20	OP	0.7722	0.1476	1.34	5.02	1.38	2.06
21	OP	-1.3749	0.1750	0.84	-1.70	0.65	-1.87
22	OP	0.5839	0.1460	1.01	0.27	0.98	-0.08
23	OP	-0.9625	0.1609	0.80	-2.79	0.61	-2.65
24	OP	0.6046	0.1461	1.11	1.82	1.09	0.62
25	OP	-0.2569	0.1474	1.04	0.78	0.96	-0.29
26	FT	0.1398	0.2035	1.40	4.69	1.47	2.41
27	FT	0.2225	0.2032	0.88	-1.58	0.84	-0.92
28	FT	-0.4594	0.2124	0.84	-1.95	0.70	-1.71
29	FT	0.2638	0.2031	1.19	2.36	1.15	0.85
30	FT	-0.5506	0.2148	0.90	-1.08	0.79	-1.08
31	FT	-0.9947	0.2311	0.90	-0.86	0.76	-1.01
32	FT	0.3050	0.2031	0.88	-1.56	0.81	-1.09
33	FT	-0.1110	0.2058	1.18	2.22	1.13	0.78
34	FT	0.2247	0.2065	0.91	-1.10	0.88	-0.49
35	FT	-0.6046	0.2151	0.74	-3.11	0.61	-2.12
36	FT	-0.9418	0.2248	0.96	-0.34	0.78	-0.93
37	FT	-0.0311	0.2070	0.96	-0.43	0.93	-0.29
38	FT	-0.2468	0.2088	0.81	-2.53	0.68	-1.76
39	FT	0.0970	0.2065	1.01	0.21	0.95	-0.19
40	FT	0.2247	0.2065	1.02	0.28	0.96	-0.12
41	FT	1.3607	0.2264	1.20	1.73	1.16	0.64

Grade 8 Science

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-1.1950	0.1735	1.05	0.56	1.22	1.12
2	OP	-1.2247	0.1745	0.82	-2.04	0.61	-2.20
3	OP	-0.1726	0.1514	0.93	-1.14	1.00	0.04
4	OP	-0.7362	0.1603	0.97	-0.35	0.85	-0.92
5	OP	-0.1279	0.1510	0.99	-0.23	1.23	1.53
6	OP	-0.4700	0.1551	0.96	-0.67	0.85	-1.00
7	OP	-1.1083	0.1705	0.94	-0.62	0.84	-0.82
8	OP	-1.1950	0.1735	0.88	-1.38	0.99	0.02
9	OP	0.1592	0.1497	0.87	-2.41	0.81	-1.35
10	OP	-1.0800	0.1696	0.95	-0.62	0.80	-1.10
11	OP	0.3130	0.1497	0.97	-0.56	0.98	-0.08
12	OP	1.1914	0.1592	1.13	1.67	1.32	1.67
13	OP	0.5567	0.1507	0.77	-4.19	0.68	-2.14
14	OP	0.3130	0.1497	0.87	-2.29	0.81	-1.27
15	OP	-0.6865	0.1592	1.02	0.29	1.12	0.79
16	OP	0.4898	0.1503	1.09	1.44	1.08	0.52
17	OP	-0.3081	0.1529	1.16	2.59	1.18	1.25
18	OP	0.3570	0.1498	1.00	0.03	1.11	0.72
19	OP	0.4676	0.1502	1.32	5.04	1.32	1.90
20	OP	0.9472	0.1549	1.14	2.00	1.17	0.96
21	OP	0.7375	0.1523	0.93	-1.05	0.88	-0.64
22	OP	0.6466	0.1514	0.92	-1.34	0.86	-0.83
23	OP	0.4898	0.1503	1.02	0.30	0.94	-0.32
24	OP	-0.6374	0.1581	1.03	0.41	0.96	-0.20
25	OP	0.8531	0.1536	0.92	-1.21	0.83	-1.00
26	FT	-0.3023	0.2145	1.12	1.44	1.12	0.72
27	FT	1.0185	0.2142	1.01	0.12	1.02	0.16
28	FT	0.3148	0.2077	0.85	-2.10	0.81	-1.48
29	FT	-0.6367	0.2236	0.95	-0.44	0.81	-0.89
30	FT	0.9728	0.2134	1.32	3.22	1.35	2.29
31	FT	1.2056	0.2185	1.14	1.39	1.13	0.82
32	FT	0.8823	0.2118	1.03	0.40	1.11	0.81
33	FT	0.3148	0.2077	1.03	0.41	1.09	0.69
34	FT	0.1420	0.2153	1.14	1.61	1.03	0.19
35	FT	0.0494	0.2153	1.04	0.46	0.99	0.05
36	FT	0.9061	0.2248	1.06	0.60	0.96	0.00
37	FT	-0.9258	0.2318	0.78	-2.23	0.59	-1.83
38	FT	-0.7168	0.2256	0.95	-0.46	0.99	0.04
39	FT	-1.0351	0.2356	0.80	-1.87	0.61	-1.65
40	FT	0.0957	0.2152	0.85	-1.93	0.78	-0.86
41	FT	1.0083	0.2274	1.17	1.61	1.18	0.63

High School Science

General		Rasch		Infit		Outfit	
Item	Usage	Measure	MeasureSE	MNSQ	ZSTD	MNSQ	ZSTD
1	OP	-1.1698	0.1737	0.82	-2.20	0.67	-1.86
2	OP	-1.3556	0.1805	0.80	-2.28	0.65	-1.85
3	OP	-0.7543	0.1625	1.02	0.35	0.92	-0.47
4	OP	-0.0524	0.1533	1.23	3.51	1.17	1.35
5	OP	0.9485	0.1576	1.13	1.83	1.15	1.19
6	OP	-0.0524	0.1533	1.08	1.34	1.18	1.39
7	OP	-1.1108	0.1718	1.03	0.37	0.91	-0.41
8	OP	0.5214	0.1534	1.00	0.00	0.99	-0.07
9	OP	-1.3881	0.1818	0.99	-0.11	0.81	-0.90
10	OP	1.2523	0.1628	1.13	1.62	1.27	1.93
11	OP	0.2458	0.1525	0.93	-1.09	0.90	-0.84
12	OP	0.0856	0.1527	1.10	1.62	1.12	1.01
13	OP	-0.9412	0.1669	0.99	-0.17	0.92	-0.38
14	OP	0.4752	0.1531	1.13	2.03	1.24	1.84
15	OP	-1.1108	0.1718	0.78	-2.83	0.62	-2.26
16	OP	-1.7448	0.1985	0.89	-0.89	0.63	-1.62
17	OP	0.9978	0.1583	1.18	2.44	1.30	2.23
18	OP	-0.0293	0.1532	0.91	-1.52	0.84	-1.35
19	OP	-0.3810	0.1562	1.07	1.06	0.97	-0.18
20	OP	0.0856	0.1527	0.84	-2.70	0.77	-2.06
21	OP	-0.2386	0.1546	0.87	-2.10	0.93	-0.47
22	OP	0.1543	0.1526	1.02	0.30	1.01	0.14
23	OP	-0.7284	0.1619	0.67	-5.31	0.53	-3.45
24	OP	0.5678	0.1537	1.01	0.14	1.01	0.12
25	OP	0.3373	0.1527	0.90	-1.56	0.84	-1.38
26	OP	-0.4534	0.1571	1.17	2.46	1.19	1.29
27	OP	-0.6771	0.1609	0.78	-3.43	0.66	-2.41
28	OP	-0.4051	0.1565	1.19	2.75	1.17	1.23
29	FT	0.1967	0.2060	0.88	-1.50	0.85	-0.80
30	FT	0.2391	0.2059	1.21	2.50	1.26	1.36
31	FT	-0.7339	0.2199	0.76	-2.72	0.63	-1.79
32	FT	-1.1464	0.2358	0.79	-1.92	0.61	-1.67
33	FT	0.3239	0.2061	1.30	3.45	1.36	1.77
34	FT	0.8879	0.2120	1.01	0.10	0.95	-0.21
35	FT	-0.2318	0.2090	1.03	0.38	1.03	0.21
36	FT	0.4944	0.2069	1.29	3.25	1.33	1.61
37	FT	0.2147	0.2270	1.21	2.06	1.19	1.28
38	FT	0.7884	0.2312	1.00	0.06	0.96	-0.19
39	FT	-0.3060	0.2306	0.82	-1.91	0.85	-0.84
40	FT	-0.0956	0.2283	0.71	-3.35	0.62	-2.62
41	FT	-0.4673	0.2333	1.05	0.48	1.06	0.38
42	FT	-0.8046	0.2417	1.15	1.35	1.10	0.48
43	FT	0.8961	0.2329	1.24	2.15	1.36	2.13
44	FT	0.0083	0.2276	0.96	-0.40	0.92	-0.51

Appendix M:

ELA Raw-to-Scale Conversion Tables and Distributions of Ability

The tables show the raw score and percentile for any scale score. It also includes counts and percentages at each score. The performance level *On Track* begins at a scale score of 200 and *Advanced* begins at a scale score of 250. *Developing* is a Scale Score of 199 and below.

Grade 3 ELA

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	3	ELA	0	10	4.20	10	4.20	1	101	47
2023	3	ELA	1	3	1.26	13	5.46	1	119	26
2023	3	ELA	2	0	0.00	13	5.46	1	138	19
2023	3	ELA	3	1	0.42	14	5.88	2	150	16
2023	3	ELA	4	3	1.26	17	7.14	2	159	14
2023	3	ELA	5	1	0.42	18	7.56	3	166	13
2023	3	ELA	6	5	2.10	23	9.66	5	172	12
2023	3	ELA	7	4	1.68	27	11.34	7	177	11
2023	3	ELA	8	7	2.94	34	14.29	9	182	11
2023	3	ELA	9	10	4.20	44	18.49	13	187	11
2023	3	ELA	10	14	5.88	58	24.37	18	191	10
2023	3	ELA	11	14	5.88	72	30.25	24	195	10
2023	3	ELA	12	12	5.04	84	35.29	30	200	10
2023	3	ELA	13	16	6.72	100	42.02	36	204	10
2023	3	ELA	14	13	5.46	113	47.48	42	207	10
2023	3	ELA	15	19	7.98	132	55.46	49	211	10
2023	3	ELA	16	14	5.88	146	61.34	56	215	10
2023	3	ELA	17	12	5.04	158	66.39	62	220	10
2023	3	ELA	18	16	6.72	174	73.11	68	224	10
2023	3	ELA	19	11	4.62	185	77.73	74	228	11
2023	3	ELA	20	4	1.68	189	79.41	78	233	11
2023	3	ELA	21	8	3.36	197	82.77	80	238	12
2023	3	ELA	22	10	4.20	207	86.97	84	243	12
2023	3	ELA	23	7	2.94	214	89.92	88	250	13
2023	3	ELA	24	6	2.52	220	92.44	91	257	14
2023	3	ELA	25	8	3.36	228	95.80	94	265	16
2023	3	ELA	26	4	1.68	232	97.48	97	277	19
2023	3	ELA	27	4	1.68	236	99.16	98	296	26
2023	3	ELA	28	2	0.84	238	100.00	99	300	47

Grade 4 ELA

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	4	ELA	0	14	5.43	14	5.43	1	101	41
2023	4	ELA	1	1	0.39	15	5.81	2	129	23
2023	4	ELA	2	1	0.39	16	6.20	2	145	17
2023	4	ELA	3	1	0.39	17	6.59	3	156	14
2023	4	ELA	4	1	0.39	18	6.98	3	163	12
2023	4	ELA	5	1	0.39	19	7.36	3	170	11
2023	4	ELA	6	5	1.94	24	9.30	5	175	11
2023	4	ELA	7	6	2.33	30	11.63	7	180	10
2023	4	ELA	8	9	3.49	39	15.12	10	184	10
2023	4	ELA	9	10	3.88	49	18.99	14	188	9
2023	4	ELA	10	21	8.14	70	27.13	20	192	9
2023	4	ELA	11	18	6.98	88	34.11	28	196	9
2023	4	ELA	12	11	4.26	99	38.37	34	200	9
2023	4	ELA	13	11	4.26	110	42.64	38	203	9
2023	4	ELA	14	9	3.49	119	46.12	42	207	9
2023	4	ELA	15	14	5.43	133	51.55	47	210	9
2023	4	ELA	16	13	5.04	146	56.59	52	214	9
2023	4	ELA	17	13	5.04	159	61.63	57	217	9
2023	4	ELA	18	16	6.20	175	67.83	63	221	9
2023	4	ELA	19	11	4.26	186	72.09	69	225	9
2023	4	ELA	20	8	3.10	194	75.19	73	229	10
2023	4	ELA	21	8	3.10	202	78.29	76	233	10
2023	4	ELA	22	11	4.26	213	82.56	80	238	11
2023	4	ELA	23	15	5.81	228	88.37	85	243	11
2023	4	ELA	24	7	2.71	235	91.09	89	250	12
2023	4	ELA	25	9	3.49	244	94.57	93	257	14
2023	4	ELA	26	4	1.55	248	96.12	95	267	17
2023	4	ELA	27	5	1.94	253	98.06	97	284	23
2023	4	ELA	28	5	1.94	258	100.00	99	300	41

Grade 5 ELA

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	5	ELA	0	11	4.35	11	4.35	1	101	48
2023	5	ELA	1	2	0.79	13	5.14	1	109	27
2023	5	ELA	2	1	0.40	14	5.53	1	128	19
2023	5	ELA	3	2	0.79	16	6.32	2	140	16
2023	5	ELA	4	3	1.19	19	7.51	3	149	14
2023	5	ELA	5	1	0.40	20	7.91	4	156	13
2023	5	ELA	6	5	1.98	25	9.88	5	163	12
2023	5	ELA	7	7	2.77	32	12.65	7	168	12
2023	5	ELA	8	5	1.98	37	14.62	10	173	11
2023	5	ELA	9	8	3.16	45	17.79	13	178	11
2023	5	ELA	10	17	6.72	62	24.51	18	183	11
2023	5	ELA	11	12	4.74	74	29.25	23	187	11
2023	5	ELA	12	9	3.56	83	32.81	28	191	10
2023	5	ELA	13	14	5.53	97	38.34	32	195	10
2023	5	ELA	14	15	5.93	112	44.27	38	200	10
2023	5	ELA	15	16	6.32	128	50.59	45	204	10
2023	5	ELA	16	12	4.74	140	55.34	50	208	10
2023	5	ELA	17	14	5.53	154	60.87	55	212	10
2023	5	ELA	18	12	4.74	166	65.61	61	216	11
2023	5	ELA	19	16	6.32	182	71.94	66	221	11
2023	5	ELA	20	10	3.95	192	75.89	72	225	11
2023	5	ELA	21	8	3.16	200	79.05	76	230	12
2023	5	ELA	22	12	4.74	212	83.79	80	236	12
2023	5	ELA	23	11	4.35	223	88.14	86	242	13
2023	5	ELA	24	12	4.74	235	92.89	90	250	14
2023	5	ELA	25	6	2.37	241	95.26	94	258	16
2023	5	ELA	26	7	2.77	248	98.02	97	270	19
2023	5	ELA	27	2	0.79	250	98.81	98	290	27
2023	5	ELA	28	3	1.19	253	100.00	99	300	48

Grade 6 ELA

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	6	ELA	0	9	3.85	9	3.85	1	101	46
2023	6	ELA	1	1	0.43	10	4.27	1	119	25
2023	6	ELA	2	4	1.71	14	5.98	2	137	18
2023	6	ELA	3	1	0.43	15	6.41	3	148	15
2023	6	ELA	4	2	0.85	17	7.26	4	157	14
2023	6	ELA	5	0	0.00	17	7.26	4	164	12
2023	6	ELA	6	3	1.28	20	8.55	5	169	12
2023	6	ELA	7	19	8.12	39	16.67	10	175	11
2023	6	ELA	8	9	3.85	48	20.51	16	179	11
2023	6	ELA	9	9	3.85	57	24.36	20	184	10
2023	6	ELA	10	15	6.41	72	30.77	25	188	10
2023	6	ELA	11	11	4.70	83	35.47	31	192	10
2023	6	ELA	12	14	5.98	97	41.45	37	196	10
2023	6	ELA	13	13	5.56	110	47.01	43	200	10
2023	6	ELA	14	16	6.84	126	53.85	49	203	10
2023	6	ELA	15	10	4.27	136	58.12	55	207	10
2023	6	ELA	16	8	3.42	144	61.54	59	211	10
2023	6	ELA	17	8	3.42	152	64.96	62	215	10
2023	6	ELA	18	10	4.27	162	69.23	66	219	10
2023	6	ELA	19	10	4.27	172	73.50	70	223	10
2023	6	ELA	20	9	3.85	181	77.35	75	227	11
2023	6	ELA	21	7	2.99	188	80.34	78	232	11
2023	6	ELA	22	12	5.13	200	85.47	82	237	12
2023	6	ELA	23	7	2.99	207	88.46	87	243	12
2023	6	ELA	24	8	3.42	215	91.88	90	250	14
2023	6	ELA	25	9	3.85	224	95.73	94	258	15
2023	6	ELA	26	6	2.56	230	98.29	97	269	18
2023	6	ELA	27	4	1.71	234	100.00	99	287	25
2023	6	ELA	28	0	0.00	234	100.00	99	300	46

Grade 7 ELA

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	7	ELA	0	11	4.20	11	4.20	1	101	47
2023	7	ELA	1	2	0.76	13	4.96	2	110	26
2023	7	ELA	2	2	0.76	15	5.73	3	129	19
2023	7	ELA	3	2	0.76	17	6.49	4	141	16
2023	7	ELA	4	0	0.00	17	6.49	4	150	14
2023	7	ELA	5	0	0.00	17	6.49	4	157	13
2023	7	ELA	6	7	2.67	24	9.16	6	163	12
2023	7	ELA	7	3	1.15	27	10.31	8	169	12
2023	7	ELA	8	9	3.44	36	13.74	10	174	11
2023	7	ELA	9	14	5.34	50	19.08	14	178	11
2023	7	ELA	10	17	6.49	67	25.57	20	183	11
2023	7	ELA	11	12	4.58	79	30.15	26	187	10
2023	7	ELA	12	15	5.73	94	35.88	31	191	10
2023	7	ELA	13	11	4.20	105	40.08	36	195	10
2023	7	ELA	14	13	4.96	118	45.04	41	200	10
2023	7	ELA	15	21	8.02	139	53.05	48	204	10
2023	7	ELA	16	15	5.73	154	58.78	55	208	10
2023	7	ELA	17	18	6.87	172	65.65	61	212	10
2023	7	ELA	18	12	4.58	184	70.23	67	216	11
2023	7	ELA	19	15	5.73	199	75.95	73	221	11
2023	7	ELA	20	6	2.29	205	78.24	77	225	11
2023	7	ELA	21	10	3.82	215	82.06	80	230	12
2023	7	ELA	22	8	3.05	223	85.11	83	236	12
2023	7	ELA	23	7	2.67	230	87.79	86	242	13
2023	7	ELA	24	11	4.20	241	91.98	90	250	14
2023	7	ELA	25	13	4.96	254	96.95	94	258	16
2023	7	ELA	26	4	1.53	258	98.47	98	270	19
2023	7	ELA	27	4	1.53	262	100.00	99	289	26
2023	7	ELA	28	0	0.00	262	100.00	99	300	47

Grade 8 ELA

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	8	ELA	0	11	4.60	11	4.60	1	101	45
2023	8	ELA	1	4	1.67	15	6.28	2	120	25
2023	8	ELA	2	2	0.84	17	7.11	3	138	18
2023	8	ELA	3	0	0.00	17	7.11	3	149	15
2023	8	ELA	4	0	0.00	17	7.11	3	157	13
2023	8	ELA	5	2	0.84	19	7.95	4	164	12
2023	8	ELA	6	5	2.09	24	10.04	5	170	12
2023	8	ELA	7	14	5.86	38	15.90	9	175	11
2023	8	ELA	8	13	5.44	51	21.34	15	179	10
2023	8	ELA	9	17	7.11	68	28.45	22	184	10
2023	8	ELA	10	14	5.86	82	34.31	28	188	10
2023	8	ELA	11	10	4.18	92	38.49	34	192	10
2023	8	ELA	12	10	4.18	102	42.68	38	196	10
2023	8	ELA	13	20	8.37	122	51.05	44	200	10
2023	8	ELA	14	15	6.28	137	57.32	52	203	10
2023	8	ELA	15	11	4.60	148	61.92	58	207	10
2023	8	ELA	16	10	4.18	158	66.11	62	211	10
2023	8	ELA	17	6	2.51	164	68.62	66	215	10
2023	8	ELA	18	2	0.84	166	69.46	67	219	10
2023	8	ELA	19	4	1.67	170	71.13	69	223	10
2023	8	ELA	20	10	4.18	180	75.31	72	227	11
2023	8	ELA	21	3	1.26	183	76.57	74	232	11
2023	8	ELA	22	10	4.18	193	80.75	77	237	12
2023	8	ELA	23	15	6.28	208	87.03	83	243	12
2023	8	ELA	24	8	3.35	216	90.38	88	250	13
2023	8	ELA	25	10	4.18	226	94.56	92	258	15
2023	8	ELA	26	4	1.67	230	96.23	95	269	18
2023	8	ELA	27	6	2.51	236	98.74	97	287	25
2023	8	ELA	28	3	1.26	239	100.00	99	300	45

High School ELA

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	HS	ELA	0	8	3.49	8	3.49	1	101	38
2023	HS	ELA	1	0	0.00	8	3.49	1	122	21
2023	HS	ELA	2	1	0.44	9	3.93	1	137	15
2023	HS	ELA	3	0	0.00	9	3.93	1	146	13
2023	HS	ELA	4	1	0.44	10	4.37	1	153	11
2023	HS	ELA	5	0	0.00	10	4.37	1	159	10
2023	HS	ELA	6	6	2.62	16	6.99	3	164	10
2023	HS	ELA	7	3	1.31	19	8.30	5	169	9
2023	HS	ELA	8	9	3.93	28	12.23	7	173	9
2023	HS	ELA	9	8	3.49	36	15.72	11	176	9
2023	HS	ELA	10	10	4.37	46	20.09	15	180	8
2023	HS	ELA	11	14	6.11	60	26.20	21	183	8
2023	HS	ELA	12	14	6.11	74	32.31	27	187	8
2023	HS	ELA	13	8	3.49	82	35.81	32	190	8
2023	HS	ELA	14	9	3.93	91	39.74	36	193	8
2023	HS	ELA	15	5	2.18	96	41.92	39	196	8
2023	HS	ELA	16	15	6.55	111	48.47	43	200	8
2023	HS	ELA	17	10	4.37	121	52.84	49	203	8
2023	HS	ELA	18	12	5.24	133	58.08	54	206	8
2023	HS	ELA	19	7	3.06	140	61.14	58	210	9
2023	HS	ELA	20	6	2.62	146	63.76	61	214	9
2023	HS	ELA	21	12	5.24	158	69.00	65	218	9
2023	HS	ELA	22	10	4.37	168	73.36	70	222	10
2023	HS	ELA	23	12	5.24	180	78.60	75	227	10
2023	HS	ELA	24	12	5.24	192	83.84	81	233	11
2023	HS	ELA	25	11	4.80	203	88.65	86	240	13
2023	HS	ELA	26	10	4.37	213	93.01	91	250	15
2023	HS	ELA	27	10	4.37	223	97.38	95	265	21
2023	HS	ELA	28	6	2.62	229	100.00	99	290	38

Appendix N:

Mathematics Raw-to-Scale Conversion Tables and Distributions of Ability

The tables show the raw score and percentile for any scale score. It also includes counts and percentages at each score. The performance level *On Track* begins at a scale score of 200 and *Advanced* varies by grade. *Developing* is a Scale Score of 199 and below.

Grade 3 Mathematics

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	3	MATH	0	10	4.26	10	4.26	1	101	47
2023	3	MATH	1	2	0.85	12	5.11	1	118	26
2023	3	MATH	2	1	0.43	13	5.53	2	137	19
2023	3	MATH	3	0	0.00	13	5.53	2	149	16
2023	3	MATH	4	3	1.28	16	6.81	2	158	14
2023	3	MATH	5	3	1.28	19	8.09	4	165	13
2023	3	MATH	6	4	1.70	23	9.79	5	171	12
2023	3	MATH	7	11	4.68	34	14.47	9	177	12
2023	3	MATH	8	20	8.51	54	22.98	15	182	11
2023	3	MATH	9	15	6.38	69	29.36	23	186	11
2023	3	MATH	10	16	6.81	85	36.17	30	191	11
2023	3	MATH	11	21	8.94	106	45.11	38	195	10
2023	3	MATH	12	19	8.09	125	53.19	47	199	10
2023	3	MATH	13	13	5.53	138	58.72	54	204	10
2023	3	MATH	14	7	2.98	145	61.70	58	208	10
2023	3	MATH	15	16	6.81	161	68.51	63	212	11
2023	3	MATH	16	10	4.26	171	72.77	69	217	11
2023	3	MATH	17	10	4.26	181	77.02	74	221	11
2023	3	MATH	18	2	0.85	183	77.87	76	226	12
2023	3	MATH	19	10	4.26	193	82.13	79	232	12
2023	3	MATH	20	12	5.11	205	87.23	84	238	13
2023	3	MATH	21	8	3.40	213	90.64	89	245	14
2023	3	MATH	22	10	4.26	223	94.89	93	254	16
2023	3	MATH	23	7	2.98	230	97.87	96	265	19
2023	3	MATH	24	5	2.13	235	100.00	99	284	26
2023	3	MATH	25	0	0.00	235	100.00	99	300	47

Grade 4 Mathematics

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	4	MATH	0	10	3.92	10	3.92	1	101	53
2023	4	MATH	1	3	1.18	13	5.10	1	101	29
2023	4	MATH	2	0	0.00	13	5.10	2	122	21
2023	4	MATH	3	1	0.39	14	5.49	2	135	18
2023	4	MATH	4	1	0.39	15	5.88	2	145	16
2023	4	MATH	5	1	0.39	16	6.27	3	153	14
2023	4	MATH	6	1	0.39	17	6.67	3	159	13
2023	4	MATH	7	4	1.57	21	8.24	4	165	13
2023	4	MATH	8	8	3.14	29	11.37	7	171	12
2023	4	MATH	9	17	6.67	46	18.04	12	176	12
2023	4	MATH	10	14	5.49	60	23.53	18	181	12
2023	4	MATH	11	19	7.45	79	30.98	25	185	11
2023	4	MATH	12	10	3.92	89	34.90	30	189	11
2023	4	MATH	13	17	6.67	106	41.57	36	194	11
2023	4	MATH	14	14	5.49	120	47.06	42	198	11
2023	4	MATH	15	6	2.35	126	49.41	46	202	11
2023	4	MATH	16	16	6.27	142	55.69	51	206	11
2023	4	MATH	17	12	4.71	154	60.39	57	210	11
2023	4	MATH	18	15	5.88	169	66.27	62	214	11
2023	4	MATH	19	12	4.71	181	70.98	67	219	11
2023	4	MATH	20	12	4.71	193	75.69	72	223	11
2023	4	MATH	21	11	4.31	204	80.00	77	228	12
2023	4	MATH	22	6	2.35	210	82.35	80	233	12
2023	4	MATH	23	4	1.57	214	83.92	83	238	13
2023	4	MATH	24	13	5.10	227	89.02	86	244	13
2023	4	MATH	25	5	1.96	232	90.98	90	251	14
2023	4	MATH	26	11	4.31	243	95.29	93	259	16
2023	4	MATH	27	5	1.96	248	97.25	96	268	18
2023	4	MATH	28	4	1.57	252	98.82	98	281	21
2023	4	MATH	29	3	1.18	255	100.00	99	300	29
2023	4	MATH	30	0	0.00	255	100.00	99	300	53

Grade 5 Mathematics

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	5	MATH	0	12	4.78	12	4.78	1	101	52
2023	5	MATH	1	3	1.20	15	5.98	2	101	29
2023	5	MATH	2	2	0.80	17	6.77	3	119	21
2023	5	MATH	3	1	0.40	18	7.17	3	132	17
2023	5	MATH	4	0	0.00	18	7.17	4	141	15
2023	5	MATH	5	2	0.80	20	7.97	4	149	14
2023	5	MATH	6	2	0.80	22	8.76	5	155	13
2023	5	MATH	7	5	1.99	27	10.76	6	161	12
2023	5	MATH	8	4	1.59	31	12.35	8	167	12
2023	5	MATH	9	9	3.59	40	15.94	11	172	12
2023	5	MATH	10	8	3.19	48	19.12	14	176	11
2023	5	MATH	11	21	8.37	69	27.49	20	181	11
2023	5	MATH	12	12	4.78	81	32.27	27	185	11
2023	5	MATH	13	11	4.38	92	36.65	32	189	11
2023	5	MATH	14	13	5.18	105	41.83	37	193	11
2023	5	MATH	15	15	5.98	120	47.81	42	197	11
2023	5	MATH	16	11	4.38	131	52.19	48	201	11
2023	5	MATH	17	19	7.57	150	59.76	54	205	11
2023	5	MATH	18	7	2.79	157	62.55	59	210	11
2023	5	MATH	19	8	3.19	165	65.74	62	214	11
2023	5	MATH	20	14	5.58	179	71.31	67	218	11
2023	5	MATH	21	11	4.38	190	75.70	72	223	12
2023	5	MATH	22	12	4.78	202	80.48	76	228	12
2023	5	MATH	23	18	7.17	220	87.65	83	233	13
2023	5	MATH	24	9	3.59	229	91.24	89	239	13
2023	5	MATH	25	7	2.79	236	94.02	92	246	14
2023	5	MATH	26	4	1.59	240	95.62	95	254	15
2023	5	MATH	27	7	2.79	247	98.41	97	263	17
2023	5	MATH	28	1	0.40	248	98.80	99	276	21
2023	5	MATH	29	1	0.40	249	99.20	99	297	29
2023	5	MATH	30	2	0.80	251	100.00	99	300	52

Grade 6 Mathematics

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	6	MATH	0	12	5.11	12	5.11	1	101	52
2023	6	MATH	1	4	1.70	16	6.81	2	101	29
2023	6	MATH	2	2	0.85	18	7.66	3	120	21
2023	6	MATH	3	3	1.28	21	8.94	4	133	17
2023	6	MATH	4	0	0.00	21	8.94	5	142	15
2023	6	MATH	5	0	0.00	21	8.94	5	150	14
2023	6	MATH	6	2	0.85	23	9.79	5	157	13
2023	6	MATH	7	3	1.28	26	11.06	6	162	13
2023	6	MATH	8	5	2.13	31	13.19	8	168	12
2023	6	MATH	9	9	3.83	40	17.02	11	173	12
2023	6	MATH	10	16	6.81	56	23.83	17	177	11
2023	6	MATH	11	11	4.68	67	28.51	23	182	11
2023	6	MATH	12	16	6.81	83	35.32	29	186	11
2023	6	MATH	13	15	6.38	98	41.70	36	190	11
2023	6	MATH	14	10	4.26	108	45.96	41	194	11
2023	6	MATH	15	17	7.23	125	53.19	47	198	11
2023	6	MATH	16	19	8.09	144	61.28	55	202	11
2023	6	MATH	17	11	4.68	155	65.96	62	207	11
2023	6	MATH	18	15	6.38	170	72.34	68	211	11
2023	6	MATH	19	12	5.11	182	77.45	74	215	11
2023	6	MATH	20	10	4.26	192	81.70	79	219	11
2023	6	MATH	21	12	5.11	204	86.81	84	224	12
2023	6	MATH	22	10	4.26	214	91.06	88	229	12
2023	6	MATH	23	7	2.98	221	94.04	92	234	13
2023	6	MATH	24	3	1.28	224	95.32	94	240	13
2023	6	MATH	25	3	1.28	227	96.60	96	247	14
2023	6	MATH	26	4	1.70	231	98.30	97	255	16
2023	6	MATH	27	1	0.43	232	98.72	98	264	18
2023	6	MATH	28	0	0.00	232	98.72	99	277	21
2023	6	MATH	29	1	0.43	233	99.15	99	298	29
2023	6	MATH	30	2	0.85	235	100.00	99	300	52

Grade 7 Mathematics

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	7	MATH	0	11	4.23	11	4.23	1	101	55
2023	7	MATH	1	0	0.00	11	4.23	2	101	31
2023	7	MATH	2	3	1.15	14	5.38	2	112	22
2023	7	MATH	3	1	0.38	15	5.77	3	126	19
2023	7	MATH	4	2	0.77	17	6.54	4	136	16
2023	7	MATH	5	0	0.00	17	6.54	4	144	15
2023	7	MATH	6	1	0.38	18	6.92	4	151	14
2023	7	MATH	7	4	1.54	22	8.46	5	157	13
2023	7	MATH	8	11	4.23	33	12.69	8	163	13
2023	7	MATH	9	11	4.23	44	16.92	12	168	12
2023	7	MATH	10	20	7.69	64	24.62	18	173	12
2023	7	MATH	11	19	7.31	83	31.92	26	178	12
2023	7	MATH	12	13	5.00	96	36.92	32	182	12
2023	7	MATH	13	14	5.38	110	42.31	38	187	11
2023	7	MATH	14	15	5.77	125	48.08	44	191	11
2023	7	MATH	15	11	4.23	136	52.31	49	195	11
2023	7	MATH	16	16	6.15	152	58.46	55	200	11
2023	7	MATH	17	11	4.23	163	62.69	60	204	11
2023	7	MATH	18	6	2.31	169	65.00	63	208	12
2023	7	MATH	19	11	4.23	180	69.23	66	213	12
2023	7	MATH	20	14	5.38	194	74.62	71	218	12
2023	7	MATH	21	8	3.08	202	77.69	76	223	12
2023	7	MATH	22	11	4.23	213	81.92	79	228	13
2023	7	MATH	23	6	2.31	219	84.23	83	233	13
2023	7	MATH	24	8	3.08	227	87.31	85	240	14
2023	7	MATH	25	12	4.62	239	91.92	89	247	15
2023	7	MATH	26	8	3.08	247	95.00	93	255	16
2023	7	MATH	27	6	2.31	253	97.31	96	265	19
2023	7	MATH	28	4	1.54	257	98.85	98	279	22
2023	7	MATH	29	3	1.15	260	100.00	99	300	31
2023	7	MATH	30	0	0.00	260	100.00	99	300	55

Grade 8 Mathematics

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	8	MATH	0	11	4.68	11	4.68	1	101	55
2023	8	MATH	1	3	1.28	14	5.96	1	101	31
2023	8	MATH	2	0	0.00	14	5.96	2	108	23
2023	8	MATH	3	1	0.43	15	6.38	2	122	19
2023	8	MATH	4	2	0.85	17	7.23	3	132	17
2023	8	MATH	5	3	1.28	20	8.51	4	141	15
2023	8	MATH	6	4	1.70	24	10.21	5	148	14
2023	8	MATH	7	3	1.28	27	11.49	7	155	14
2023	8	MATH	8	2	0.85	29	12.34	8	161	13
2023	8	MATH	9	4	1.70	33	14.04	9	166	13
2023	8	MATH	10	26	11.06	59	25.11	16	171	12
2023	8	MATH	11	17	7.23	76	32.34	25	176	12
2023	8	MATH	12	17	7.23	93	39.57	33	181	12
2023	8	MATH	13	17	7.23	110	46.81	40	186	12
2023	8	MATH	14	16	6.81	126	53.62	48	190	12
2023	8	MATH	15	7	2.98	133	56.60	53	195	12
2023	8	MATH	16	9	3.83	142	60.43	56	199	12
2023	8	MATH	17	12	5.11	154	65.53	61	204	12
2023	8	MATH	18	9	3.83	163	69.36	66	208	12
2023	8	MATH	19	9	3.83	172	73.19	70	213	12
2023	8	MATH	20	14	5.96	186	79.15	75	218	12
2023	8	MATH	21	9	3.83	195	82.98	80	223	12
2023	8	MATH	22	8	3.40	203	86.38	84	228	13
2023	8	MATH	23	5	2.13	208	88.51	87	234	13
2023	8	MATH	24	6	2.55	214	91.06	89	240	14
2023	8	MATH	25	5	2.13	219	93.19	92	247	15
2023	8	MATH	26	5	2.13	224	95.32	94	255	16
2023	8	MATH	27	6	2.55	230	97.87	96	265	19
2023	8	MATH	28	2	0.85	232	98.72	98	279	22
2023	8	MATH	29	2	0.85	234	99.57	99	300	31
2023	8	MATH	30	1	0.43	235	100.00	99	300	55

High School Mathematics

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	HS	MATH	0	6	2.64	6	2.64	1	101	52
2023	HS	MATH	1	0	0.00	6	2.64	1	101	29
2023	HS	MATH	2	1	0.44	7	3.08	1	107	21
2023	HS	MATH	3	0	0.00	7	3.08	1	120	18
2023	HS	MATH	4	0	0.00	7	3.08	1	129	16
2023	HS	MATH	5	1	0.44	8	3.52	1	137	14
2023	HS	MATH	6	3	1.32	11	4.85	2	144	13
2023	HS	MATH	7	3	1.32	14	6.17	3	150	13
2023	HS	MATH	8	4	1.76	18	7.93	5	155	12
2023	HS	MATH	9	19	8.37	37	16.30	10	160	12
2023	HS	MATH	10	9	3.96	46	20.26	16	165	11
2023	HS	MATH	11	10	4.41	56	24.67	21	169	11
2023	HS	MATH	12	8	3.52	64	28.19	25	173	11
2023	HS	MATH	13	12	5.29	76	33.48	29	178	11
2023	HS	MATH	14	15	6.61	91	40.09	35	182	11
2023	HS	MATH	15	6	2.64	97	42.73	40	186	11
2023	HS	MATH	16	8	3.52	105	46.26	43	190	11
2023	HS	MATH	17	10	4.41	115	50.66	47	194	11
2023	HS	MATH	18	10	4.41	125	55.07	52	198	11
2023	HS	MATH	19	9	3.96	134	59.03	56	202	11
2023	HS	MATH	20	12	5.29	146	64.32	61	207	11
2023	HS	MATH	21	7	3.08	153	67.40	65	212	12
2023	HS	MATH	22	8	3.52	161	70.93	68	217	12
2023	HS	MATH	23	15	6.61	176	77.53	73	222	13
2023	HS	MATH	24	15	6.61	191	84.14	80	228	13
2023	HS	MATH	25	9	3.96	200	88.11	86	234	14
2023	HS	MATH	26	9	3.96	209	92.07	90	242	16
2023	HS	MATH	27	9	3.96	218	96.04	94	252	17
2023	HS	MATH	28	5	2.20	223	98.24	97	264	21
2023	HS	MATH	29	3	1.32	226	99.56	99	285	29
2023	HS	MATH	30	1	0.44	227	100.00	99	300	52

Appendix O:

Science Raw-to-Scale Conversion Tables and Distributions of Ability

The tables show the raw score and percentile for any scale score. It also includes counts and percentages at each score. The performance level *On Track* begins at a scale score of 200 and *Advanced* varies begins at a scale score of 250. *Developing* is a Scale Score of 199 and below.

Grade 5 Science

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	5	SCIENCE	0	12	4.78	12	4.78	1	101	54
2023	5	SCIENCE	1	3	1.20	15	5.98	2	101	30
2023	5	SCIENCE	2	1	0.40	16	6.37	3	105	22
2023	5	SCIENCE	3	2	0.80	18	7.17	3	119	19
2023	5	SCIENCE	4	3	1.20	21	8.37	4	129	17
2023	5	SCIENCE	5	3	1.20	24	9.56	6	138	15
2023	5	SCIENCE	6	3	1.20	27	10.76	7	146	15
2023	5	SCIENCE	7	7	2.79	34	13.55	9	153	14
2023	5	SCIENCE	8	13	5.18	47	18.73	13	159	13
2023	5	SCIENCE	9	11	4.38	58	23.11	18	165	13
2023	5	SCIENCE	10	19	7.57	77	30.68	24	171	13
2023	5	SCIENCE	11	14	5.58	91	36.25	31	176	13
2023	5	SCIENCE	12	18	7.17	109	43.43	37	182	13
2023	5	SCIENCE	13	15	5.98	124	49.40	44	187	13
2023	5	SCIENCE	14	21	8.37	145	57.77	51	192	13
2023	5	SCIENCE	15	15	5.98	160	63.75	59	198	13
2023	5	SCIENCE	16	11	4.38	171	68.13	64	204	13
2023	5	SCIENCE	17	10	3.98	181	72.11	68	210	13
2023	5	SCIENCE	18	8	3.19	189	75.30	72	216	14
2023	5	SCIENCE	19	15	5.98	204	81.27	77	223	14
2023	5	SCIENCE	20	19	7.57	223	88.84	83	230	15
2023	5	SCIENCE	21	8	3.19	231	92.03	89	239	17
2023	5	SCIENCE	22	9	3.59	240	95.62	93	249	19
2023	5	SCIENCE	23	5	1.99	245	97.61	97	263	22
2023	5	SCIENCE	24	6	2.39	251	100.00	99	285	30
2023	5	SCIENCE	25	0	0.00	251	100.00	99	300	54

Grade 8 Science

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	8	SCIENCE	0	10	4.22	10	4.22	1	103	37
2023	8	SCIENCE	1	2	0.84	12	5.06	2	128	20
2023	8	SCIENCE	2	3	1.27	15	6.33	3	143	15
2023	8	SCIENCE	3	2	0.84	17	7.17	4	153	13
2023	8	SCIENCE	4	1	0.42	18	7.59	5	160	11
2023	8	SCIENCE	5	4	1.69	22	9.28	6	166	10
2023	8	SCIENCE	6	8	3.38	30	12.66	8	171	10
2023	8	SCIENCE	7	8	3.38	38	16.03	12	175	9
2023	8	SCIENCE	8	5	2.11	43	18.14	15	180	9
2023	8	SCIENCE	9	16	6.75	59	24.89	19	184	9
2023	8	SCIENCE	10	12	5.06	71	29.96	25	187	9
2023	8	SCIENCE	11	15	6.33	86	36.29	31	191	9
2023	8	SCIENCE	12	15	6.33	101	42.62	37	195	8
2023	8	SCIENCE	13	21	8.86	122	51.48	45	198	8
2023	8	SCIENCE	14	15	6.33	137	57.81	53	202	9
2023	8	SCIENCE	15	13	5.49	150	63.29	59	206	9
2023	8	SCIENCE	16	8	3.38	158	66.67	64	209	9
2023	8	SCIENCE	17	13	5.49	171	72.15	68	213	9
2023	8	SCIENCE	18	7	2.95	178	75.11	73	217	9
2023	8	SCIENCE	19	12	5.06	190	80.17	77	222	10
2023	8	SCIENCE	20	12	5.06	202	85.23	82	227	10
2023	8	SCIENCE	21	9	3.80	211	89.03	87	233	11
2023	8	SCIENCE	22	12	5.06	223	94.09	91	240	13
2023	8	SCIENCE	23	5	2.11	228	96.20	95	249	15
2023	8	SCIENCE	24	8	3.38	236	99.58	98	264	20
2023	8	SCIENCE	25	1	0.42	237	100.00	99	289	37

High School Science

Admin	Grade	Content Area	Raw Score	Count	Percent	Cum. Count	Cum. Percent	Percentile	Scale Score	*CSEM*
2023	HS	SCIENCE	0	7	3.10	7	3.10	1	101	48
2023	HS	SCIENCE	1	0	0.00	7	3.10	1	103	27
2023	HS	SCIENCE	2	0	0.00	7	3.10	1	122	19
2023	HS	SCIENCE	3	0	0.00	7	3.10	1	135	16
2023	HS	SCIENCE	4	1	0.44	8	3.54	1	144	14
2023	HS	SCIENCE	5	1	0.44	9	3.98	1	151	13
2023	HS	SCIENCE	6	4	1.77	13	5.75	2	157	12
2023	HS	SCIENCE	7	2	0.88	15	6.64	4	163	12
2023	HS	SCIENCE	8	11	4.87	26	11.50	7	168	11
2023	HS	SCIENCE	9	9	3.98	35	15.49	11	173	11
2023	HS	SCIENCE	10	12	5.31	47	20.80	16	178	11
2023	HS	SCIENCE	11	12	5.31	59	26.11	21	182	11
2023	HS	SCIENCE	12	10	4.42	69	30.53	26	187	11
2023	HS	SCIENCE	13	8	3.54	77	34.07	30	191	10
2023	HS	SCIENCE	14	14	6.19	91	40.27	35	195	10
2023	HS	SCIENCE	15	9	3.98	100	44.25	41	199	10
2023	HS	SCIENCE	16	12	5.31	112	49.56	45	204	11
2023	HS	SCIENCE	17	9	3.98	121	53.54	50	208	11
2023	HS	SCIENCE	18	12	5.31	133	58.85	55	212	11
2023	HS	SCIENCE	19	5	2.21	138	61.06	59	217	11
2023	HS	SCIENCE	20	13	5.75	151	66.81	63	222	11
2023	HS	SCIENCE	21	15	6.64	166	73.45	69	227	12
2023	HS	SCIENCE	22	17	7.52	183	80.97	77	233	12
2023	HS	SCIENCE	23	8	3.54	191	84.51	82	239	13
2023	HS	SCIENCE	24	13	5.75	204	90.27	87	247	14
2023	HS	SCIENCE	25	11	4.87	215	95.13	93	256	16
2023	HS	SCIENCE	26	5	2.21	220	97.35	96	268	19
2023	HS	SCIENCE	27	4	1.77	224	99.12	98	287	27
2023	HS	SCIENCE	28	2	0.88	226	100.00	99	300	48

Appendix P:

ELA, Mathematics, and Science Demographic Summary Sheets

Grade 3 ELA

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		238	14.73	6.48	209.88	37.28	30.25	56.72	13.03
Gender	Male	142	14.61	6.23	209.82	33.97	31.69	55.63	12.68
	Female	96	14.92	6.86	209.98	41.88	28.13	58.33	13.54
Ethnicity	AM	4	13.00	3.56	203.00	14.72	25.00	75.00	0.00
	AS	9	14.22	4.02	208.56	17.13	33.33	66.67	0.00
	BL	26	14.62	7.38	210.35	39.95	38.46	38.46	23.08
	HI	50	15.30	6.07	213.80	32.81	32.00	54.00	14.00
	PI	1	15.00	–	211.00	–	0.00	100.00	0.00
	WH	134	14.28	6.66	206.58	39.86	29.85	61.19	8.96
	MU	14	18.00	6.19	229.36	33.57	14.29	42.86	42.86
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	238	14.73	6.48	209.88	37.28	30.25	56.72	13.03
ELL	No	232	14.72	6.54	209.84	37.70	30.17	56.47	13.36
	Yes	6	15.00	3.46	211.33	14.45	33.33	66.67	0.00
Food Service	No	95	13.77	6.42	204.63	36.78	34.74	54.74	10.53
	Yes	143	15.37	6.46	213.37	37.33	27.27	58.04	14.69

Note. 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 ELA

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		258	15.04	6.92	209.64	37.82	34.11	54.26	11.63
Gender	Male	164	15.35	6.96	211.35	37.10	31.71	54.88	13.41
	Female	94	14.50	6.87	206.66	39.07	38.30	53.19	8.51
Ethnicity	AM	4	9.25	7.37	175.50	51.80	75.00	25.00	0.00
	AS	7	13.43	5.62	203.57	22.64	42.86	57.14	0.00
	BL	19	12.89	7.55	193.68	45.74	36.84	63.16	0.00
	HI	54	14.48	6.41	206.43	33.85	35.19	57.41	7.41
	PI	1	13.00	–	203.00	–	0.00	100.00	0.00
	WH	162	15.78	7.12	213.93	38.70	31.48	52.47	16.05
	MU	11	14.00	5.00	206.73	18.81	45.45	54.55	0.00
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	258	15.04	6.92	209.64	37.82	34.11	54.26	11.63
ELL	No	255	14.97	6.92	209.31	37.87	34.51	54.12	11.37
	Yes	3	21.33	4.73	238.00	21.93	0.00	66.67	33.33
Food Service	No	108	14.85	6.44	210.26	33.37	38.89	51.85	9.26
	Yes	150	15.18	7.27	209.20	40.83	30.67	56.00	13.33

Note. 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 ELA

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		253	15.23	6.73	204.67	37.94	38.34	49.80	11.86
Gender	Male	168	14.90	6.88	202.79	38.95	41.07	48.21	10.71
	Female	85	15.87	6.41	208.40	35.79	32.94	52.94	14.12
Ethnicity	AM	4	21.75	3.40	238.50	23.22	0.00	75.00	25.00
	AS	5	15.60	2.19	206.40	9.45	20.00	80.00	0.00
	BL	23	16.09	6.16	207.17	32.99	26.09	69.57	4.35
	HI	62	14.29	6.17	199.92	34.26	45.16	50.00	4.84
	PI	0	–	–	–	–	–	–	–
	WH	148	15.21	7.15	204.76	41.01	39.86	44.59	15.54
	MU	11	16.45	6.52	212.00	33.67	27.27	54.55	18.18
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	253	15.23	6.73	204.67	37.94	38.34	49.80	11.86
ELL	No	247	15.21	6.77	204.53	38.15	38.06	50.20	11.74
	Yes	6	15.83	5.19	210.50	29.83	50.00	33.33	16.67
Food Service	No	109	14.58	6.42	202.05	36.72	40.37	50.46	9.17
	Yes	144	15.72	6.93	206.66	38.85	36.81	49.31	13.89

Note. 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 ELA

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		234	14.41	6.82	204.51	35.94	41.45	47.01	11.54
Gender	Male	152	14.61	6.44	206.43	32.57	41.45	47.37	11.18
	Female	82	14.05	7.49	200.94	41.44	41.46	46.34	12.20
Ethnicity	AM	2	18.00	8.49	223.00	38.18	50.00	0.00	50.00
	AS	10	13.50	4.28	201.30	16.81	40.00	60.00	0.00
	BL	21	14.43	7.81	204.38	37.43	47.62	42.86	9.52
	HI	38	13.84	7.25	202.55	39.20	47.37	36.84	15.79
	PI	2	13.00	15.56	193.50	79.90	50.00	0.00	50.00
	WH	147	14.71	6.75	205.47	36.15	38.78	50.34	10.88
	MU	14	13.21	5.82	201.14	32.14	42.86	50.00	7.14
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	234	14.41	6.82	204.51	35.94	41.45	47.01	11.54
ELL	No	230	14.38	6.81	204.30	35.97	41.30	47.39	11.30
	Yes	4	16.50	8.19	216.75	36.56	50.00	25.00	25.00
Food Service	No	113	13.86	6.71	201.87	35.98	46.02	45.13	8.85
	Yes	121	14.93	6.90	206.98	35.87	37.19	48.76	14.05

Note. 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 ELA

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		262	14.92	6.50	203.21	36.29	40.08	47.71	12.21
Gender	Male	168	15.18	6.34	204.80	34.83	38.69	48.21	13.10
	Female	94	14.47	6.79	200.37	38.78	42.55	46.81	10.64
Ethnicity	AM	7	8.29	6.47	164.86	43.56	85.71	14.29	0.00
	AS	7	16.14	4.95	209.43	22.08	14.29	85.71	0.00
	BL	20	11.65	6.29	185.50	37.34	60.00	35.00	5.00
	HI	54	14.15	5.03	200.17	22.97	40.74	57.41	1.85
	PI	1	0.00	–	101.00	–	100.00	0.00	0.00
	WH	154	16.04	6.65	209.10	37.80	35.06	46.75	18.18
	MU	19	14.32	6.64	200.00	35.69	47.37	42.11	10.53
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	262	14.92	6.50	203.21	36.29	40.08	47.71	12.21
ELL	No	258	14.90	6.55	203.10	36.55	40.70	46.90	12.40
	Yes	4	16.50	1.91	210.00	7.66	0.00	100.00	0.00
Food Service	No	111	15.43	5.92	206.52	31.22	38.74	48.65	12.61
	Yes	151	14.55	6.89	200.77	39.53	41.06	47.02	11.92

Note. 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 ELA

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		239	14.23	7.20	204.07	39.53	42.68	44.35	12.97
Gender	Male	165	14.24	7.22	204.07	39.96	42.42	44.85	12.73
	Female	74	14.23	7.19	204.08	38.82	43.24	43.24	13.51
Ethnicity	AM	2	14.50	9.19	205.50	37.48	50.00	50.00	0.00
	AS	7	16.29	6.18	213.86	26.79	28.57	57.14	14.29
	BL	20	12.70	7.34	196.80	42.83	50.00	40.00	10.00
	HI	55	13.40	6.62	200.07	34.84	41.82	49.09	9.09
	PI	0	–	–	–	–	–	–	–
	WH	137	14.74	7.47	206.55	41.87	41.61	42.34	16.06
	MU	18	13.83	7.17	201.56	37.41	50.00	44.44	5.56
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	239	14.23	7.20	204.07	39.53	42.68	44.35	12.97
ELL	No	238	14.24	7.21	204.08	39.61	42.86	44.12	13.03
	Yes	1	14.00	–	203.00	–	0.00	100.00	0.00
Food Service	No	92	13.74	7.12	200.68	39.51	47.83	41.30	10.87
	Yes	147	14.54	7.25	206.19	39.52	39.46	46.26	14.29

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

High School ELA

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		229	16.69	7.05	204.86	34.99	41.92	46.72	11.35
Gender	Male	142	16.16	7.13	202.61	35.11	45.77	45.07	9.15
	Female	87	17.55	6.87	208.54	34.68	35.63	49.43	14.94
Ethnicity	AM	5	19.40	8.62	227.20	49.23	40.00	20.00	40.00
	AS	5	8.80	2.39	175.20	9.04	100.00	0.00	0.00
	BL	23	17.74	5.40	209.96	27.00	34.78	56.52	8.70
	HI	50	17.52	6.97	208.30	33.26	36.00	56.00	8.00
	PI	2	11.00	1.41	183.50	4.95	100.00	0.00	0.00
	WH	136	16.46	7.38	203.28	37.16	43.38	44.12	12.50
	MU	8	17.00	4.84	205.50	21.04	25.00	62.50	12.50
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	229	16.69	7.05	204.86	34.99	41.92	46.72	11.35
ELL	No	227	16.70	7.07	204.90	35.12	41.85	46.70	11.45
	Yes	2	16.00	5.66	200.50	19.09	50.00	50.00	0.00
Food Service	No	103	16.02	7.30	201.35	36.31	46.60	42.72	10.68
	Yes	126	17.24	6.82	207.73	33.74	38.10	50.00	11.90

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

Grade 3 Mathematics

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		235	12.84	5.87	202.67	35.36	53.19	37.45	9.36
Gender	Male	141	12.82	5.90	203.09	35.23	53.90	36.88	9.22
	Female	94	12.88	5.84	202.04	35.73	52.13	38.30	9.57
Ethnicity	AM	4	14.00	4.76	207.75	20.93	25.00	75.00	0.00
	AS	9	11.89	5.51	199.89	26.07	66.67	33.33	0.00
	BL	26	12.42	6.36	199.96	38.45	57.69	30.77	11.54
	HI	50	13.70	5.65	208.78	33.49	48.00	38.00	14.00
	PI	1	7.00	–	177.00	–	100.00	0.00	0.00
	WH	131	12.49	5.90	199.74	36.31	54.96	38.93	6.11
	MU	14	14.57	6.14	215.50	35.22	42.86	28.57	28.57
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	235	12.84	5.87	202.67	35.36	53.19	37.45	9.36
ELL	No	229	12.79	5.85	202.28	35.23	53.28	37.55	9.17
	Yes	6	14.67	6.80	217.50	40.55	50.00	33.33	16.67
Food Service	No	93	12.22	5.85	199.14	36.29	52.69	39.78	7.53
	Yes	142	13.25	5.86	204.99	34.67	53.52	35.92	10.56

Note. 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 Mathematics

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		255	15.50	6.82	203.82	37.63	47.06	41.96	10.98
Gender	Male	162	16.07	6.68	207.50	36.39	41.98	45.68	12.35
	Female	93	14.49	6.98	197.41	39.07	55.91	35.48	8.60
Ethnicity	AM	3	14.67	3.21	200.33	13.43	33.33	66.67	0.00
	AS	7	15.14	6.84	201.57	32.79	42.86	57.14	0.00
	BL	18	14.67	7.03	197.28	41.06	44.44	44.44	11.11
	HI	54	14.78	6.25	201.07	34.34	53.70	38.89	7.41
	PI	1	16.00	–	206.00	–	0.00	100.00	0.00
	WH	161	15.80	7.16	205.24	39.71	45.96	40.99	13.04
	MU	11	16.45	5.80	209.45	27.14	45.45	45.45	9.09
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	255	15.50	6.82	203.82	37.63	47.06	41.96	10.98
ELL	No	252	15.43	6.80	203.37	37.34	47.62	41.67	10.71
	Yes	3	21.33	7.09	241.67	51.60	0.00	66.67	33.33
Food Service	No	107	15.00	6.43	201.71	34.55	49.53	42.06	8.41
	Yes	148	15.86	7.09	205.34	39.75	45.27	41.89	12.84

Note. 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 Mathematics

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		251	15.75	6.94	199.65	37.70	47.81	46.22	5.98
Gender	Male	166	15.75	7.09	199.66	38.73	50.60	43.98	5.42
	Female	85	15.74	6.68	199.64	35.81	42.35	50.59	7.06
Ethnicity	AM	4	20.25	4.50	220.75	20.50	25.00	75.00	0.00
	AS	5	19.40	4.45	218.00	22.77	20.00	60.00	20.00
	BL	23	16.65	5.80	203.48	30.13	43.48	56.52	0.00
	HI	61	14.82	7.18	194.26	38.33	52.46	44.26	3.28
	PI	0	–	–	–	–	–	–	–
	WH	147	15.65	7.11	199.71	39.48	48.98	42.86	8.16
	MU	11	16.91	6.61	204.64	32.24	36.36	63.64	0.00
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	251	15.75	6.94	199.65	37.70	47.81	46.22	5.98
ELL	No	245	15.76	6.98	199.67	38.01	47.76	46.12	6.12
	Yes	6	15.33	5.47	199.00	23.37	50.00	50.00	0.00
Food Service	No	109	15.08	6.53	196.94	34.68	54.13	42.20	3.67
	Yes	142	16.25	7.22	201.73	39.85	42.96	49.30	7.75

Note. 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 Mathematics

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		235	14.57	6.45	194.58	35.95	53.19	45.53	1.28
Gender	Male	152	15.35	6.06	199.33	33.12	50.66	47.37	1.97
	Female	83	13.13	6.94	185.89	39.36	57.83	42.17	0.00
Ethnicity	AM	2	17.00	5.66	207.00	24.04	50.00	50.00	0.00
	AS	10	13.30	6.50	187.30	34.76	50.00	50.00	0.00
	BL	21	15.05	8.83	197.52	54.92	47.62	42.86	9.52
	HI	38	14.37	6.36	193.29	34.88	55.26	44.74	0.00
	PI	2	10.50	14.85	162.50	86.97	50.00	50.00	0.00
	WH	148	14.63	6.27	194.96	34.10	54.73	44.59	0.68
	MU	14	14.86	4.00	197.71	17.17	42.86	57.14	0.00
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	235	14.57	6.45	194.58	35.95	53.19	45.53	1.28
ELL	No	231	14.59	6.48	194.65	36.18	52.81	45.89	1.30
	Yes	4	13.25	4.99	190.75	20.92	75.00	25.00	0.00
Food Service	No	113	14.09	6.76	192.33	38.19	55.75	42.48	1.77
	Yes	122	15.01	6.15	196.67	33.76	50.82	48.36	0.82

Note. 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 Mathematics

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		260	15.42	6.91	197.72	38.38	52.31	46.54	1.15
Gender	Male	167	15.52	6.97	197.89	38.05	51.50	48.50	0.00
	Female	93	15.24	6.85	197.43	39.17	53.76	43.01	3.23
Ethnicity	AM	7	10.57	8.54	169.00	50.46	71.43	28.57	0.00
	AS	7	15.86	3.44	199.43	15.25	42.86	57.14	0.00
	BL	20	13.15	6.52	185.40	36.80	70.00	30.00	0.00
	HI	53	14.40	5.52	192.34	27.96	58.49	41.51	0.00
	PI	1	0.00	–	101.00	–	100.00	0.00	0.00
	WH	153	16.51	7.19	203.80	40.14	45.75	52.29	1.96
	MU	19	14.32	6.89	191.84	39.08	63.16	36.84	0.00
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	260	15.42	6.91	197.72	38.38	52.31	46.54	1.15
ELL	No	256	15.37	6.94	197.49	38.54	52.73	46.09	1.17
	Yes	4	18.50	4.80	212.75	24.55	25.00	75.00	0.00
FLS	No	110	15.64	6.15	199.98	32.55	53.64	45.45	0.91
	Yes	150	15.26	7.44	196.07	42.18	51.33	47.33	1.33

Note. 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 Mathematics

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		235	14.78	6.77	193.31	38.52	60.43	37.45	2.13
Gender	Male	162	15.04	6.94	194.80	39.95	59.26	37.65	3.09
	Female	73	14.19	6.40	189.99	35.16	63.01	36.99	0.00
Ethnicity	AM	2	18.50	9.19	214.00	46.67	50.00	50.00	0.00
	AS	7	20.00	4.36	220.14	23.49	28.57	71.43	0.00
	BL	20	13.25	7.57	186.20	45.33	75.00	20.00	5.00
	HI	55	13.58	6.22	186.71	34.95	67.27	30.91	1.82
	PI	0	–	–	–	–	–	–	–
	WH	133	15.34	6.77	196.35	38.86	56.39	41.35	2.26
	MU	18	13.56	7.26	186.17	39.01	66.67	33.33	0.00
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	235	14.78	6.77	193.31	38.52	60.43	37.45	2.13
ELL	No	234	14.74	6.76	193.11	38.48	60.68	37.18	2.14
	Yes	1	24.00	–	240.00	–	0.00	100.00	0.00
FLS	No	90	14.64	6.16	192.10	35.19	64.44	34.44	1.11
	Yes	145	14.86	7.15	194.06	40.55	57.93	39.31	2.76

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

High School Mathematics

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		227	17.08	6.92	196.79	35.81	55.07	40.97	3.96
Gender	Male	141	17.19	7.03	197.62	37.01	55.32	39.72	4.96
	Female	86	16.90	6.77	195.43	33.90	54.65	43.02	2.33
Ethnicity	AM	5	21.40	5.90	219.60	33.62	20.00	60.00	20.00
	AS	5	13.00	5.87	177.40	25.67	80.00	20.00	0.00
	BL	23	17.57	5.06	198.22	23.76	56.52	43.48	0.00
	HI	50	18.34	6.78	202.22	33.50	42.00	58.00	0.00
	PI	2	11.00	–	169.00	–	100.00	0.00	0.00
	WH	134	16.64	7.30	195.08	38.93	59.70	34.33	5.97
	MU	8	16.50	6.26	192.25	28.08	50.00	50.00	0.00
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	227	17.08	6.92	196.79	35.81	55.07	40.97	3.96
ELL	No	225	17.10	6.93	196.89	35.90	55.11	40.89	4.00
	Yes	2	15.00	7.07	186.00	29.70	50.00	50.00	0.00
Food Service	No	102	16.13	7.33	192.58	39.34	62.75	31.37	5.88
	Yes	125	17.86	6.49	200.23	32.39	48.80	48.80	2.40

Note. 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 Science

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		251	13.39	5.93	190.48	39.58	63.75	31.87	4.38
Gender	Male	166	13.20	6.14	189.58	41.75	64.46	29.52	6.02
	Female	85	13.78	5.51	192.24	35.13	62.35	36.47	1.18
Ethnicity	AM	4	18.25	7.68	229.25	55.72	25.00	50.00	25.00
	AS	5	12.80	1.92	186.00	10.27	100.00	0.00	0.00
	BL	23	14.17	5.10	193.87	31.97	56.52	43.48	0.00
	HI	61	12.26	5.90	182.51	38.37	70.49	27.87	1.64
	PI	0	–	–	–	–	–	–	–
	WH	147	13.55	6.12	191.98	41.27	62.59	31.29	6.12
	MU	11	14.45	5.30	195.55	33.97	54.55	45.45	0.00
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	251	13.39	5.93	190.48	39.58	63.75	31.87	4.38
ELL	No	245	13.39	5.98	190.49	39.92	63.27	32.24	4.49
	Yes	6	13.50	3.99	190.17	23.53	83.33	16.67	0.00
Food Service	No	109	12.64	5.61	185.48	36.42	71.56	26.61	1.83
	Yes	142	13.97	6.13	194.32	41.56	57.75	35.92	6.34

Note. 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 Science

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		237	13.49	6.10	199.64	32.59	51.48	44.73	3.80
Gender	Male	163	13.55	6.12	199.63	32.82	50.92	45.40	3.68
	Female	74	13.36	6.07	199.66	32.31	52.70	43.24	4.05
Ethnicity	AM	2	15.50	6.36	209.00	25.46	50.00	50.00	0.00
	AS	7	15.57	5.16	208.71	20.76	28.57	71.43	0.00
	BL	20	10.80	6.14	185.15	35.03	60.00	40.00	0.00
	HI	55	13.18	5.97	198.55	31.90	58.18	36.36	5.45
	PI	0	–	–	–	–	–	–	–
	WH	135	13.99	6.14	202.05	33.49	48.15	47.41	4.44
	MU	18	12.67	6.11	196.39	27.57	55.56	44.44	0.00
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	237	13.49	6.10	199.64	32.59	51.48	44.73	3.80
ELL	No	236	13.49	6.11	199.64	32.66	51.27	44.92	3.81
	Yes	1	13.00	–	198.00	–	100.00	0.00	0.00
Food Service	No	90	13.00	5.85	197.24	31.01	54.44	42.22	3.33
	Yes	147	13.79	6.24	201.10	33.55	49.66	46.26	4.08

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

High School Science

Group	Subgroup	Valid *N*	Raw Scores		Scale Scores		Percent in Performance Level		
			Mean	*SD*	Mean	*SD*	Developing	On Track	Advanced
Overall		226	16.34	6.48	207.20	35.98	44.25	46.02	9.73
Gender	Male	140	16.18	6.36	206.28	35.91	45.00	46.43	8.57
	Female	86	16.60	6.71	208.71	36.25	43.02	45.35	11.63
Ethnicity	AM	5	18.80	7.26	227.20	47.06	40.00	20.00	40.00
	AS	5	14.20	5.89	196.20	26.52	60.00	40.00	0.00
	BL	23	17.91	5.45	217.61	34.13	39.13	43.48	17.39
	HI	50	17.00	5.71	209.34	29.60	38.00	58.00	4.00
	PI	2	9.00	1.41	173.00	7.07	100.00	0.00	0.00
	WH	133	15.87	7.01	204.65	38.96	46.62	42.86	10.53
	MU	8	17.13	3.60	209.38	16.79	37.50	62.50	0.00
Special Ed	No	0	–	–	–	–	–	–	–
	Yes	226	16.34	6.48	207.20	35.98	44.25	46.02	9.73
ELL	No	224	16.35	6.51	207.27	36.12	44.20	45.98	9.82
	Yes	2	15.00	2.83	199.50	12.02	50.00	50.00	0.00
Food Service	No	101	15.61	6.92	203.98	39.19	48.51	39.60	11.88
	Yes	125	16.93	6.07	209.81	33.08	40.80	51.20	8.00

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

Appendix Q:

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	Algebraic
	M.3	Geometric/Measurement
	M.4	Data Analysis/Probability
Science	S.1	Physical Science
	S.2	Life Science
	S.3	Earth and Space Sciences

Grade 3

Strand	*L*	Reliability	*SEM*
E.1	6	0.62	1.06
E.2	16	0.81	1.74
E.3	6	0.55	1.08
M.1	10	0.65	1.42
M.2	5	0.66	0.94
M.3	7	0.71	1.14
M.4	3	0.38	0.79

Grade 4

Strand	*L*	Reliability	*SEM*
E.1	6	0.70	1.00
E.2	16	0.83	1.71
E.3	6	0.53	1.11
M.1	12	0.72	1.53
M.2	6	0.50	1.10
M.3	8	0.70	1.23
M.4	4	0.49	0.89

Grade 5

Strand	*L*	Reliability	*SEM*
E.1	6	0.61	1.09
E.2	16	0.84	1.67
E.3	6	0.49	1.12
M.1	12	0.70	1.54
M.2	6	0.46	1.12
M.3	8	0.70	1.20
M.4	4	0.67	0.81
S.1	7	0.59	1.12
S.2	6	0.62	1.05
S.3	12	0.78	1.48

Grade 6

Strand	*L*	Reliability	*SEM*
E.1	6	0.69	1.03
E.2	16	0.82	1.75
E.3	6	0.53	1.11
M.1	11	0.75	1.46
M.2	8	0.56	1.28
M.3	7	0.63	1.16
M.4	4	0.34	0.89

Grade 7

Strand	*L*	Reliability	*SEM*
E.1	6	0.66	1.02
E.2	16	0.80	1.74
E.3	6	0.49	1.10
M.1	8	0.73	1.19
M.2	12	0.73	1.55
M.3	6	0.55	1.08
M.4	4	0.54	0.87

Grade 8

Strand	*L*	Reliability	*SEM*
E.1	6	0.72	1.00
E.2	16	0.82	1.74
E.3	6	0.69	1.03
M.1	8	0.66	1.23
M.2	12	0.73	1.53
M.3	10	0.77	1.31
M.4	*	*	*
S.1	10	0.77	1.35
S.2	9	0.72	1.24
S.3	6	0.56	1.07

***M.4 (Data Analysis/Probability) had no items assessed.**

High School

Strand	*L*	Reliability	*SEM*
E.1	7	0.68	1.10
E.2	14	0.84	1.53
E.3	7	0.68	1.13
M.1	6	0.62	1.08
M.2	10	0.64	1.41
M.3	10	0.76	1.33
M.4	4	0.61	0.82
S.1	10	0.78	1.25
S.2	9	0.67	1.29
S.3	9	0.68	1.32