LAS Links Third Edition Technical Report Form E

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Purpose and Overview of LAS Links 3rd Edition Technical Manual

The primary purpose of this technical report is to provide detailed evidence of the technical quality, reliability, validity, and fairness of LAS Links 3rd Edition (hereafter referred to as LAS Links 3rd Edition or LAS Links) scores and proficiency information. The evidence supplied in this report is designed, collected, and reported in concordance with the American Educational Research Association (AERA), American Psychological Association, and National Council on Measurement in Education's Standards for Educational and Psychological Testing (2014, hereafter referred to as the Standards). This report is intended to support LAS Links 3rd Edition users such as state departments of education and other organizations that are responsible for meeting the rigorous technical requirements embodied in various technical review processes, including reviews by technical advisory committees and U.S. Federal Peer Review.

Therefore, the organization of this technical report is predicated on descriptions of the intended uses of LAS Links test scores, and detailed descriptions of the reliability, validity, and fairness evidence collected are presented as evidence in support of those intended uses. This information is generally organized by categorizing the sources of validity evidence under the five sources described in the Standards: (a) evidence related to the test content, (b) evidence related to internal structure, (c) evidence related to response processes, (d) evidence related to the relationship of LAS Links scores with other variables, and (e) evidence related to the consequences of test score use. Specifically, information related to test content including universal design procedures and attention to fairness, test construction, response processes, field test designs and student samples, test administration, scoring processes and quality, psychometric properties of the test scores and the relationship among domain scores, standard setting and validation, and score reporting are presented in this report.

Chapter 1 lays the foundation for how the reliability, validity, and fairness of LAS Links test scores will be demonstrated relative to their intended uses. This chapter discusses the history of LAS Links 3rd Edition development, articulates the intended uses of LAS Links scores, and provides the context for the reliability, validity, and fairness evidence presented in subsequent chapters.

Chapter 2 provides detailed evidence in support of LAS Links content validity, with specific attention to fairness in terms of the application of universal design and through bias review, and evidence of alignment to multiple frameworks and standards. This chapter describes the design and development of the tests, including information about the test standards, test blueprints, item writing, item review process (with and without data), form assembly, and relevant quality control evidence.

Chapter 3 lays out the field test designs, data collection (test admin procedures), and student samples. This chapter also provides details regarding scoring processes and

quality and item calibration and equating procedures used to link the 3rd Edition test forms to LAS Links 1st and 2nd Editions.

Chapter 4 provides evidence of test score validity as it relates to the internal structure of LAS Links assessments, including descriptive statistics, reliability, standard error of measurement, decision consistency, and confirmatory factor analysis.

Chapter 5 covers the types of scores and reports offered for LAS Links, as well as the proficiency levels and underlying standard-setting and validation processes that support their validity.

Chapter 6 provides evidence of the relationship of the various test scores to other variables, along with recommendations for how test educational authorities that use LAS Links can demonstrate the construct validity of LAS Links scores in their own unique contexts.

Chapter 7 discusses the consequential validity of LAS Links test scores when used as intended, including special attention to the relationship between consequential validity and fairness.

Chapter 1: LAS Links Purpose, History, and Intended Uses

In the last several decades, researchers and policy makers have extensively studied and come to understand the pivotal role of academic language in effective curriculum and instruction (Anstrom et al., 2010). Conceptions of academic language have varied depending on the perspectives and goals of the researchers (e.g., curriculum, assessment, linguistic research); however, many researchers (Bailey & Huang, 2011; Gee, 2008; Gibbons, 1998, 2003; Scarcella, 2003; Schleppegrell, 2004; van Lier & Walqui, 2012) agree that academic language is defined as being

- situated language used within and across specific academic disciplines or content areas;
- embedded in sociocultural contexts that involve activities, practices, and language users;
- characterized by specific discourse and textual features such as genre, register, functions, syntax, and vocabulary; and
- integrated across different mediums and modes of communication used at different levels of complexity across grade spans.

Purpose of LAS Links

LAS Links is a comprehensive assessment system designed for the purpose of measuring the English-language proficiency levels of students in kindergarten through Grade 12. LAS Links primarily serves K-12 students who are in the process of developing English language proficiency, and because of its rigor in academic language, LAS Links Forms may be particularly useful in understanding and diagnosing students' language needs for actively participating not only in general instructional settings but in discipline-specific learning as well.

LAS Links comprises tests in four domains: Listening, Speaking, Reading, and Writing. Students earn test scores on each of these four domains, and composite scores are calculated as the truncated average of their respective domain combinations as follows:

- Overall (Listening, Speaking, Reading, & Writing)
- Oral (Listening & Speaking)
- Comprehension (Listening & Reading)
- Literacy (Reading & Writing)
- Productive (Speaking & Writing)

LAS Links test administration takes approximately two hours when all four domains are administered. The tests offer a common scale across five grade-span levels (K-1 2-3, 4-5, 6-8, and 9-12) so that growth in students' English language learning over time can be evaluated.

History of LAS Links

LAS Links was originally developed as a response to changes to United States Federal requirements under Titles I and III of the *Every Student Succeeds Act* (ESSA, 2015). ESSA requires the assessment of students' progress toward English language proficiency (ELP) and the determination of students' need for English language instruction.

To address these legal requirements for states, and to support educators, the LAS Links First Edition (hereafter LAS Links 1st Edition) K-12 summative assessment suite, including both English forms (Forms A and B) and their conceptually parallel form in Spanish (Español Form A), was designed and developed by CTB/McGraw-Hill, later acquired by DRC in 2015.

Academic language for the K-12 student population received increased attention with the releases of the Common Core State Standards (CCSS; National Governors Association Center for Best Practices [NGA Center] & Council of Chief State School Officers [CCSSO], 2010) and the CCSSO's Framework for English Language Proficiency Development Standards (2012), which describe perceived correspondence between language demand and the CCSS Content Standards.

Therefore, LAS Links 1st Edition was updated in 2013 with the LAS Links Second Edition (hereafter LAS Links 2nd Edition), which enhanced the emphasis on situated language use in school settings. Similar to LAS Links 1st Edition, the 2nd Edition offers test forms in both English (Forms C and D) and Spanish (Español Form B).

More recently, LAS Links 3rd Edition was developed in response to continual improvements in English language teaching, learning, and assessment practices. Specifically, the following updates have been made in the LAS Links 3rd Edition:

- The most current guidelines regarding bias, fairness, sensitivity, and accessibility for English learners were applied.
- The test content and graphics were adjusted to better reflect current English learner experiences, and current learning environments.
- The Grades 2-12 Speaking tests were reduced in length by 6 items; the Grade 1 Speaking test was reduced in length by 8 items, and the kindergarten Speaking test was reduced in length by 6 items.
- The Grades K-1 Writing tests were reduced in length by 2 items.
- The kindergarten Reading test was reduced in length by 2 items.
- The format of items on the Writing and Speaking subtests were updated based on accessibility considerations.

LAS Links 3rd Edition currently includes Form E, with Form F under development for release in the near future. LAS Links 3rd Edition is aligned to the same English language proficiency (ELP) standards as Forms A–D, with Forms A–E currently available in English. LAS Links Español Forms A and B are available for use in measuring Spanish language proficiency.

Intended Uses of LAS Links Scores

At the most foundational level, the notion of test use implies that there is some need to make claims about what students know and can do. In large-scale educational assessments, such claims are made based on students' test performance and, more specifically, their test scores and the meanings that are assigned to those scores. Since test scores are estimates of student traits that are variable and not directly observable, detailed evidence is required that score estimates are valid for their intended uses.

This is consistent with expectations embodied in the Standards that state the following:

> Validity refers to the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests. Validity is, therefore, the most fundamental consideration in developing tests and evaluating tests. The process of validation involves accumulating relevant evidence to provide a sound scientific basis for the proposed score interpretations. It is the interpretations of test scores for proposed uses that are evaluated, not the test itself. (p. 11)

The Standards also state the following:

> Clear articulation of each intended test score interpretation for a specified use should be set forth, and appropriate validity evidence in support of each intended interpretation should be provided. (p. 23)

Accordingly, the validity evidence provided in this report is grounded in the intended uses of LAS Links test results. These uses are described in detail in this section.

Generally, LAS Links test results can be used to identify students' English language proficiency status, instructional needs, and progress in attaining English language proficiency at progressively increasing levels. Such information is useful for making specific instructional, assessment, and accountability determinations as defined within the following specific uses:

- Identify students who require specific English language instruction and support programs,
- Plan instructional programs,
- Evaluate students' English language proficiency growth,

- Determine student readiness to transition out of English language instruction support programs and,
- Include student scores and proficiency levels for public reporting and accountability systems.

As with LAS Links 1st and 2nd Editions, the LAS Links 3rd Edition provides many benefits to states, school districts, and local educational agencies (LEAs) who choose to use the assessment in these ways.

Identifying Instructional and Support Needs

Title III of ESSA requires identification and annual assessment of the English proficiency of English learners. Under the Title III requirements, the English language proficiency standards must be based on the four modalities of Listening, Speaking, Reading, and Writing. Additionally, the assessment must measure English language proficiency in the five domains of Listening, Speaking, Reading, Writing, and Comprehension.

LAS Links can be used to identify K-12 students who are (or remain) eligible for Title III instructional programs. The test scores are also valuable for identifying students who may benefit from instructional support to improve their academic English for succeeding in classrooms with rigorous English-medium content learning activities.

Planning Instructional Programs

LAS Links results provide reliable English language proficiency scores and levels needed to make relevant and crucial instructional decisions.

The scores on LAS Links can be used as indicators of proficiency in Listening, Speaking, Reading, and Writing in academic and social English. This information can be used to determine the placement of students in a specific type of instructional program. When determining instructional placement, users are encouraged to consider the decision in conjunction with other available evidence and assessment instruments, including information provided in home language surveys, communication with parents, informal interviews with students, and possibly test scores on content knowledge, depending on the specific purpose of the instructional program.

LAS Links test scores can also assist in diagnosing students' strengths and areas for growth in English, especially their ability to use English in school settings. The test scores in Listening, Speaking, Reading, and Writing provide useful information about what skills students have and help determine their particular language needs in each of the four communicative skills. Using these results, teachers can plan appropriate instruction or remediation for the students.

Evaluating Student Growth

Students' progress from a beginning level to an advanced level of English language proficiency can be reflected by the scores on LAS Links. Because there are five grade spans of the tests (K-1, 2-3, 4-5, 6-8, and 9-12) and multiple test forms available per grade span that cover kindergarten through Grade 12, the different grade spans can be used to track changes in English proficiency as the student continues in school across grades, from the beginning of the academic year to the end of the academic year, and from year to year. This feature may be especially useful in schools with bilingual education programs that have as a goal increasing students' English language proficiency over time as a goal.

Determining Readiness to Exit English Language Instruction and Support Programs

The rigor of the LAS Links scales (described in detail in Chapter 4) supports state and local educational authorities in the development of processes that may be used in determining when students are ready to exit specialized English language instruction and supports. Such decisions require that states employ additional and technically rigorous approaches to defining when students have acquired sufficient proficiency in English to succeed academically in classrooms where the language of instruction is English. Educational authorities who use LAS Links results to make program exit decisions about students are further encouraged to use any additional information about student proficiency that is collected through alternate means, including but not limited to the results of other high-quality valid and reliable measures, student evaluations, and other educator inputs.

Supporting Reporting Requirements in Accountability Systems

The rigor of the LAS Links scales (described in detail in Chapter 4) and score reports (described in Chapter 5), which include proficiency levels, supports state and local educational authorities in meeting Title I and III ESSA requirements to publicly report valid and reliable assessment results for all English language learners in K-12 within and across years.

Chapter 2: LAS Links Validity Evidence Related to Test Content and Response Processes

The Standards state the following:

> Tests and testing programs should be designed and developed in a way that supports the validity of the interpretations of the test scores for their intended uses. Test developers and publishers should document steps taken during the design and development process to provide evidence of fairness, reliability, and validity for intended uses for individuals in the intended examinee population. (p. 85)

The Standards further state the following:

> When the rationale for test score interpretation for a given use rests in part on the appropriateness of test content, the procedures followed in specifying and generating test content should be described and justified with reference to the intended population to be tested and the construct the test is intended to measure or the domain it is intended to represent. If the definition of the content sampled incorporates criteria such as importance, frequency, or criticality, these criteria should also be clearly explained and justified. (p. 26)

Evidence of validity based on test content includes information about the framework's test specifications, including the test design and test blueprints. Test development involves creating a design framework from the statement of the construct to be measured. LAS Links 3rd edition is designed to assess school language that is critical for student intellectual growth in K-12 instructional settings and academic language essential for development within content area learning.

This chapter describes the LAS Links and other relevant English language development frameworks and standards correspondence, blueprints, item development procedures and cycles, content reviews, form construction, and relevant quality control procedures. Each of these components of test construction provides important evidence of content validity.

Framework

The LAS Links Standards Framework reflects a modification of several language development models currently used in guiding the education of English Learners/Multilingual Learners (ELs/MLs). The framework evaluates the receptive and productive control of language by ELs/MLs in social, school, and academic contexts. The standards in the framework are organized into (a) language context strands, (b) language domains and subtests, (c) subskills/objectives, and (d) proficiency levels.

The LAS Links Standards Framework meets the requirements for challenging expectations reflected in standards such as the Teachers of English to Speakers of

Other Languages (TESOL) Standards (2006), the Common European Framework of Reference for Languages (CEFR; 2001), and the CCSS (2010). Ensuring the correspondence of the LAS Links Standards to these international and national standards is a key step to ensure that the LAS Links Standards are equitable and comprehensive enough to assess English Language learners' ability to use English in various school contexts.

Language Context Strands

Although the LAS Links tests include diverse, culturally relevant content coverage, the focus of the assessments is on language and not on content knowledge. The social and school content covers intercultural and instructional communication (e.g., school-related tasks), while the academic content coverage includes communications related to English language arts, mathematics, science, social studies, history, and technical subjects. As previously mentioned, there are four language context strands applicable across all grade levels and language domains in the LAS Links Standards Framework:

- **Strand 1**
  Students are able to listen, speak, read, and write for **Social, Intercultural, and Instructional Communication**.
- **Strand 2**
  Students are able to listen, speak, read, and write for **Language Arts, Social Studies, and History.**
- **Strand 3**
  Students are able to listen, speak, read, and write for **Mathematics, Science, and Technical Subjects**.
- **Strand 4**
  Students are beginning to develop **Foundational Skills** for reading and writing (Grades K-3 only).

Language Domains and Subtests

The LAS Links Standards Framework includes four language domains. Listening and Reading domains assess students' **receptive** control of language while the Speaking and Writing domains evaluate students' **productive** control of language.

Listening Test Description

The Listening test consists of two subtests: *Listen for Information* and *Listen for Academic Instruction*. All Listening items are in multiple-choice (MC) format. All instructions, audio passages, questions, and answer choices are delivered online via DRC's testing platform, INSIGHT, for the computer-based tests or delivered via audio files played on the test administrator's computer or device for the paper-based tests. Each question has three answer choices. In Grades K-1, all answer choices are

pictures. In Grades 2-3, there is a mix of both picture- and text–based answer choices. In Grades 4-12, all answer choices are text-based.

Listen for Information

In *Listen for Information*, students listen to directions, brief school announcements, content-based discussions, and conversations. Then students answer questions about what they heard. Students are tested on skills such as following common explicit oral directions, identifying main ideas, and making inferences. In some grade spans, students are asked to identify purpose, comprehend idiomatic expressions, and make predictions.

Listen for Academic Instruction

In *Listen for Academic Instruction*, students listen to longer content-based discussions led by a teacher, with comments and contributions provided by class members. In this way, the Listening texts approximate authentic classroom discourse patterns that are co-constructed by the teacher and the class members. Discussions are drawn from two broad academic categories: (a) Language Arts, Social Studies, and History; and (b) Mathematics, Science, and Technical Subjects. Students identify main ideas and supporting details and make inferences. At some grade spans, students also make predictions.

Reading Test Description

The Reading test consists of three subtests in Grades K-3: *Read Words, Read School Texts, and Read Academic Texts*; and two subtests in Grades 4-12: *Read School Texts and Read Academic Texts*. Reading questions are multiple-choice in format with three answer choices (some picture-based and some text-based) in Grades K-3 and four text-based answer choices in Grades 4-12.

Read Words (Grades K-1 and 2-3)

In *Read Words*, students in Grades K-3 respond to items addressing word-analysis tasks: identifying rhyming words, applying letter-sound relationships in order to read English words, and applying letter-sound relationships in order to read English phonemes/graphemes. In Grades 2-3, students have the additional task of applying knowledge of morphemes and grammar to word meaning.

Read School Texts

In *Read School Texts*, students read a variety of short texts, such as classroom signs, school notices, letters, website postings, emails, and text messages between students. In addition, students in Grades 1–12 read texts similar to those they will likely encounter in the content areas of English Language Arts, History, and Social Studies or Mathematics, Science, and Technical Subjects. These texts emulate grade-span appropriate workbook or classroom tasks and measure students' ability to understand the text, not their ability to complete the task being described. All questions are multiple-

choice in format and measure students' ability to identify main ideas and supporting details, interpret words and phrases as they are used in text, and identify view, tone, and attitude.

Read Academic Texts

In *Read Academic Texts*, students read extended grade-span appropriate passages drawn from two broad academic categories: (a) Language Arts, Social Studies, and History; and (b) Mathematics, Science, and Technical Subjects. Although both fiction and non-fiction texts are included, there is an emphasis on more complex non-fiction texts.

In Grades K-1, each passage has two related questions that measure the student's ability to identify main ideas and important details; or identify view, tone, and attitude. In Grades 2-3, each passage has five related questions that measure the student's ability to identify main ideas and important details; identify view, tone, and attitude; and interpret words and phrases as they are used in text. In Grades 4-12, each passage has six related questions that measure the student's ability to identify main ideas and important details; identify view, tone, and attitude; and interpret words and phrases as they are used in text.

Speaking Test Description

The Speaking test consists of five subtests: *Make Conversation, Use Academic Words, Describe and Request Information, Present and Explain Information*, and *Tell a Story*. Note that kindergarten students take only the first set of questions in *Present and Explain Information*. All Speaking items are performance-based in format. They measure vocabulary and grammatically correct verbal expressions in social and academic language. Tasks in the Speaking subtest elicit the production of single-word responses as well as multiple sentences related to school-appropriate topics.

Make Conversation

In *Make Conversation*, students answer basic conversational questions that are appropriate in a school or social setting by either providing information or expressing opinions and preferences. Student responses are scored as incorrect (0 points), correct (1 point), or no response (NR).

Use Academic Words

In *Use Academic Words*, students are shown pictures of grade-appropriate vocabulary items, common objects, and objects and concepts they encounter in the classroom. The students are asked to identify the object or concept. Students respond with a single word or short phrases. Student responses are scored as incorrect (0 points), correct (1 point), or no response (NR).

Describe and Request Information

In *Describe and Request Information*, students are shown a picture depicting an academic or social situation and asked to describe it using sentences. Next, students are required to complete a speech act or function by, for example, saying what a participant in the given academic or social situation might do. Students in Grades K-3 students demonstrate their ability to ask questions, request clarification, and negotiate for meaning; while students at all grades demonstrate their ability to make various requests. Student responses are scored on a 0-3 rubric.

Present and Explain Information

In *Present and Explain Information*, student responses are scored on a 0-3 rubric. In Grades K-1, students are shown an illustration of an academic or social situation and are asked to describe what is happening in the illustration or explain the purpose, use, or feature of a particular object in the illustration using words, phrases, or sentences. Grade 1 students take an extended section of the same task with two more questions in which they describe or elaborate on an additional set of illustrations.

In Grades 2-3, students are shown an illustration of people, a location, or scenery and asked to describe the illustration. Students are then shown a different but related illustration and asked to describe that one as well. Finally, students are asked to compare the information in the two graphics and explain how the information is the same or different.

In Grades 4-12, students are shown a slide, map, or other graphic depicting information, such as a chart, and asked to talk about the information in the graphic as if they were giving a presentation to a class. Students are then shown a different but related graphic and asked to present that information as well. Finally, students are asked to compare the information in the two graphics and explain how the information is the same or different.

Tell a Story

In *Tell a Story*, students are shown four related pictures that illustrate a story with a beginning, middle, and end. Pointing to the series of four pictures, the Examiner begins the story by reading a story starter to contextualize the pictures without giving away vocabulary or key content. Students are then asked to complete the detailed story depicted in the series of illustrations using multiple sentences to interpret, narrate, and paraphrase events. Student responses are scored on a 0-4 rubric.

Writing Test Description

The Writing test consists of four sections for Grades K-1: *Start Writing, Use Grammar and Conventions, Write to Express Ideas*, and *Write Academic Texts*. (kindergarten students do not take the *Write Academic Texts* section.) For Grades 2-12, there are

three sections: *Use Grammar and Conventions, Write Academic Texts*, and *Write to Express Ideas*.

The Writing subtest includes both MC and constructed-response (CR) items that assess the student's knowledge of grammar, word order, and word choice and the student's ability to apply that knowledge to produce sentences and paragraphs that are commonly expected of students at their respective grade levels.

Start Writing (Grades K-1 Only)

In *Start Writing*, students in Grades K-1 copy words and sentences and write numbers and letters. In addition, students write English words that identify pictures of common objects.

Use Grammar and Conventions

In *Use Grammar and Conventions*, students in Grades K-1 select grammatically correct sentences and indicate whether a sentence has correct use of capital letters, punctuation, articles, singular and plural nouns, pronouns, and subject/verb agreement. In Grades 2-12, students select the grammatically–appropriate response in order to complete sentences and paragraphs. Grammatical features are selected according to each grade span and assess the correct use of capitalization, sentence-ending marks, articles, adjectives and adverbs, singular and plural nouns, pronouns, subject/verb agreement, tense and aspect, prepositional phrases, conjunctions, commas, and auxiliary verbs.

Write Academic Texts

In *Write Academic Texts*, students in Grades 1-3 write sentences describing pictures drawn from two broad academic categories: (a) Language Arts, Social Studies, and History; and (b) Mathematics, Science, and Technical Subjects. These tasks approximate common real-world classroom assignments for which students in Grades 1-3 are expected to write about something they see. Students in Grades 2-3 also write simple sentences to interpret, analyze, or state opinions regarding what they see.

Students in Grades 4-12 are first asked to write a short summary (two to five sentences) of a paragraph selected from a passage they had read earlier in the Read Academic Texts section of the Reading subtest. Next, students are shown a table or diagram and asked to write one or two full sentences explaining the information it contains. Finally, students are asked to compare the paragraph and the information contained in the table or diagram and explain in one or two sentences how they are the same or different. These tasks approximate common real-world classroom assignments where students are expected to summarize, in their own words, course reading material; extract tabular information and express it in prose; and compare and contrast academic content. Responses are scored on a 0-3 rubric to assess the student's ability to communicate effectively using appropriate grammar, vocabulary, and conventions.

Write to Express Ideas

In *Write to Express Ideas*, students are given an opportunity to write for personal communication. Students in Grades K-1 write a sentence describing a person. Students in Grades 2-3 write a letter. Students in Grades 4-12 write extended responses to an email message, note, or blog entry. The writing tasks for Grades 2-12 are designed for students to be able to demonstrate their ability to describe, explain, report, compare, narrate, persuade, or express ideas in writing. Responses are scored on a 0-3 (Grades K-1) or 0-4 (Grades 2-12) holistic rubric to assess the student's use of appropriate grammar and vocabulary and the student's ability to express meaning in a cohesive and coherent manner.

Subskills/Objectives

Table 1 presents a complete list of subskills/objectives within the LAS Links Standards Framework. These subskills/objectives are organized by language domain.

Table 1. LAS Links Standards Framework

Subject	Standard	Substandard
Listening	L1. Follow common, explicit oral directions to participate in diverse academic or social tasks	-
	L2. Respond to idiomatic expressions to participate in diverse academic or social tasks, including phrasal verbs with idiomatic meaning (e.g., give me a hand or settle for)	-
	L3. Demonstrate understanding of academic and social situations that contain diverse language genres, registers, and varieties	L3.1. Identify purpose
		L3.2. Identify main ideas
		L3.3. Identify supporting details
		L3.4. Relate to practical issue
	L4 Interpret layers of meaning using critical listening skills and learning strategies in academic and social situations that contain diverse language genres, registers, and varieties	L4.1. Make predictions based on known information
		L4.2. Make inferences based on known information

Subject	Standard	Substandard
Reading	R1. Analyze words	R1.1. Identify rhyming words
		R1.2. Apply letter-sound relationships to read English words
		R1.3. Apply letter-sound relationships to read English phonemes
		R1.4. Apply knowledge of morphemes and syntax to word meaning
	R2. Understand word meaning	R2.1. Associate words with their representation
		R2.2. Classify words
		R2.3. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings.
	R3. Comprehend written material	R3.1. Identify main ideas
		R3.2. Identify supporting details
		R3.3. Identify important literary features of text
		R3.4. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole
		R3.5. Identify point of view, tone, and attitude
		R3.6. Make predictions based on known information
		R3.7. Make inferences based on known information

Subject	Standard	Substandard
Speaking	S1. Participate in diverse academic or social conversations, with attention to appropriate register, grammar, vocabulary, and pronunciation	S1.1. Provide information
		S1.2. Describe information
		S1.3. Interpret and analyze information
		S1.4. Relate information to personal experience or practical issue
		S1.5. Express opinions and preferences
		S1.6. Make requests
		S1.7. Ask questions, request clarification, and negotiate for understanding
		S1.8. Conduct transactions
	S2. Demonstrate knowledge related to diverse academic or social settings, with attention to appropriate register, grammar, vocabulary, and pronunciation	S2.1. Identify an object (inanimate and animate) or concept
		S2.2. Describe purpose, use, or feature, using words, phrases, or sentences
		S2.3. Identify an academic or social situation and describe it, using sentences
	S3. Describe ideas, experiences, and immediate surroundings in diverse academic and social settings, with attention to appropriate register, grammar, vocabulary, and pronunciation	S3.1. Describe process
		S3.2. Describe people, locations, and scenery
	S4. Speak persuasively in diverse academic or social situations, with attention to appropriate register, grammar, vocabulary, and pronunciation	S4.1. Explain process
		S4.2. Explain ideas and opinions
	S5. Talk in depth and with detail about diverse academic or social events, with attention to appropriate register, grammar, vocabulary, and pronunciation	S5.1. Interpret, narrate, and paraphrase events, using visual information
	S6. Present with integrated information	S6.1. Present with integrated information from multiple sources

Subject	Standard	Substandard
Writing	W1. Copy words and sentences	-
	W2. Write letters, numerals, and words	-
	W3. Use appropriate grammar and style	W3.1. Use articles
		W3.2. Demonstrate correct use of singular and plural
		W3.3. Use subject/verb agreement
		W3.4. Demonstrate correct use of tense and aspect
		W3.5. Use conjunctions
		W3.6. Use pronouns correctly
		W3.7. Distinguish adjectives and adverbs
		W3.8. Use prepositional phrases
		W3.9. Use auxiliary verbs
		W3.10. Use nominalization
		W3.11. Use parallel structure
	W4. Use appropriate capitalization and punctuation	W4.1. Use appropriate capitalization
		W4.2. Use appropriate sentence-ending marks
		W4.3. Use commas appropriately
		W4.5. Use semi-colons appropriately
		W4.6. Use colons appropriately
	W5. Use appropriate sentence structure	W5.1. Differentiate complete sentences from fragments
		W5.2. Differentiate complete sentences from run-ons
		W5.3. Form statements and questions
		W5.4. Use various types of clauses
		W5.5. Use various types of phrases (noun, verb, adjectival, adverbial, participial, prepositional, and absolute)
	W6. Write sentences to summarize, describe, narrate, interpret, analyze, state opinion, relate, or explain	W6.1. Write sentences to summarize
		W6.2. Write sentences to describe or narrate
		W6.3. Write sentences to interpret or analyze
		W6.4. Write sentences to state opinions
		W6.5. Write sentences to relate to personal experience or practical issue
		W6.6. Write sentences to explain
	W7. Write expository compositions	W7.1. Write to describe, explain, report, compare, narrate, persuade, or express
	W8. Write with integrated information	W8.1. Write with integrated information from multiple sources

Proficiency Levels

The LAS Links Standards Framework represents a continuum of English language development in social, school, and academic contexts. LAS Links has the following five levels, and each level builds on to the next level (see Appendix D for a full description of the LAS Links Proficiency Level Definitions):

1. Beginning,
2. Early Intermediate,
3. Intermediate,
4. Proficient,
5. Above Proficient.

To describe these levels, the following list represents the progression of the development of ELs/MLs' receptive and productive control of lexical, syntactic, phonological, and discourse features in English:

1. Developing,
2. Emerging,
3. Exhibiting limited range,
4. Exhibiting control,
5. Commanding a high degree of control.

In terms of the complexity or the difficulty of texts that ELs/MLs can comprehend and analyze, the following progression applies:

1. Very basic level,
2. Familiar topics,
3. Range of grade-level appropriate,
4. Across and within disciplines (grade-level appropriate),
5. Wide range.

Finally, in terms of the communicative skills of ELs/MLs, the following progression applies:

1. Developing the ability and using familiar topics,
2. Developing the ability to communicate effectively,
3. Refining the ability to communicate effectively and using context clues,
4. Communicating effectively and beginning to express in creative forms,
5. Communicating effectively, skillfully organizing and explaining information, and expressing subtle nuances.

Correspondence with CCSS, TESOL, CEFR, ELPA21, and WIDA Standards

The alignment of the LAS Links Framework with the most commonly used content standards has been examined and the results show a strong correspondence in each case discussed in this section: CCSS, TESOL, the Common European Framework of

Reference for Languages (CFER), English Language Proficiency Assessment (ELPA21), and the 2012 WIDA Consortia English Language Development Standards correspondences.

CCSS Correspondence

Correspondence between the LAS Links Standards Framework and the CCSS (2010) is highly valuable because the CCSS serves as a set of overarching educational standards for K-12 students in the United States. The correspondence ensures that LAS Links shares the expectations of language proficiency in Listening, Speaking, Reading, and Writing, as well as knowledge and skills in various content areas relevant to social, school, and academic contexts.

Table 2 represents a sample correspondence of LAS Links Standards to the CCSS (2010). This sample focuses on students' skills in terms of summarizing, determining/identifying main ideas, and explaining/supporting with details.

Table 2. Sample Correspondence of LAS Links Standards with the CCSS

LAS Links Standards Framework	CCSS
W6: Write sentences to summarize, describe, narrate, interpret, analyze, state opinion, or explain. ***W6.1****: Write sentences to summarize.* ***W6.2****: Write sentences to describe or narrate.* ***W6.6****: Write sentences to explain.* **W7**: Write expository compositions. ***W7.1****: Write to describe, explain, report, compare, narrate, persuade, or express.* **W8**: Write with integrated information. ***W8.1****: Write with integrated information from multiple sources.*	**SL.5.2**: Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
L3: Demonstrate understanding of academic and social situations that contain diverse language genres, registers, and varieties. ***L3.1****: Identify purpose.* ***L3.2****: Identify main ideas.* ***L3.3****: Identify supporting details.*	**RL.5.2**: Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.

LAS Links Standards Framework	CCSS
R3: Comprehend written material. ***R3.1****: Identify main ideas.* ***R3.2****: Identify supporting details.* ***R3.5****: Identify point of view, tone, and attitude.*	**RI.5.2**: Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
S1: Participate in diverse academic or social conversations, with attention to appropriate register, grammar, vocabulary, and pronunciation. ***S1.1****: Provide information.* ***S1.2****: Describe information.* **S3**: Describe ideas, experiences, and immediate surroundings in diverse academic and social settings, with attention to appropriate register, grammar, vocabulary and pronunciation. ***S3.1****: Describe process.* ***S3.2****: Describe people, locations, and scenery.* **S4**: Speak persuasively in diverse academic or social situations, with attention to appropriate register, grammar, vocabulary, and pronunciation. ***S4.1****: Explain process.* ***S4.2****: Explain ideas and opinions.* **S5**: Talk in depth and with detail about diverse academic or social events, with attention to appropriate register, grammar, vocabulary, and pronunciation. ***S5.1****: Interpret, narrate, and paraphrase events, using visual information.* **S6**: Present with integrated information. ***S6.1****: Present with integrated information from multiple sources.*	**SL.5.3**: Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.

TESOL Correspondence

It is valuable to compare the LAS Links context strands with the TESOL Standards (2006) because the TESOL Standards play a critical role in developing English as a Second Language (ESL) standards for teachers of K-12 students in the United States. LAS Links examines its correspondence with TESOL because the target audience of both LAS Links and TESOL includes students who use languages other than English and who need to learn English to be successful inside and outside of the U.S. classroom. Table 3 shows how LAS Links reporting strands correspond to the TESOL Standards (2006).

LAS Links has combined the target language use skills into three strands for practical use and reporting.

Table 3. LAS Links Strands and the TESOL Standards (2006)

LAS Links	TESOL
Strand 1: Students are able to listen, speak, read, and write for Social, Intercultural, and Instructional Communication.	**Standard 1**: English language learners communicate for social, intercultural, and instructional purposes within the school setting.
Strand 2: Students are able to listen, speak, read, and write for Language Arts, Social Studies, and History.	**Standard 2**: English language learners communicate information, ideas, and concepts necessary for academic success in the area of Language Arts. **Standard 5:** English language learners communicate information, ideas, and concepts necessary for academic success in the area of Social Studies.
Strand 3: Students are able to listen, speak, read, and write for Mathematics, Science, and Technical Subjects.	**Standard 3**: English language learners communicate information, ideas, and concepts necessary for academic success in the area of Mathematics. **Standard 4**: English language learners communicate information, ideas, and concepts necessary for academic success in the area of Science.
Strand 4: Students are beginning to develop Foundational Skills for reading and writing (only applicable for Grades K-3).	-

CEFR Correspondence

The CEFR (2001) serves as an influential source in the development of language and education policies in Europe and beyond. Many language testers and education/examination boards refer to the CEFR to help define language proficiency levels and analyze language qualifications. Table 4 shows how LAS Links proficiency levels conceptually align with the CEFR (2001).

Table 4. Correspondence of LAS Links Proficiency Levels with the CEFR (2001)

LAS Links	CEFR
Beginning Level: Is beginning to develop receptive and productive uses of English	**Breakthrough Level**: Understand and use familiar, everyday expressions; very basic phrases
Early Intermediate: Can identify, describe, and discuss simple pictorial or text prompts; can interpret language related to familiar topics; and can draw simple inferences and make simple comparisons	**Waystage**: Understand sentences and frequently used expressions; simple and routine tasks
Intermediate: Can compare, contrast, summarize, and relate text to graphic organizers and uses coherent language use but lacks elaboration	**Threshold**: Understand main points; produce simple, connected text; briefly give reasons
Proficient: Can adequately express ideas and organize responses in logical and sequenced order; can distinguish nuances of meaning; and can interpret, analyze, and evaluate written and oral information	**Vantage**: Understand main ideas of complex text; produce clear, detailed text
Above Proficient: Can critically evaluate and synthesize written and oral information; can draw sophisticated inferences and explain their reasoning; can skillfully organize information; and can express subtle nuances of meaning	**Effective Operational Fluency – Level C1 and Master – Level C2**: Understand wide range, longer texts; recognize implicit meaning; produce clear, detailed, and well-structured text

ELPA21 Correspondence

An alignment study between LAS Links 2nd Edition and the ELPA21 Standards was conducted in 2015 (Lotfi & Houston, 2015). The alignment process found that 100% of the LAS Links items were aligned to an ELPA Standard. For the purposes of this alignment, only a principal alignment was chosen, although the three standards ELPA refers to as supportive might provide a secondary alignment in some cases. In a few instances, Standards 8, 9, or 10 were selected as the principal standard.

ELPA Standards 5 and 6 refer to activities best undertaken in the classroom or measured by performance assessment. No LAS Links item was aligned to either of these two standards. Similarly, standard 7 was not aligned directly to any LAS Links item but an argument could be made that this task is an implicit part of many items. However, the reviewer also noted that while it is possible to directly assess this standard, it may also be best left to classroom practices.

Because LAS Links contains CR items, the tables that report alignment are reporting on a score point basis as opposed to an item basis. This is important as this shows an alignment distribution not only by standard, but by proficiency level. This is an enhanced feature of this alignment study as most alignment studies do not take this data point into consideration.

Table 5 shows the results of the study of the correspondence between LAS Links and ELPA21 Standards. LAS Links shows strong coverage of the ELPA21 Standards.

Table 5. LAS Links Score Points Aligned to ELPA21 Standards

ELPA21 Standards	Subject	Score Point Distributions			
		Listening	Reading	Speaking	Writing
construct meaning from oral presentations and literary and informational text through grade appropriate listening, reading, and viewing	Listening; Reading	39%	15%	-	-
participate in grade-appropriate oral and written exchanges of information, ideas, and analyses, responding to peer, audience, or reader comments and questions	Listening Reading Speaking Writing	57%	61%	51%	23%
speak and write about grade- appropriate complex literary and informational texts and topics	Speaking Writing	-	-	25%	31%
construct grade-appropriate oral and written claims and support them with reasoning and evidence	Speaking Writing	-	-	24%	14%
conduct research and evaluate and communicate findings to answer questions or solve problems	Listening Reading Speaking Writing	-	-	-	-
analyze and critique the arguments of others orally and in writing	Listening Reading Speaking Writing	-	-	-	-
adapt language choices to purpose, task, and audience when speaking and writing	Speaking Writing	-	-	Rubric	Rubric
determine the meaning of words and phrases in oral presentations and literary and informational text	Supportive	4%	25%	-	2%
create clear and coherent grade-appropriate speech and text	Supportive	-	-	-	2%
make accurate use of standard English to communicate in grade appropriate speech and writing	Supportive	-	-	-	29%

Review of ELPA21 Alignments

In April 2020, an independent third-party reevaluation of the 2015 Middlebury Interactive Alignment Study of LAS Links 2nd Edition (Lotfi & Houston, 2015) to the Connecticut

English Language Proficiency (CELP) Standards, was adopted directly from the ELPA21 Standards. This reevaluation study also evaluated the alignment between the LAS Links 2nd Edition assessments and the CELP Standards for each of the grade bands K-1, 2-3, 4-5, 6-8, and 9-12.

The study focused on alignment to the Primary CELP Standards 1, 2, 3, and 4, and the Supporting CELP Standards 7, 8, 9, and 10. The Connecticut State Department of Education's reevaluation revealed a moderate alignment between the CELP Standards and LAS Links 2nd Edition. CELP Standards 1, 2, 3, 7, 9, and 10 showed adequate to strong coverage on LAS Links 2nd Edition, while CELP Standards 4 and 8 showed a need for better coverage on LAS Links.

This review included educators from Connecticut as well as across the United States. Members of the review panel and their affiliations and roles are noted in Table 6.

Table 6. Review Panel Participants

Name	District/Organization	Role
Jean Borrup	Berlin	English Learner Assessment Coordinator
Nadia Gonzalez	North Haven	English Learner Assessment Coordinator
Kimberly Lebrun	Hartford	English Learner Teacher
Darcy Lockwood	RSD 15	English Learner Assessment Coordinator
Mary Parady	CTECS	English Learner Assessment Coordinator
Marilyn Rosario-Cosme	East Hartford	English Learner Teacher
Celmia (Sally) Vernaglia	East Lyme	English Learner Assessment Coordinator
Karen Lapuk	LEARN	English Learner Assessment Coordinator

The CELP Standards found to require greater coverage on LAS Links are as follows:

- *CELP Standard 4: Construct grade-appropriate oral and written claims and support them with reasoning and evidence.*
- *CELP Standard 8: Determine the meaning of words and phrases in oral presentations and literary and informational text*.

DRC considered the need for greater coverage of CELP Standards 4 and 8 during its LAS Links 3rd Edition item development and review processes. In an effort to provide better coverage of these CELP Standards in the 3rd Edition, DRC developed a number of field test items aligning to CELP Standards 4 and 8. An item review with CT educators and other educators from around the country was conducted in summer 2020. In addition to reviewing the items for bias, fairness, sensitivity, and suitability for inclusion, CT educators also identified each item's degree of alignments to the CELP Standards.

CT educators determined that a number of field test items at each grade band were aligned to CELP Standards 4 and 8. DRC test development specialists with expertise in English language learning and second language acquisition also reviewed the CELP Standards 4 and 8 for correspondence to the LAS Links Standards. Table 7 shows the correspondence between CELP Standards 4 and 8 and the LAS Links Standards, informed by CT educator item alignments and DRC English language learner test development specialists' reviews. Items aligned to these standards comprised a pool of field test items from which LAS Links 3rd Edition content was selected with an effort to improve the alignment of LAS Links 3rd Edition to the CELP Standards.

Table 7. CELP Standards 4 and 8 Correspondence to LAS Links Standards

CELP Standard	Subject	LAS Links Standards
CELP Standard 4: Construct grade-appropriate oral and written claims and support them with reasoning and evidence	Writing Standards	Write Academic Texts: WR.2/3.C.4.e: Write sentences to summarize, describe, narrate, interpret, analyze, state an opinion, relate, or explain; Write simple sentences to state opinions.
		Write to Express Ideas: WR.1.B.3.a: Write expository compositions; Write to describe, explain, report, compare, narrate, persuade, or express.
	Speaking Standards	Make Conversation: SP.1.A.1.b: Participate in diverse school interactions, with attention to appropriate register, grammar, vocabulary, and pronunciation; Express opinions and preferences.
CELP Standard 8: Determine the meaning of words and phrases in oral presentations and literary and informational text	Reading Standards	Read School Texts: RD.1/2/3.B.2.a: Understand word meaning; Interpret words and phrases as they are used in text.
		Read Academic Texts: RD.2/3.C.2.a: Understand word meaning; Interpret words and phrases as they are used in text.
	Listening Standards	Listen for Information: LI.1.B.4.a: Respond to idiomatic expressions to participate in diverse tasks, including phrasal verbs with idiomatic meaning (e.g., give me a hand or settle for); Respond to idiomatic expressions.

WIDA Correspondence

An alignment study was conducted in February 2018 for the LAS Links Forms C & D assessment and the 2012 WIDA Consortia English Language Development Standards. Eight reviewers analyzed the WIDA Standards and the LAS Links assessment according to Dr. Norman Webb's alignment methodology. To appropriately align the LAS Links assessment to the WIDA Standards, all elements of the standards were included.

Two alignment studies were conducted to account for the interaction between the domains, standards, and levels: LAS Links to WIDA Standards and LAS Links to WIDA Levels.

Data on the alignment of the LAS Links assessment were collected from the eight reviewers following the methodology developed by Norman Webb, as modified by H. Gary Cook (2007), for English Language proficiency assessments. The data collected were then analyzed to determine whether the LAS Links assessment met the criteria established by the alignment model. The major difference between the Webb methodology and the modification by Cook is the substitution of Linguistic Difficulty Level (LDL) for Webb's Depth of Knowledge (DOK).

The reviewers were English learner curriculum and test development specialists. Eight reviewers participated in the study, with six reviewers participating in the study for each grade band. The reviewers began the alignment process by first reviewing and analyzing the 2012 WIDA Standards for linguistic difficulty level. Subsequently, reviewers analyzed the LAS Links operational items for linguistic difficulty level and then aligned the LAS Links operational items to the 2012 WIDA Standards. Once reviewers determined the primary and/or secondary alignment and linguistic difficulty level for each item, they analyzed the entire assessment for linguistic difficulty level consistency, categorical concurrence, range-of-knowledge correspondence, and balance of representation.

The reviewers' judgments were statistically analyzed according to Webb's model of alignment. The model's statistical alignment criteria were applied, and the results were reviewed along with written responses to a debriefing questionnaire. Alignment of the test content with the 2012 WIDA Standards and the 2012 WIDA Levels was examined for this study.

Alignment to WIDA Standards

The following list shows the alignment of the Listening items to WIDA Standards 1 through 5 across all the LAS Links grade bands. It shows a strong alignment across all alignment indices for the Listening domain. Recall that, within each of the four alignment dimensions, there are three classifications for an item: Strong, Moderate, and Limited. Also, the five Standards for WIDA are the following:

- Standard 1: Social and Instructional Language
- Standard 2: The Language of Language Arts
- Standard 3: The Language of Mathematics
- Standard 4: The Language of Science
- Standard 5: The Language of Social Studies

Alignment to WIDA Levels

WIDA also assigns language proficiency levels in the standards. Following the Cook (2007) alignment study, DRC also aligned the LAS Links assessment to the WIDA Levels. Using the same four alignment criteria of linguistic difficulty level consistency, categorical concurrence, range-of-knowledge correspondence, and balance of representation, items were evaluated for alignment to the five levels used by WIDA:

- Level 1: Entering
- Level 2: Emerging
- Level 3: Developing
- Level 4: Expanding
- Level 5: Bridging

Taken as a whole, the alignment of the LAS Links items to the WIDA Standards and Levels is strong. Given the results, the use of LAS Links as a tool for progress monitoring and student attainment of English language proficiency is recommended and would help teachers and administrators assess their students well with regard to the WIDA Standards and Levels.

LAS Links 3rd Edition Updates

At the conclusion of the series of meetings to collect stakeholder input regarding LAS Links content needs, the following updates were specified for inclusion in the LAS Links 3rd Edition:

- The most current guidelines regarding bias, fairness, sensitivity, and accessibility for English learners have been applied.
- The test content and graphics have been adjusted to better reflect current English learner experiences and current learning environments. The format of some item types in Writing and Speaking were updated based on educator feedback.
- Blueprint modifications were made to select content areas and grade levels.
- Estimated administration times for operational tests were included.

<u>Bias, Fairness, Sensitivity, and Accessibility</u>

At every stage of the item and test development process for the LAS Links items, passages, and graphics, DRC employs procedures that are designed to ensure that items and tests meet Standard 7.4 of the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014).

> 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. (126)

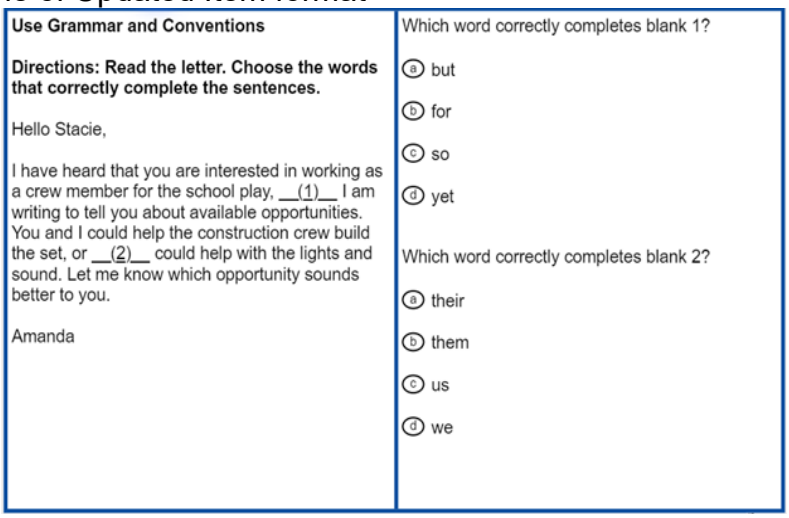
Item and passage development, as well as internal and external item reviews, focused especially on consideration of bias, fairness, sensitivity, and accessibility for the diverse and multicultural populations of EL/ML students. This population of students has a diverse range of experiences with schooling, technology, and academic language, and special consideration was given to ensure the passages and items were free from bias and were fair and accessible for EL/ML students. Additional information about this process can be found in the Content and Bias/Sensitivity Review section in Chapter 2 of this report.

Test Content, Graphics, and Item Formats

The test content and graphics have been developed to reflect current English learner experiences and current learning environments. The test content includes experiences that are universal and accessible to English learner students, such as common social situations and classroom settings. For example, one of the Speaking practice items asks student to identify a chair, an object commonly found in classroom and home settings.

The format of some item types in Writing and Speaking were updated based on educator feedback. An example of the revised format used for pairs of writing items using the same stimulus paragraph has been provided in Figure 1 below. This example reflects the content included in a pair of items in Grades 9-12. This item demonstrates the enhanced student view that includes both the stimulus paragraph and items on the same screen.

Figure 1. Example of Updated Item format



Update for Grades K-1 Writing Assessment

In the Start Writing section of the Grades K-1 assessment, there will be a difference between the print and the online forms for those items that ask students to “write” a number or letter. Online, students will be asked to “type” the number or type the letter. In print, they will continue to be asked to “write” the number or letter.

- The Start Writing items that ask students to look at a picture and write the word for that picture will have the same difference between print and online. Online, students will be asked to “type” the word for the picture in the box. In print, they will continue to be prompted to “write” the word on the line.
- The Start Writing items that currently ask students to copy a word or sentence will continue to use the word “copy” in both print and online.
- In all other sections of the Writing assessment (including at other grade bands), the word “write” will continue to be used for both print and online, as we are referring to the cognitive process of crafting a response rather than the physical act of putting that response in the response area (in print or online).

Blueprint Modifications

Update for Grade K Reading Assessment Blueprint

The item count for the kindergarten Reading subskill area Read School Texts has been reduced from ten to eight items. This change was made based on educator feedback indicating that some skills that are important to assess for first-grade students are beyond the appropriate expectations for kindergarten students. Additionally, student response data indicate that kindergarten students can be assessed reliably with fewer items in this subskill area.

Update for Grades K-1 Writing Assessment Blueprint

The item count for the Grades K-1 Writing subskill area Foundational Skills has been reduced from nine to seven items. This change was made as student response data indicate that seven items are sufficient to measure student performance accurately and reliably in this subskill area.

Update for Grades K-12 Speaking Assessment Blueprint

The item count for the Grades K-12 Speaking subskill area of Make Conversation has been reduced from three to one item, and the item count for the Grades K-12 Speaking subskill area Use Academic Words has been reduced from four to two items. Additionally, the item count for the Speaking subskill area of Present and Explain Information has been reduced from eight to six items for the assessments in Grades 2 −12, reduced from eight to four items for the Grade 1 assessment, and reduced from four to two items in the kindergarten assessment. These changes were made as

student response data indicate that fewer items are sufficient to measure student performance accurately and reliably in these subskills area.

Estimated Time to Complete Administration of Each Subtest for LAS Links 3rd Edition

Although the LAS Links is an untimed test, Table 8 shows the estimated time to complete the administration of each subtest across grade bands of the 3rd Edition. At Grades K-1, for example, the inclusion of field test items in the online forms is balanced by the reduction in operational items; therefore, estimated testing times remain consistent with the 2nd Edition tests. Listening, Speaking, and Writing all have the same estimated administration times as the previous forms. Only Reading has an increased estimated administration time (increased by five minutes).

Table 8. LAS Links 3rd Edition Testing Times

Subtest Area	Estimated Administration Time
Speaking	15 minutes—all grades
Listening	35 minutes—Grades K-1, 6-8, 9-12, 30 minutes—Grades 2-3, 4-5
Reading	40 minutes—Grades K-1, 2-3, 4-5 50 minutes—Grades 6-8, 9-12, CR items were replaced with MC items.
Writing	30 minutes—Grades K-1 40 minutes—Grades 2-12

For scheduling purposes, these time allocations are recommended to complete the administration of each subtest and do not include setup, logins, etc.

LAS Links 3rd Edition Test Design

As in the 1st and 2nd Editions, the LAS Links 3rd Edition is organized by grade and skill area. Core operational items are also distinguished from embedded field test items for test item review purposes. Embedded field test items facilitate ongoing improvement and monitoring of the tests and enable the development of future LAS Links forms. Table 9 provides the test design details for LAS Links 3rd Edition.

Table 9. LAS Links Forms E and F Operational Field Test Design

Grade Level	Skill Area	# of Practice Items	# of OP Items	# of Embedded FT Items	Total # of Items (Practice + OP + FT)
K-1	Listening	2	20	3	25
	Speaking	4	10 (8 for K)	3	17 (15 for K)
	Reading	3	30 (24 for K)	4	37 (31 for K)
	Writing	3	18 (14 for K)	3 (2 for K)	24 (19 for K)
2-3	Listening	2	20	3	25
	Speaking	4	12	3	19
	Reading	3	30	5	38
	Writing	2	17	3–4	22–23
4-5	Listening	2	20	3	25
	Speaking	4	12	3	19
	Reading	2	30	6	38
	Writing	2	17	3–4	22–23
6-8	Listening	2	23	3	28
	Speaking	4	12	3	19
	Reading	2	30	6	38
	Writing	2	17	3–4	22–23
9-12	Listening	2	23	3	28
	Speaking	4	12	3	19
	Reading	2	30	6	38
	Writing	2	17	3–4	22–23

Blueprint

The operational blueprint for LAS Links 3rd Edition is shown in Table 10. The blueprint is organized by skill area, language context strand, and subskill area. Operational item counts for each grade are shown, and MC items are distinguished from CR items. All new test forms for LAS Links will retain the same score scale as 1st and 2nd Editions.

Table 10. LAS Links 3rd Edition Blueprint

Skill Area	Language Context Strand	Subskill Area	Item Type	K-1 # of Items	2-3 # of Items	4-5 # of Items	6-8 # of Items	9-12 # of Items
Listening	Social, Intercultural, and Instructional Communication	Listen for Information	MC	8	8	8	9	9
	Language Arts/Social Studies/History	Listen for Academic Instruction	MC	2	3	3	3	3
		Listen for Information	MC	4	3	3	4	4
	Mathematics/Science/Technical Subjects	Listen for Academic Instruction	MC	2	3	3	3	3
		Listen for Information	MC	4	3	3	4	4
	Total	**Total**	**-**	**20**	**20**	**20**	**23**	**23**
Speaking	Social, Intercultural, and Instructional Communication	Make Conversation	CR	1	1	1	1	1
		Describe and Request Information	CR	2	2	2	2	2
		Tell a Story	CR	1	1	1	1	1
	Language Arts/Social Studies/History	Use Academic Words	CR	1	1	1	1	1
		Present and Explain Information	CR	2 (1 for K)	3	3	3	3
	Mathematics/Science/Technical Subjects	Use Academic Words	CR	1	1	1	1	1
		Present and Explain Information	CR	2 (1 for K)	3	3	3	3
	Total	**Total**	**-**	**10 (8 for K)**	**12**	**12**	**12**	**12**
Reading	Foundational Skills	Read Words	MC	12	6	N/A	N/A	N/A
	Social, Intercultural, and Instructional Communication	Read School Texts	MC	10 (8 for K)	10	14	14	14
	Language Arts/Social Studies/History	Read Academic Texts	MC	2	5	6	6	6
		Read School Texts (Gr. 1–12 only)	MC	2 (N/A for K)	2	2	2	2
	Mathematics/Science/Technical Subjects	Read Academic Texts	MC	2	5	6	6	6
		Read School Texts (Gr. 1–12 only)	MC	2 (N/A for K)	2	2	2	2
	Total	**Total**	**-**	**30 (24 for K)**	**30**	**30**	**30**	**30**
Writing	Foundational Skills	Start Writing	Auto CR	2	N/A	N/A	N/A	N/A
			CR	5				
	Social, Intercultural, and Instructional Communication	Use Grammar and Conventions	MC	4	6	6	6	6
		Write to Express Ideas	CR (0–3)	1	N/A	N/A	N/A	N/A
			CR (0–4)	N/A	1	1	1	1
	Language Arts/Social Studies/History	Use Grammar and Conventions	MC	1	2	2	2	2
		Write Academic Texts (Gr. 1–12 only)	CR	2 (N/A for K)	3	3	3	3
	Mathematics/Science/Technical Subjects	Use Grammar and Conventions	MC	1	2	2	2	2
		Write Academic Texts (Gr. 1–12 only)	CR	2 (N/A for K)	3	3	3	3
	Total	**Total**	**-**	**18 (14 for K)**	**17**	**17**	**17**	**17**

Item Development Process

According to the most recent edition of the Standards for Educational and Psychological Testing (AERA, APA, & NCME, 2014), “validity refers to the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests” (p. 11). Essential validation evidence supporting the LAS Links assessments is produced during the item and test development process. Content-related validation evidence supports inferences from a sample of observations (i.e., the test) to a domain of observations (i.e., English language proficiency within the content domain). A substantial source of this validation evidence is gathered from expert judgement of whether the test items and tasks are an adequate and representative sample of the domains of content being measured. For LAS Links Forms E and F, expert judgement included, for example, educators involved in the item and test development process, members of the state departments of education where LAS Links is used for summative purposes, DRC test development specialists, and national consultant experts in English language proficiency.

As stated, content-related evidence of the validity of the intended test score interpretation in summative assessments is supported by a correspondence between test content and a specification of the content domain or reporting category. For LAS Links, evidence of content-related validity is demonstrated through consistent adherence to test blueprints and through high-quality item and test development processes that include reviews of items for their alignment to the LAS Links Standards Framework, appropriateness for the grade span and population of English learners, and freedom from issues of bias, fairness, or sensitivity.

The item and test development process requires a cohesive development approach blending what may appear to be discrete processes into a single, seamless development cycle. Those discrete processes include the development of test and item specifications and content blueprints, item writing, item editing, passage and/or stimulus creation, item reviews (by internal DRC reviewers, external consultants, and committees of educators), field test administrations, and data reviews, and the processes must be understood as a whole to understand the relationships between the parts. DRC’s model for the LAS Links development follows the Standards for Educational and Psychological Testing (AERA, APA, & NCME, 2014) since items are developed to reflect the range of cognitive ability inherent in the standards, resulting in reliable and instructionally valid tests. In addition, the item and test development process adheres to the Principles of Universal Design, and it reflects a clear understanding of how items and tests must lend themselves to accessibility by diverse groups of students and must function appropriately across a broad range of test administration accommodations.

Table 11 provides a summary of the major item and test development activities that occurred in order to develop the operational LAS Links Forms E and F test forms. This section also provides information regarding how DRC item and test developers engaged educators from states including Connecticut, Mississippi, Texas, Florida, New York, and

California in the process and followed rigorous procedures to develop and subsequently select items to be administered on the LAS Links Forms E and F assessments.

This section is particularly relevant to addressing AERA, APA, & NCME (2014) Standards 4.0, 4.1, and 4.7 from Chapter 4 of the AERA, APA, and NCME (2014) Standards, "Test Design and Development." AERA, APA, & NCME (2014) Standard 4.0 states the following:

> Tests and testing programs should be designed and developed in a way that supports the validity of interpretations of the test scores for their intended uses. Test developers and publishers should document steps taken during the design and development process to provide evidence of fairness, reliability, and validity for intended uses for individuals in the intended examinee population. (p. 85)

This section also addresses Standards 3.1, 3.2, 3.9, 4.12, and 7.4.

Table 11. Development Process for the LAS Links Forms E and F

Step	Description
1. Item and Test Development Planning (including development of test designs, blueprints, and draft item specifications)	DRC received feedback from potential state partners and advisory committees that were formed to review LAS Links Forms C and D to consider new forms development and make recommendations for the direction of future forms. Based on this feedback, DRC drafted a development plan, including test designs and desired blueprints from which draft item specifications and the item development plan were determined.
2. Development of Passages	DRC item and test development specialists provided LAS Links specific training to experienced passage developers who submitted passages for review and approval. Those passages were then reviewed by DRC item and test development specialists and editors, including bias, fairness, and sensitivity experts, and edited as necessary. Graphics and audio files were also developed and approved during this process. Acceptable passages with associated graphics were moved forward to the item writing phase.
3. Item Writing	DRC provided LAS Links specific training to item writing specialists who then wrote and submitted items; submitted items were entered into DRC's Item Banking System (IDEAS).
4. Editorial and Content Review of the Items; Graphics Creation	DRC item and test development specialists and editors, including bias, fairness, and sensitivity experts, reviewed and edited items as needed. Items were prepared for item review.
5. Item Review	Items were reviewed by experts in English language acquisition and assessment, including bias, fairness, and sensitivity experts. Each reviewer recommended that items be accepted as is, accepted with specific revisions, or rejected from the item pool.

Step	Description
6. Items Selected for Field Testing	The feedback from all reviewers was then reconciled by DRC item and test development specialists, and edits were incorporated as needed. Final content and editorial reviews were completed. DRC item and test development specialists then selected items to be placed into forms for the standalone field test.
7. Embedded Pilot of Newly Developed Items	The pilot of the items took place. Participating students were administered either Forms C or Form D for operational scores as well as a pilot session for each participating domain. The performance of the items was analyzed, and the results were provided to DRC item and test development specialists.
8. Review Meeting with Connecticut Educators	DRC facilitators led a committee of educators through a review of items from LAS Links Forms C and D. Educators provided both general and item-specific feedback that was used to inform plans for additional item development and revisions to test directions.
9. Item Development Plan for Round 2 Finalized	Based on the results of the pilot and feedback from educators, including those participating in the review meeting in Connecticut, DRC item and test development specialists created item development plans for the second round of item development. These item development plans were reviewed and approved by senior members of the item and test development staff at DRC.
10. Development of Passages	DRC item and test development specialists provided LAS Links specific training to experienced passage developers who submitted passages for review and approval. Those passages were then reviewed by DRC item and test development specialists and editors, including bias, fairness, and sensitivity experts, and edited as necessary. Graphics and audio files were also developed and approved during this process. Acceptable passages with associated graphics were moved forward to the item writing phase.
11. Item Writing	DRC provided LAS Links specific training to item writing specialists who then wrote and submitted items; submitted items were entered into DRC's Item Banking System (IDEAS).
12. Editorial and Content Review of the Items; Graphics Creation	DRC item and test development specialists and editors, including bias, fairness, and sensitivity experts, reviewed and edited items as needed. Items were prepared for item review.

Step	Description
13. Item Review Meeting with Educators	DRC facilitated a virtual item review meeting with educators from Connecticut, Mississippi, Texas, Florida, New York, and California. Committee members participated in one grade-span committee: K-1, 2-3, 4-5, 6-8, or 9-12. Items were reviewed for content alignment (educators from Connecticut were asked to align items to Connecticut English Language Proficiency Standards as well as LAS Links Standards); grade-level appropriateness; level of difficulty; Universal Design, including bias, fairness, and sensitivity and appropriate language demand for the grade span and content area; and elements of technical design (including reviews of the correct answer and distractors as well as graphics for each item). Committees came to consensus regarding the status of each item: accepted as is, accepted with revisions (specified by the committee), or rejected.
14. Items Selected for the LAS Links Form E Operational Field Test	All feedback from the item review meeting was reviewed; edits suggested by the educators were incorporated as needed; final content and editorial reviews were conducted. DRC item and test development specialists selected items to be placed into embedded field test forms within the Form E Operational Field Test. Additionally, adhering to the approved test designs, blueprints, item specifications, and guidelines for item analysis and forms construction, items previously used on Forms C or D or in field test positions within the pilot were selected for the operational positions upon which student scores were based.
15. Administration of LAS Links Form E Operational Field Test	The LAS Links Form E Operational Field Test was prepared for administration in spring 2021. These forms were administered in Mississippi in spring 2021. The forms were ready for administration in spring 2021 in Connecticut; however, due to lingering concerns about the pandemic, the administration of the Form E Operational Field Test was delayed until spring 2022.
16. Data Review Meeting with Educators	DRC facilitated a virtual data review meeting with educators from Connecticut and Mississippi. Committee members participated in one grade-span committee: K-5, 6-8, or 9-12. Educators reviewed item content and alignment, informed by student response data, to determine whether each item was acceptable for use on a LAS Links assessment or should be rejected. For certain items that had appeared on the K-1 assessment, educators could also determine that the item was appropriate for first grade students while rejecting it for kindergarten students.

Step	Description
17. Items Selected for the LAS Links Form F Operational Field Test	Adhering to the approved test designs, blueprints, item specifications, and guidelines for item analysis and forms construction, items previously used on Forms C or D or in field test positions within LAS Links Operational Field Test Form E were selected for the operational positions upon which student scores were based. Additional items were selected for research purposes to fill the field test positions.
18. Administration of LAS Links Form F Operational Field Test	The LAS Links Form F Operational Field Test was administered in Connecticut in spring 2023.
19. Items Selected for the LAS Links Form E	Minor adjustments were made to the operational selection of items for LAS Links Form E per educator feedback received during the data review. The operational selection was again confirmed to adhere to the approved test designs, blueprints, item specifications, and psychometric guidelines for item analysis and forms construction. Additional items were included in embedded field test positions in order to facilitate future form maintenance.
20. Administration of LAS Links Form E	The LAS Links Form E was administered in Connecticut in spring 2024.

Listening Test Considerations

Brown (1995) provides a very useful set of Cognitive Load Principles, which we have adapted below.

- Less is more. It is easier to understand a text involving fewer individuals, characters, or objects. As the number of people or things involved in a Listening passage increases so does the likelihood of confusion, even for native speakers, as these details must be retained in short-term memory.
- Distinguish between interactants. It is less cognitively demanding to understand a text (e.g., narrative, description, instruction) involving individuals and objects that are easily distinguishable from one another. It would be easier to understand and remember story details about a dump truck, an ambulance, and an SUV than one about three sedans. “The more individuals and objects are similar and the more they are described in similar terms, the more likely they are to be misidentified . . .” (Brown, 1995, p. 63).
- There’s no “there there.” It is easier to understand texts that involve uncomplicated spatial relations. When we listen to a story, we construct a mental model of the scene and use this model as a stage on which to place the people and things and observe their actions. The simpler the spatial relations, the easier it is to visualize them. The same can be said for temporal relationships.

- Straight talk. It is easier to understand texts when the order of telling matches the order in which the events occurred. As they listen to a narrative, listeners assume the events happened in the order reported. Such narratives are easier to understand because they require less manipulation of the listeners' mental model and do not overburden short-term memory.
- Be clear. It is easier to understand a text if relatively few inferences are necessary to relate each sentence to the preceding text. In other words, avoid ambiguity and obscurity, and be clear with respect to orderliness. In the English spoken in the United States, the rhetorical style is for more general details to precede more specific ones and for causes to precede effects to avoid non-linear narratives. On the other hand, a related pitfall we find is that in attempting to "simplify" texts, some writers make the mistake of eliminating detail to shorten sentences. An analysis by Beck, McKeown, Sinatra, & Loxterman (1991) has shown that texts that present only facts with little explanation of their relationship are more difficult to comprehend than texts that provide more elaboration on how the material is connected. One reason for this may be that the lack of elaboration puts the onus of drawing all such inferences on the reader. Likewise, some syntactically simple texts are difficult to comprehend because the text is poorly organized. The following excerpt from a reading passage exemplifies this point:

    > A house on stilts is high above the ground. People build houses on stilts in Thailand. Thailand is a country in Southeast Asia. The weather in Thailand is very warm. Air can move around well in a house on stilts. In the summer the country has heavy rainstorms. These heavy storms are called monsoons. One area of Thailand gets the most rain.

- The sentences are syntactically straightforward and, with the exception of "stilts," the vocabulary consists of mostly common words; however, the text lacks coherence, making it very difficult for even a skillful reader to understand. As a result, the excerpt is easy to read but not easy to comprehend.
- Expect the expected. It is easier to understand a text if the information is consistent and fits with the listener's pre-existing knowledge. Thus, it is easier to follow a narrative about a topic we already know well than one we know nothing about. It is, for example, a standard gambit to open a conversation by setting a common point of reference, such as, "Remember the time we went to Lake Revelstoke?" This strategy ensures that everyone involved in the conversation starts from the same point of reference and listeners can retrieve the shared background knowledge necessary for comprehension. If the information that follows is new but compatible with the old, it is easier for listeners to incorporate it into their knowledge system. According to Brown (1995), problems arise for listeners when the incoming information is ambiguous, expressed vaguely, or is not compatible with the listener's existing knowledge.

Speaking Test Considerations

- Specifications to develop stimuli for items in the Present and Explain Information subtest provided guidance to ensure test authenticity.
- For items in the Tell a Story subtest, art development was specified so that
    - distinct events occurred in each illustration.
    - actions were easily understood visually.
    - the depicted events and actions had a beginning, middle, and end.
    - interpretation did not rely on facial expressions, gestures, or body stance to convey action or meaning, for example, “He is looking at the pear and the apple but can’t decide which one to choose.” These subtle clues could be tied to a particular culture unknown or unfamiliar to the student. If the narrative relied on these types of clues, students may not understand what is happening and may stop their telling of the story. This could lead the test administrator to erroneously assume that the student lacks the language skills necessary to tell the story when the cause could in fact be more a matter of the pictures not telling the story.

Reading Test Considerations

- The LAS Links Reading test was designed to reflect the expectations that all K-12 students read and comprehend more complex texts, including English Learners/ Multilingual Learners (ELs/MLs). Thus, the criteria for developing extended passages were to ensure that texts were comparable to mainstream classroom texts currently in use throughout the United States in terms of construction, complexity, and appearance.
- ACT, Inc (2006) provided guidance on defining degrees of text complexity. It categorized texts as being Uncomplicated, More Challenging, or Complex. For the purposes of text development for LAS Links, the extended texts were written to align most closely to the More Challenging category, which is defined by the following text features: implicit relationships, detailed richness, involved structure, and a context-dependent use of some more complex vocabulary.
- Reading dichotomous constructed-response items consist of a chart, table, or diagram with missing information for students to complete. To avoid raters having to make a judgment as to the veracity of the response, students are required to enter the information exactly as it appears in the text to improve reliability. The information required to respond is contained in the passage to ensure that students will not need to rely on background knowledge to complete the table.

Writing Test Considerations

- As there are far more assessable features of language than there are test items, developers were asked to target the essential aspects of syntax and mechanics. For guidance, they referred to the skills explicitly noted in the CCSS (2010) for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects.
- The texts in the Writing prompts are designed to be grade-level appropriate and not require new background knowledge. This is crucial to assess students' language proficiency skills, instead of their content knowledge of specific topics.

Item Selection and Form Assembly

- Items selected for the 3rd Edition came primarily from the operational field tests for Forms E and F, with a small number of items used from Forms C and D. Any items that failed to meet the established psychometric criteria were not selected. The detailed content and psychometric criteria are listed in Table 12.

Table 12. Item Selection and Form Assembly Criteria

Aspects	Criteria
Test Blueprint	adhere to sub-skill category quotas to ensure content coverage.
Item Difficulty	minimize the number of items with *p*-values <=0.20 or >= 0.95.
Item-Total Correlation	minimize the number of items with item-total correlations <0.15 and MC items with any of the distractor point-biserial >0.05.
Item Omit Rate	minimize the number of items with omit rates >=5%.
Test Information	maximize test information at and around the LAS Links cut scores with the target test information equal to or greater than that on the operational Forms A and B.
Standard Error of Measurement	minimize standard error of measurement for the target student ability span at each grade span.
IRT Model Fit	minimize the number of poor-fitting items.
DIF	avoid inclusion of items with C+ or C- DIF
Distribution of MC Answer Key Positions	distribute MC answer key positions should be evenly distributed throughout the form in general and should avoid the same position being repeated consecutively.
Item Selection Review	• cues as to the correct answer from one item to another, context redundancy, • presence of clang (distractors not unique from one another), • diversity of names and artwork for gender and ethnicity, time to complete test consistent with established recommendations.

Quality Control Evidence

Items were reviewed for adherence to the item-writing specifications, which included developmental appropriateness, item difficulty, freedom from areas of potential bias, and appropriate answer choices and distractors on the basis of both content considerations (e.g., expert reviews) and statistical evidence as noted in Table 12. Additionally, items went through a thorough review by internal and external review panels for bias and sensitivity. During form development, items and the overall test construction were reviewed for considerations of Universal Design principles, including equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort, and size and space for approach and use.

Item Review Criteria

To ensure appropriate cognitive demands and readability, DRC developed items with the following criteria in mind:

- Vocabulary that is consistently at or below the targeted grade level, verified by graded word lists such as *EDL Core Vocabularies* and *The Living Word*.
- Syntax that is grade-level appropriate.
- Information that is necessary for assessing the skill or knowledge being tested is the only information given.
- Detailed directions or large amounts of text divided into steps, sections, or bulleted lists to help students understand the task.
- Key words or phrases that are presented in a consistent style to make the task clear for the student.
- After items were written, DRC content specialists reviewed the material for standards alignment, grade-level-appropriateness, item difficulty, freedom from areas of potential bias, and appropriate answer choices and distractors. Every item underwent at least two reviews by the content specialists to ensure the following:
    - Item correspondence to the identified standard and construct.
    - Relevance of each item to the purpose of the test.
    - Correspondence to the principles of quality item development.
    - Appropriate item difficulty.
    - Accuracy of content presented in the item.
    - Appropriateness of language, graphics, artwork, charts, and figures.

LAS Links items must demonstrate a match to the LAS Links Standards Framework, high technical quality, and appropriate difficulty; the items must provide appropriate alternative choices (distractors) in MC items and the item writers must provide complete answers for open-ended questions.

Match to LAS Links Standards Framework

Each item had to demonstrate a specific match to the selected standard. The item writers were required to establish the close correspondence between the standards and the test questions clearly; this correspondence was verified by DRC content editors and development supervisors. This step represented the first verification of the content validity of each item.

Technical Quality

For MC items, technical quality included fully stated stems (i.e., the stem states a complete question so that the student understands what is asked before reading the response options); balanced response options (no answer choice is conspicuous due to length, syntax, tone, level of specificity, or other reason); plausible and reasonable distractors; absence of cueing between stem and answer choices; brevity; and clarity. For OE items, technical quality included precisely and fairly stated prompts that yield appropriate responses and well-formed and effective scoring rubrics and sample student responses.

Difficulty Level

Items were reviewed to ensure an appropriate difficulty level for the purpose of the test. DRC's development team kept a record of the estimated difficulty of each item to ensure that items were written within a specific range of difficulty in any given test.

Appropriate Distractors for Multiple-Choice Items

Item writers submitted answer keys with their MC items. Writers were directed to double check distractors to verify that no ambiguous or misleading incorrect response options existed, that there was only one clear correct answer per item, and that answer choices did not include outliers. DRC content editors and development supervisors then verified the correct responses.

Complete Answers for Open-Ended Items

When writing OE items, the writers provided a correct and complete answer, as well as a range of answers possible for each item. In addition, both the writers and the reviewers examined every item to ensure that none invited a discussion of the personal beliefs or practices of a student or student's family. Any such items were immediately revised or rejected.

Development supervisors, content editors, and item writers further refined items collaboratively until all items met or exceeded both DRC's high standards and the

criteria in the specifications. All items developed for the LAS Links pool went through this exacting process.

Universal Design

Assessments that are universally designed allow the widest possible range of students to participate, resulting in more valid inferences about students' performance. Universally designed assessments may reduce the need for accommodations by decreasing or eliminating access barriers associated with the tests themselves.

The Principles of Universal Design were incorporated throughout the item development process to allow participation of the widest possible range of students who would be taking LAS Links® Forms E or F. During the item writing and subsequent item review, educators and test development specialists were provided with information regarding the Principles of Universal Design and how items and eventually operational assessments need to adhere to the principles.

Table 13 provides an overview of the information regarding the Principles of Universal Design and the guidelines provided by the National Center for Educational Outcomes (NCEO) (Thompson, Johnstone & Thurlow, 2002). As an integral part of the item writer training, this information was provided to the educator and test development specialist item writers and reviewers. The elements of universal design are relevant to both item development and form construction. Through the use of the principles, validity evidence is provided to document that the items and subsequently the assessments have been designed to measure the knowledge and skills across the full achievement continuum described in the content standards and that the assessments are fair for all students at all levels of proficiency.

Table 13. Elements of Universal Design

Element	Explanation
Inclusive Assessment Population	Tests designed for state, district, or school accountability must include every student except those in the alternate assessment, and this is reflected in assessment design and field-testing procedures.
Precisely Defined Constructs	The specific constructs tested must be clearly defined so that all construct-irrelevant cognitive, sensory, emotional, and physical barriers can be removed.
Accessible, Nonbiased Items	Accessibility is built into items from the beginning, and bias review procedures ensure that quality is retained in all items.
Amendable to Accommodations	The test design facilitates the use of needed accommodations.
Simple, Clear, and Intuitive Instructions and Procedures	All instructions and procedures are simple, clear, and presented in understandable language.

Element	Explanation
Maximum Readability and Comprehensibility	A variety of readability and plain language guidelines are followed (e.g., sentence length and number of difficult words are kept to a minimum) to produce readable and comprehensible text.
Maximum Legibility	Characteristics that ensure easy decipherability are applied to text, tables, figures, illustrations, and response formats.

In addition to the Principles of Universal Design and the NCEO guidelines, DRC also considers the Frameworks for Universal Design for Computer-Based Testing (UD-CBT) and Universal Design for Learning in providing training to educators and test development specialists contributing to the development of the LAS Links Forms E and F. These guidelines specify how digital technologies can be used to create tests that more accurately assess students who possess a diverse range of physical, sensory, and cognitive abilities and challenges. UD-CBT has been found to level the playing field for students with disabilities and for English learners.

In adherence with the federal Individuals with Disabilities Education Act (IDEA) of 2004, DRC trained item writers to adhere to the Principles of Universal Design, and DRC's team of content item and test development staff also incorporated the principles into the design and development of the assessment delivery system, DRC INSIGHT, ensuring that the system used to deliver LAS Links Forms E and F is also accessible to the widest possible range of students.

Considerations for the Speaking Test

- Specifications to develop stimuli for items in the Present and Explain Information subtest provided guidance to ensure test authenticity.
- For items in the Tell a Story subtest, art development was specified so that:
    - distinct events occurred in each illustration.
    - actions were easily understood visually.
    - the depicted events and actions had a beginning, middle, and end; and,
    - art specifications did not rely on facial expressions, gestures, or body stance to convey action or meaning. These subtle clues could very well be tied to a particular culture unknown or unfamiliar to the student. If the narrative relied on these types of clues, students may not understand what is happening, and may stop their telling of the story. This could lead the test administrator to erroneously assume that the student lacks the language skills necessary to tell the story when the cause could in fact be more a matter of the pictures not telling the story.

Considerations for the Reading Test

- Given the expectation that all K-12 students read and comprehend more complex texts, including English learners (ELs), the LAS Links Reading test was designed to reflect this trend. Thus, the criteria for developing extended passages were to ensure that texts were comparable to mainstream classroom texts currently in use throughout the United States in terms of construction, complexity, and appearance.
- ACT, Inc. (2006) provided guidance on defining degrees of text complexity. It categorized texts as being Uncomplicated, More Challenging, or Complex. For the purposes of text development for LAS Links, the extended texts were written to align most closely to the More Challenging category, which is defined by the following text features: implicit relationships, detailed richness, involved structure, and a context-dependent use of some more complex vocabulary.

Considerations for the Writing Test

- As there are far more assessable features of language than there are test items, developers were asked to target the essential aspects of syntax and mechanics. For guidance, they referred to the skills explicitly noted in the CCSS (2010) for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects.
- The texts in the Writing prompts are designed to be grade-level appropriate and not requiring new background knowledge. This is crucial in order to assess students' language proficiency skills instead of their content knowledge of specific topics.

Content and Bias/Sensitivity Review

At every stage of the item and test development process, DRC employs procedures that are designed to ensure that items and tests adhere to Standard 7.4 of the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014).

> 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. (p. 82)

To meet Standard 7.4, DRC employs a series of internal and external quality steps. DRC provides specific training for test developers, graphic artists, editors, item writers, and reviewers on how to write, review, revise, and edit items for issues of bias, fairness, and sensitivity (and for technical quality).

Training also includes an awareness of and sensitivity to issues of cultural diversity. In addition to providing internal training in reviewing items to eliminate potential bias, DRC's guidelines for bias, fairness, and sensitivity include instruction concerning how to eliminate language, symbols, words, phrases, and content that might be considered offensive by members of racial, ethnic, gender, or other groups. Areas of bias that are specifically targeted include, but are not limited to, stereotyping, gender, regional/geographic, ethnic/cultural, socioeconomic/class, religious, and biases against a particular age group (ageism) or persons with disabilities. In the development of the LAS Links assessments, DRC also noted topics that should be avoided and maintained a balance of gender and ethnic emphasis within the pool of available items and passages. DRC's guidelines were provided at all stages of the item development cycle, from item writing to editing and reviews.

Below are the criteria used by external reviewers for evaluating content and potential bias/sensitivity issues.

- The item is appropriate to the grade span.
- The item is aligned to the indicator.
- The item has accurate content.
- The item has a single correct answer (selected-response (SR) items only).
- The item has an accurate rubric (CR items only).
- The item has accurate art (graphics only).
- The item has clear graphics (graphics only).
- The item adheres to Universal Design principles.
- The item is free from bias and sensitivity issues.

Below is a list of the major areas of assessment that were reviewed.

- passages
- artwork
- item questions
- distractors in SR items
- cognate "Say words" items (potentially favoring Spanish speakers)
- interchangeable items (where items need to be scored together and answers are interchangeable)
- scoring rubrics/sample answers
- item/test directions
- standards alignment

The LAS Links items were also reviewed by national bias, fairness, and sensitivity experts. The national English Learner bias, fairness, and sensitivity reviewers DRC uses to review its LAS Links items collectively have a vast array of experience in education, providing them with diverse perspectives. All reviewers are experienced in the review of passages and items for bias, fairness, and sensitivity issues and for adherence to the Principles of Universal Design. Their perspectives and experiences include knowledge of special populations, such as English language learners, students with disabilities, and ethnically and culturally diverse students. The reviewers have backgrounds in the following professions: English Learner classroom teacher, English Learner curriculum specialist, content-area instructional specialist, test development editor, and university professor. To provide a national and diverse perspective, reviewers are also located around the country in California, Connecticut, Florida, Minnesota, New York, and Texas.

The national reviewers of the LAS Links items also identified issues that could negatively affect a student's ability to elicit valid evidence about an assessment target or to access passages or items. During the bias, fairness, and sensitivity review, for example, reviewers were specifically tasked with identifying content in the passages or items that could negatively affect a student's ability to produce a correct response because of the student's background. In addition, reviewers also checked the accuracy of the content, answer keys, and scoring materials. Items flagged for accessibility, bias/sensitivity, and/or content concerns were either revised by DRC item and test development specialists to address the issues identified by the reviewers, or the items were removed from the pool of items.

Data Review

The main purpose of the data review was to use item level statistics derived from the operational field testing to identify items requiring additional content review before they might be considered for selection on the LAS Links 3rd Edition forms. The following presents information about the process used for data review, how items were identified for further review, and the results and outcomes of the data review.

The data review process employs three approaches to statistically evaluate flagged items for review: evaluation of item difficulty, discrimination, and DIF. Collectively, these analyses are referred to as classical item analyses (CIA) and their results, unlike IRT item statistics, are straightforward for content reviewers to understand and apply in their review of items. Readers are referred to Chapter 4 for detailed descriptions of the item statistics used here.

Criteria for Identifying Items

All field test items were analyzed statistically using conventional item-analysis methods. For MC items, classical item statistics included the corrected point-biserial correlation (Pt. Bis.) for the correct and incorrect responses (distractors), percent correct (p-value), and the percent responding to incorrect responses. For CR items, the statistical indices

included the item-test correlation, the point-biserial correlation for each score point, the percent of responses at each score point, and the percent of non-scoreable responses.

In general, more capable students are expected to respond correctly to easy items and less capable students are expected to respond incorrectly to difficult items. If either of these situations does not occur, the item will be reviewed by DRC test development staff and committees of educators to determine the nature of the problem and the characteristics of the students affected. The primary way of detecting such conditions is through the point-biserial correlation. In each case the statistic will be positive if the total test mean score is higher for the students who respond correctly to MC items (or attain a higher CR item score) and negative when the reverse is true.

The following set of criteria was used to identify items for additional review.

For an MC item to be flagged, the criteria included any of the following:

- Percent correct (p-value) less than 0.2 or greater than 0.95,
- Point-biserial correlation for the correct response less than 0.15,
- Point-biserial correlation for any incorrect response greater than 0.0,
- Gender DIF code of B-, B+, C-, or C+.

For a CR item to be flagged, the criteria included any of the following:

- Adjusted p-value less than 0.2 or greater than 0.95,
- Point-biserial correlation less than 0.15,
- Gender DIF code of B-, B+, C-, or C+.

Review of Items with Data

In the preceding section, it was stated that test development content-area specialists used certain statistics from CIA and DIF analyses of the 2021—2022 field test to identify items for review by educators. Items not identified for this review had good statistical characteristics and, consequently, were entered into the eligible pool for future item selection. Likewise, items of extremely poor statistical quality were regarded as unacceptable and needed no additional review. DRC content-area test development specialists and DRC psychometric specialists identified the remaining items for further review by a committee of educators. The intent was to capture all items that needed a closer review; thus, the criteria employed tended to over-identify rather than under-identify items.

The review of the items with associated data was conducted by 15 educators (teachers, curriculum specialists, and administrators) broken out into grade-span committees. Demographic and background information for the participants in each committee is included in Tables 14 and 15 below.

Table 14. Grades K-5 Committee Participants Demographic and Background Information

Reviewer #	Gender	Race/ Ethnicity	Background
1	Female	White	Classroom teacher for English Learners
2	Female	White	Instructional coach and teacher consultant for EL acquisition
3	Female	White	English Learner/Bilingual Coordinator
4	Female	White	English Learner/Bilingual Coordinator and Special Education Coordinator
5	Female	White	Instructional coach and teacher consultant for EL acquisition
6	Male	White	Consultant for a State Department of Education

Table 15. Grades 6-12 Committee Participants Demographic and Background Information

Reviewer #	Gender	Race/ Ethnicity	Background
1	Female	White	Classroom teacher for English Learners and Special Education
2	Female	White	English Learner/Bilingual Coordinator
3	Female	Hispanic	Classroom teacher for English Learners
4	Female	White	Classroom teacher for English Learners
5	Female	White	Instructional coach and teacher consultant for English language acquisition
6	Female	White	Classroom teacher for English Learners
7	Female	White	English Learner/Bilingual Coordinator
8	Female	Hispanic	District Coordinator for English Learners
9	Female	White	English Language Arts Consultant for a State Department of Education

The review took place in June 2022 virtually using Zoom. The committee reviewing the items for the K-1, 2-3, and 4-5 grade bands met over the course of three full-day meetings within the same week. The committee reviewing the items for the 6-8 and 9-12 grade bands met for two full-day meetings within the same week. In these sessions, committee members were first introduced to the processes of developing the LAS Links assessments and were then trained by a representative from DRC's psychometrics staff with regard to the statistical indices used in item evaluation. This was followed by a

discussion with examples concerning reasons that an item might be retained regardless of the statistics.

The committee review process involved a brief exploration of possible reasons for the statistical profile of an item (e.g., possible bias, grade appropriateness, instructional issues) and a decision regarding acceptance. DRC content-area test development specialists facilitated the review of the items. Each committee reviewed the flagged items from the pool of field tested items and made recommendations on each item and/or passage. Note that items were flagged separately at Grades K and 1, but if they were flagged at one grade, the data were reviewed for both grades. The educator committee had the options of accepting an item for both grades, accepting the item at only grade 1, or rejecting the item at both grades. No items could be accepted for kindergarten if they were not also accepted at Grade 1. For all other grade spans, data from all grades within the span were combined and a single set of item parameters was reviewed. Data review details and results are shown in Tables 16 and 17.

Results

DIF analyses were conducted on the 2021–2022 field test items. The number of items from each subject and grade span that were assigned to each severity code is shown in Table 16. In Listening, there were a total of five items identified as having more than negligible (B) DIF for gender. In Reading, there were eight items identified as having more than negligible (B) DIF and one item with sizable (C) DIF for gender. No Speaking items were identified as having either more than negligible (B) or sizable (C) DIF for gender. In Writing, four items were identified as having more than negligible (B) DIF and two items with sizable (C) DIF for gender.

Note that items flagged for p-value and/or point-biserials are summarized together in Table 17.

Table 16. 2022 Data Review Committee Results

Subject	Grade Span	Total No. of Items in FT	Reviewed MC	Reviewed CR	Reviewed DIF Only	Total Reviewed	No. of Items Rejected by Committee	No. of Items Classified as Rejected[1]
Listening	K	23	8	NA	0	8	2	6
	1	23	8	NA	0	8	2	6
	2-3	24	8	NA	1	8	0	0
	4-5	27	5	NA	1	5	1	2
	6-8	30	9	NA	0	9	4	4
	9-12	24	3	NA	2	3	0	0

[1] *Items classified as "Rejected" from 2021—2022 field test (all sources: data review committee, rejected prior to committee review)*

Subject	Grade Span	Total No. of Items in FT	Reviewed MC	Reviewed CR	Reviewed DIF Only	Total Reviewed	No. of Items Rejected by Committee	No. of Items Classified as Rejected[1]
Reading	K	42	31	NA	0	31	7	7
	1	42	31	NA	0	31	3	3
	2-3	43	3	NA	1	3	1	1
	4-5	58	9	NA	4	9	3	3
	6-8	57	16	NA	1	16	8	9
	9-12	58	3	NA	3	3	0	2
Speaking	K	15	NA	2	0	15	0	1
	1	15	NA	2	0	15	0	1
	2-3	16	NA	0	0	0	0	0
	4-5	16	NA	0	0	0	0	0
	6-8	16	NA	0	0	0	0	0
	9-12	16	NA	1	0	1	1	1
Writing	K	22	5	8	0	13	1	1
	1	22	5	8	1	13	1	1
	2-3	21	2	1	0	3	0	0
	4-5	27	0	1	1	1	0	0
	6-8	27	0	1	1	1	0	0
	9-12	28	1	3	3	4	1	2

Table 17. DIF Summary for Male/Female

Subject	Grade Span	B+	B-	C+	C-	Total
Listening	K					0
	1					0
	2-3	2				2
	4-5		1			1
	6-8					0
	9-12	1	1			2
Reading	K					0
	1					0
	2-3			1		1
	4-5	2	2			4
	6-8		1			1
	9-12	1	2			3
Speaking	K					0
	1					0
	2-3					0
	4-5					0
	6-8					0
	9-12					0

Subject	Grade Span	B+	B-	C+	C-	Total
Writing	K					0
	1	1				1
	2-3			1		1
	4-5	1				1
	6-8	1				1
	9-12	1		1		2

Validity Based on Linguistic Processes

Knowledge of the theory and practice of cognitive labs has grown substantially since the original development of LAS Links. Meanwhile, the body of evidence demonstrating the validity of LAS Links test scores has been collected over time, and over the development of new forms. Although the exploration of response processes has not been conducted through the application of cognitive labs, several components of the larger body of evidence of LAS Links test score validity provide relevant evidence of the validity of linguistic processes.

First, item discrimination as measured by point-biserial correlations and DIF are measures that are sensitive to unexpected response patterns. Where unexpected response patterns are present, items would likely be flagged for low discrimination or DIF. As noted, selecting items during the form construction processes involves a purposeful focus on selecting items that meet criteria for well-discriminating items that do not favor or disfavor particular student groups. Refer to Chapter 4 for details regarding the results of CIA and DIF analyses for the final LAS Links 3rd Edition item selections.

Further, items that were flagged during item analyses were subsequently evaluated by content experts and by US educators for their appropriateness to include in the LAS Links 3rd Edition assessments during the data review previously described. The items that did not pass this data review were not considered for inclusion.

Also, as noted previously, panels of English language development and assessment experts have been continually consulted over time to provide recommendations for improvement during new forms development. The focus of these efforts was to identify opportunities to improve the content and format of items such that the responses collected from students provide accurate representations of their English language proficiency without interference from construct irrelevant features. As previously discussed, findings from these targeted reviews have been addressed directly in the test design and blueprints for the LAS Links 3rd Edition.

Chapter 3: Field Testing: Design, Samples, Administration, Scoring, Item Calibration and Equating

This chapter provides information about field testing the content for LAS Links 3rd Edition. Field test designs, samples, test administration, scoring processes, scoring quality, and item calibration and equating are described.

Operational Field Testing

The new LAS Links content developed as described in Chapter 2 was administered as two operational field tests, in two states, over three consecutive spring test administrations. Operational field testing in this case allowed for the collection of valid and reliable test data while simultaneously implementing the intended overall enhancements to the test design. This design ultimately supported optimization of the balance between test length for individual students and the time required to deliver LAS Links 3rd Edition on a useful and reasonable timeline following the impacts of the COVID-19 pandemic on schools and large-scale assessment.

The use of an operational field test approach for the development of the LAS Links 3rd Edition also helped avoid some well-known challenges associated with student motivation in standalone field test contexts and with the time required to collect sufficient data for scaling and equating through embedded field testing of new content.

Field Test Designs

The LAS Links Form E Operational Field Test consisted of existing items that had been modified based on educator feedback and newly developed items following the processes described in Chapter 2. The field tests also necessarily included items from LAS Links 2nd Edition for the purpose of linking the 3rd Edition content to the existing LAS Links score scales described in the LAS Links 1st and 2nd Edition Technical Manuals (CTB, 2006 & 2013). Refer to Chapter 4 for technical details regarding the equating procedures applied.

Form E Operational Field Test Design

The LAS Links Form E Operational Field Test was organized by grade and skill area. Core operational items were distinguished from embedded field test items for test item review purposes. Embedded field test items facilitated ongoing improvement and monitoring of the tests and the development of the Form F Operational Field Test.

Tables 18—21 depict the overall test designs and blueprints for both the Forms E and Form F Operational Field Tests, from which the final 3rd Edition content was selected.

Table 18. LAS Links Form E Operational Field Test Design

Grades	Skill Area	# Practice Items	# OP Items	# Embedded FT Items	Total # Items (Practice + OP + FT)
K-1	Listening	2	20	3	25
	Speaking	4	10 (8 for K)	3	17 (15 for K)
	Reading	3	30 (26 for K)	4	37 (33 for K)
	Writing	3	18 (14 for K)	3 (2 for K)	24 (19 for K)
2-3	Listening	2	20	3	25
	Speaking	4	12	4	20
	Reading	3	30	5	38
	Writing	2	17	2-3	21–22
4-5	Listening	2	20	3	25
	Speaking	4	12	4	20
	Reading	2	30	6	38
	Writing	2	17	3–4	22–23
6-8	Listening	2	23	4	29
	Speaking	4	12	4	20
	Reading	2	30	6	38
	Writing	2	17	3–4	22–23
9-12	Listening	2	23	3	28
	Speaking	4	12	4	20
	Reading	2	30	6	38
	Writing	2	17	3–4	22–23

**Note: All tests are untimed; estimated administration times are provided for planning purposes.*

LAS Links Form E Operational Field Test Blueprint

The operational blueprint for the LAS Links Form E Operational Field Test is shown in Table 18. The blueprint is organized by skill area, language context strand, and sub-skill area. Operational item counts for each grade are shown, and MC items are distinguished from CR items.

Table 19. LAS Links Form E Operational Field Test Blueprint

Skill Area	Language Context Strand	Sub-skill Area	Item Type	K-1 # of Items	2-3 # of Items	4-5 # of Items	6-8 # of Items	9-12 # of Items
Listening	Social, Intercultural, and Instructional	Listen for Information	MC	8	8	8	9	9
	Language Arts/Social Studies/History	Listen for Academic Instruction	MC	2	3	3	3	3
		Listen for Information	MC	4	3	3	4	4
	Mathematics/Science/Technical Subjects	Listen for Academic Instruction	MC	2	3	3	3	3
		Listen for Information	MC	4	3	3	4	4
	Total	**Total**	**-**	**20**	**20**	**20**	**23**	**23**
Speaking	Social, Intercultural, and Instructional Communication	Make Conversation	CR	1	1	1	1	1
		Describe and Request	CR	2	2	2	2	2
		Tell a Story	CR	1	1	1	1	1
	Language Arts/Social Studies/History	Use Academic Words	CR	1	1	1	1	1
		Present and Explain Information	CR	2 (1 for K)	3	3	3	3
	Mathematics/Science/Technical Subjects	Use Academic Words	CR	1	1	1	1	1
		Present and Explain Information	CR	2 (1 for K)	3	3	3	3
	Total	**Total**	**-**	**10 (8 for K)**	**12**	**12**	**12**	**12**
Reading	Foundational Skills	Read Words	MC	12	6	N/A	N/A	N/A
	Social, Intercultural, and Instructional	Read School Texts	MC	10	10	14	14	14
	Language Arts/Social Studies/History	Read Academic Texts	MC	2	5	6	6	6
		Read School Texts (Gr. 1–12	MC	2 (N/A for K)	2	2	2	2
	Mathematics/Science/Technical Subjects	Read Academic Texts	MC	2	5	6	6	6
		Read School Texts (Gr. 1–12	MC	2 (N/A for K)	2	2	2	2
	Total	**Total**	**-**	**30 (26 for K)**	**30**	**30**	**30**	**30**
Writing	Foundational Skills	Start Writing	Auto CR	2	N/A	N/A	N/A	N/A
			CR	5				
	Social, Intercultural, and Instructional Communication	Use Grammar and Conventions	MC	4	6	6	6	6
		Write to Express Ideas	CR (0–3)	1	N/A	N/A	N/A	N/A
			CR (0–4)	N/A	1	1	1	1
	Language Arts/Social Studies/History	Use Grammar and Conventions	MC	1	2	2	2	2
		Write Academic Texts (Gr. 1–12	CR	2 (N/A for K)	3	3	3	3
	Mathematics/Science/Technical Subjects	Use Grammar and Conventions	MC	1	2	2	2	2
		Write Academic Texts (Gr. 1–12	CR	2 (N/A for K)	3	3	3	3
	Total	**Total**	**-**	**18 (14 for K)**	**17**	**17**	**17**	**17**

Form F Operational Field Test Design

The LAS Links Form F Operational Field Tests were organized by grade and skill area. Core operational items were distinguished from embedded field test items for test item review purposes. These distinctions are depicted in Table 20.

Table 20. LAS Links Form F Operational Field Test Design

Grades	Skill Area	# of Practice Items	# of OP Items	# of Embedded FT Items	Total # of Items (Practice + OP + FT)
K-1	Listening	2	20	3	25
	Speaking	4	10 (8 for K)	3	17 (15 for K)
	Reading	3	30 (24 for K)	4	37 (31 for K)
	Writing	3	18 (14 for K)	3 (2 for K)	24 (19 for K)
2-3	Listening	2	20	3	25
	Speaking	4	12	3	19
	Reading	3	30	5	38
	Writing	2	17	3–4	22–23
4-5	Listening	2	20	3	25
	Speaking	4	12	3	19
	Reading	2	30	6	38
	Writing	2	17	3–4	22–23
6-8	Listening	2	23	3	28
	Speaking	4	12	3	19
	Reading	2	30	6	38
	Writing	2	17	3–4	22–23
9-12	Listening	2	23	3	28
	Speaking	4	12	3	19
	Reading	2	30	6	38
	Writing	2	17	3–4	22–23

LAS Links Operational Forms E and F Blueprint

The operational blueprint for LAS Links Forms E and F is shown in Table 21. The blueprint is organized by skill area, language context strand, and subskill area. Operational item counts for each grade are shown, and MC items are distinguished from CR items.

Table 21. LAS Links Forms E and F Operational Blueprint

Skill Area	Language Context Strand	Subskill Area	Item Type	K-1 # of Items	2-3 # of Items	4-5 # of Items	6-8 # of Items	9-12 # of Items
Listening	Social, Intercultural, and Instructional	Listen for Information	MC	8	8	8	9	9
	Language Arts/Social Studies/History	Listen for Academic Instruction	MC	2	3	3	3	3
		Listen for Information	MC	4	3	3	4	4
	Mathematics/Science/Technical Subjects	Listen for Academic Instruction	MC	2	3	3	3	3
		Listen for Information	MC	4	3	3	4	4
	Total	**Total**	**-**	**20**	**20**	**20**	**23**	**23**
Speaking	Social, Intercultural, and Instructional Communication	Make Conversation	CR	1	1	1	1	1
		Describe and Request Information	CR	2	2	2	2	2
		Tell a Story	CR	1	1	1	1	1
	Language Arts/Social Studies/History	Use Academic Words	CR	1	1	1	1	1
		Present and Explain Information	CR	2 (1 for K)	3	3	3	3
	Mathematics/Science/Technical Subjects	Use Academic Words	CR	1	1	1	1	1
		Present and Explain Information	CR	2 (1 for K)	3	3	3	3
	Total	**Total**	**-**	**10 (8 for K)**	**12**	**12**	**12**	**12**
Reading	Foundational Skills	Read Words	MC	12	6	N/A	N/A	N/A
	Social, Intercultural, and Instructional	Read School Texts	MC	10 (8 for K)	10	14	14	14
	Language Arts/Social Studies/History	Read Academic Texts	MC	2	5	6	6	6
		Read School Texts (Gr. 1–12 only)	MC	2 (N/A for K)	2	2	2	2
	Mathematics/Science/Technical Subjects	Read Academic Texts	MC	2	5	6	6	6
		Read School Texts (Gr. 1–12 only)	MC	2 (N/A for K)	2	2	2	2
	Total	**Total**	**-**	**30 (24 for K)**	**30**	**30**	**30**	**30**
Writing	Foundational Skills	Start Writing	Auto CR	2	N/A	N/A	N/A	N/A
			CR	5				
	Social, Intercultural, and Instructional Communication	Use Grammar and Conventions	MC	4	6	6	6	6
		Write to Express Ideas	CR (0–3)	1	N/A	N/A	N/A	N/A
			CR (0–4)	N/A	1	1	1	1
	Language Arts/Social Studies/History	Use Grammar and Conventions	MC	1	2	2	2	2
		Write Academic Texts (Gr. 1–12	CR	2 (N/A for K)	3	3	3	3
	Mathematics/Science/Technical Subjects	Use Grammar and Conventions	MC	1	2	2	2	2
		Write Academic Texts (Gr. 1–12	CR	2 (N/A for K)	3	3	3	3
	Total	**Total**	**-**	**18 (14 for K)**	**17**	**17**	**17**	**17**

Samples

The operational field tests were administered to all students required to take an English language proficiency assessment under Title III in two U.S. states with sufficiently large populations of students classified as English language learners. The Form E Operational Field Test was administered in Mississippi in 2021 and in Connecticut in 2022. The Form F Operational Field Test was administered in Connecticut 2023.

Sample sizes for valid student records collected are provided in Table 22. Note that the Form F Operational Field Test included most of the Form E Operational Field Test items embedded in unscored positions.

Table 22. Operational Field Test, Forms E and F Case Counts by Grade Span

Grade Span	Form E Listening	Form E Speaking	Form E Reading	Form E Writing	Form F Listening	Form F Speaking	Form F Reading	Form F Writing
K-1	12,775	12,750	12,768	12,756	10,229	10,186	10,210	10,241
2-3	12,659	12,644	12,649	12,639	9,726	9,701	9,721	9,730
4-5	10,768	10,760	10,767	10,769	9,180	9,165	9,184	9,193
6-8	11,164	11,140	11,154	11,144	10,002	9,972	10,000	10,025
9-12	10,725	10,669	10,722	10,701	10,581	10,486	10,581	10,659
Total	**58,091**	**57,963**	**58,060**	**58,009**	**49,718**	**49,510**	**49,696**	**49,848**

Administration

Testing Modes and Accessibility

The LAS Links Operational Field Test Forms E and F were offered in computer- and paper-based formats. Large print and Braille versions were also available for Form E of LAS Links 3rd Edition. A full discussion of the accessibility features that were available for the LAS Links Operational Field Tests Forms E and F, and that are available in LAS Links 3rd Edition is provided in Chapter 7. Refer to the LAS Links 3rd Edition Test Administration Guide (DRC, 2024) for detailed test administration protocols.

Testing Times

The estimated administration time for each skill area is shown (note that all LAS Links tests are untimed). At K-1, for example, the inclusion of field test items is balanced by the reduction in operational items; therefore, estimated testing times remain consistent with LAS Links 2nd Edition. Listening, Speaking, and Writing all have the same estimated administration times as the previous forms. Only Reading had an increased estimated administration time of five minutes.

Table 23 shows the estimated time to complete the administration of each subtest across grade bands of the Forms E and F Operational Field Tests.

Table 23. LAS Links Forms E and F Operational Field Testing Times

Subtest Area	Estimated Administration Time
Speaking	15 minutes - all grades
Listening	35 minutes - Grades K-1, 6-8, 9-12 30 minutes - Grades 2-3, 4-5
Reading	40 minutes - Grades K-1, 2-3, 4-5 50 minutes - Grades 6-8, 9-12
Writing	30 minutes - Grades K-1 40 minutes - Grades 2-12

For scheduling purposes, these time allocations are recommended to complete the administration of each subtest and do not include setup, logins, etc.

Response Scoring

DRC has developed and maintained rigorous scoring processes in concordance with the Standards, which state the following:

> Those responsible for test scoring should establish scoring protocols. Test scoring that involves human judgment should include rubrics, procedures, and criteria for scoring. When scoring of complex responses is done by computer, the accuracy of the algorithm and processes should be documented. (p. 119)

The Standards further state the following:

> Those responsible for test scoring should establish and document quality control processes and criteria. Adequate training should be provided. The quality of scoring should be monitored and documented. Any systematic source of scoring errors should be documented and corrected. (p. 119)

Scoring Multiple-Choice Items

The scoring process included the scoring of MC items against the answer key and the aggregation of raw scores from the open-ended responses. A student's raw score is the actual number of points achieved by the student for tested elements of an assessment. From the raw scores, the scale scores were calculated.

The student file was scored against the final and approved MC answer key. Items were scored as right, wrong, omitted, or double-gridded (more than one answer was selected for an item). Sections of the test were evaluated as a whole and an attempt status was determined for each student for each skill area. The score program defined all data elements at the student level for reporting.

Overview of DRC Hand Scoring

All DRC scoring procedures are designed to ensure consistency of scoring in both rater qualification and ongoing operational scoring activities. Specifically, DRC hand scoring uses a process in which 40 to 50 student responses per item are selected during a range-finding activity and scored by experts. These papers and their expert assigned scores are then used to train and qualify raters.

To qualify for participation in operational scoring, raters must reach established agreement criteria. The value of those criteria is dependent on the number of score points an item is worth. All DRC Scoring Directors and raters that participated in the Forms E and F Operational Field Tests have been scoring LAS Links for at least 10 years.

Once raters are qualified, DRC hand scoring experts continue to monitoring rater performance throughout operational scoring through (a) read-behinds, whereby an expert rater provides periodic reviews of rater scoring of student responses; (b) second reads, whereby a certain percentage of randomly selected student responses are passed to two raters and their scores are compared; and (c) additional rater monitoring using sets of the expert scored responses.

DRC performs a 10 percent second read for LAS Links and documents the resulting inter-rater reliability (IRR) in terms of the percentages of exact, adjacent, and discrepant agreement. For LAS Links 2nd Edition, DRC scoring has averaged exact agreement rates of 99% for Reading, 90% for Writing and 86% for Speaking. Inter-rater reliability statistics for all hand scored items on the Forms E and F Operational Field Tests are provided in Appendix E.

Range-Finding

After student answer documents were received and processed, DRC's Performance Assessment Services (PAS) staff assembled groups of 40 to 50 responses that exemplified the different score points for each domain and item type.

Response copies were made for each range-finding participant. Range-finding committees consisted of DRC Test Development staff and DRC Performance Assessment Services staff.

Each range-finding activity began in a joint session with a review of the history of the assessment and a discussion of the subject/grade-specific groups. Sets of student responses were presented to the committees one item at a time. Each committee initially reviewed and scored student responses as a group to ensure that everyone was interpreting the scoring guidelines consistently. Committee members then went on to score responses independently. For each student response, committee members' scores were discussed until a consensus was reached. Only those responses for which there was strong agreement among committee members were chosen for inclusion in training materials for DRC raters.

Discussions of student responses included the mandatory use of scoring guideline language. This ensured that committee members remained focused on the specific requirements of each score level. DRC PAS staff took notes addressing how and why the committees arrived at score point decisions, and this information was used by the scoring directors in rater training.

DRC and PDE discussed scoring guideline edits suggested by the range-finding committees. Changes approved by PDE were then incorporated into the scoring guidelines by DRC Test Development staff. The edited scoring guidelines were used in the preparation of materials and the training of raters.

Rater Recruitment/Qualifications

DRC retains a number of LAS Links raters from year to year. This pool of experienced raters was drawn on to staff the operational field test scoring activities. To complete the rater staffing for this project, DRC placed advertisements in local newspapers and utilized a variety of web sites. Open houses were held and applications for rater positions were screened by DRC's recruiting staff. Candidates were personally interviewed by DRC staff. In addition, each candidate was required to provide proof of a four-year college degree. In this screening process, preference was given to candidates with previous experience scoring large-scale assessments and degrees emphasizing expertise in English language development. Thus, the rater pool consisted of educators and other professionals with content-specific backgrounds. These individuals were valued for their content-specific knowledge, but they were required to set aside their own biases about student performance and accept the scoring standards outlined for LAS Links.

Leadership Recruitment/Qualifications

Scoring directors and team leaders were selected by content specialists from a pool of employees who had displayed expertise as raters and leaders on previous DRC projects. These individuals had strong backgrounds in organization, leadership, and management. A majority of scoring directors and team leaders had at least five years of leadership experience working on large-scale assessments, including LAS Links. All scoring directors, team leaders, and raters were required to sign confidentiality agreements before handling secure materials.

Each room of raters was assigned a scoring director. This individual led all hand scoring activities for the duration of the project. Scoring directors assisted in range-finding, worked with supervisors to create training materials, conducted team leader training, and were responsible for training the raters. The scoring directors made sure that reports were available and interpreted those reports for the raters. The scoring directors also supervised the team leaders. All scoring directors were monitored by the project director, the project manager, and the content specialists.

Team leaders assisted the scoring director with rater training by leading their teams in small group discussions and answering individual questions that raters may not have felt comfortable asking in a large group. Once raters were qualified, team leaders were responsible for maintaining the accuracy and workload of each team member. Ongoing monitoring identified those individuals having difficulty scoring accurately. These raters received one-on-one retraining from the team leader. Any rater who could not be successfully retrained had his/her scores purged and was released from the project.

Training

As part of preparation for the scoring activities, scoring guidelines and scored student responses approved by range-finding committees were assembled into sets used for training raters. The item-specific scoring guidelines served as the raters' constant reference. Responses that were relevant in terms of the scoring concepts they illustrated were annotated and included in a representative sample of items, or "anchor set." The full range of each score point was clearly represented and annotated in the anchor set, which was used for reference by raters throughout the project.

Training sets and qualifying sets contained student responses consensus-scored by range-finding committee members. Raters were instructed on how to apply the scoring guidelines and were required to demonstrate a clear comprehension of each anchor set by performing well on the associated training materials. Responses were selected for training to show raters the range of each score point (e.g., high, mid, and low 2s). Examples of 0s were included for all items. This process helped raters recognize the various ways that a student could respond in order to earn each score point outlined and defined in the scoring guidelines.

The scoring director conducted a team leader training session before training the raters. This session followed the same procedures as rater training, but qualifying standards were more stringent due to the extra responsibilities required of team leaders. During team leader training, all materials were reviewed and discussed. Team leaders were required to annotate all their training materials with committee justifications from the range-finding meetings. To facilitate scoring consistency, it was imperative that all team leaders imparted the same rationale for each response. Once the team leaders were qualified, leadership responsibilities were reviewed, and team assignments were given. A ratio of one team leader per 8-10 raters ensured sufficient monitoring rates for team members.

Rater training began with the scoring director providing an intensive review of the scoring guidelines and anchor papers. Next, raters practiced by independently scoring the responses in the training sets. After each training set, the scoring director or team leaders led a thorough discussion of the responses, either in a large-group or small-group setting.

Once the scoring guidelines, anchor sets, and training sets were thoroughly discussed, each rater was required to demonstrate understanding of the scoring criteria by

qualifying (i.e., scoring with acceptable agreement to the true scores) on at least one of the qualifying sets. Raters who failed to achieve 70 percent exact agreement on the first qualifying set were given additional, individual training. Raters who did not perform at the required level of agreement by the end of the qualifying process were not allowed to score any student responses. These individuals were removed from the pool of potential raters in DRC's imaging system and released from the project.

Hand Scoring Process

Student responses were scored independently. All responses were scored once, and ten percent of the responses were scored a second time. The data collected from the ten-percent double-read portion were used to calculate the exact and adjacent agreement rates provide in Appendix E. The responses that were used for the ten percent read behind were randomly chosen at the item level. Additional read behinds by the team leaders and scoring directors were done to further ensure score reliability. Raters were only provided with student responses that they were qualified to score. Scores were keyed into DRC's imaging system.

To handle possible alerts (i.e., student responses indicating potential issues related to students' safety and well-being that sometimes require attention at the state or local level), DRC's system allows raters to forward responses needing attention to the scoring director. These alerts are reviewed by project management, who then notifies the students' schools of the occurrences. At no time in the alerts process do raters, or other DRC staff, acquire any knowledge concerning a student's personal identity.

Item Calibration and Equating

Following data collection for the Form E Operational Field Test, all items were calibrated using item response theory and linked to LAS Links assessment scales using a randomly equivalent groups design during the spring and summer of 2022. Specifically, stratified random samples of 2021 (LAS Links Form D) and 2020 (LAS Links Form C) test data were drawn and used to target scale score means and standard deviations for Form E test data. The transformation constants were obtained using a linear equating procedure (Crocker & Algina, 1986). Details of these procedures are discussed in the following sections.

Data Preparation

The following procedures were used to sample and clean examinee scale scores from the 2020 (Form C) and 2021 (Form D) data.

Observed valid Form E test records distribution (%) by grade within a grade span on each test domain (Listening, Reading, Speaking, and Writing) by the time of the 2022 calibration and equating (March 2, 2022) were used to set the sampling target for the 2020 (Form C) and 2021 (Form D) test data.

As student performance may vary by grade, stratified sampling by grade ensured that the target sample was consistent with the observed Form E data in grade distribution. In addition, the same N counts of sampling target were used for each year (2020 and 2021) to ensure equal weight of data from the two years. Table 24 shows the resultant sampling target, taking the above factors into consideration.

Using the sampling target, samples were drawn separately from 2020 (Form C) and 2021 (Form D). The samples were then combined to reduce potential impact of COVID-19 (2020 vs. 2021) and form effect (C vs. D). The combined sample was used in the following linear equating procedure (described in the Calibration and Equating Section below).

Table 24. Stratified Random Sample Target Definition

Content	Test Level	Grade	Sampling Target
Listening	K	K	3,712
	1	1	3,649
	2	2	4,041
	2	3	4,064
	4	4	3,709
	4	5	3,156
	6	6	2,478
	6	7	2,185
	6	8	1,898
	9	9	2,085
	9	10	1,563
	9	11	1,333
	9	12	1,041
Reading	K	K	3,640
	1	1	3,583
	2	2	3,887
	2	3	3,924
	4	4	3,611
	4	5	3,125
	6	6	2,416
	6	7	2,190
	6	8	1,837
	9	9	2,101
	9	10	1,536
	9	11	1,319
	9	12	1,019

Content	Test Level	Grade	Sampling Target
Speaking	K	K	3,949
	1	1	3,725
	2	2	4,016
	2	3	4,043
	4	4	3,706
	4	5	3,083
	6	6	2,581
	6	7	2,381
	6	8	2,035
	9	9	2,037
	9	10	1,564
	9	11	1,330
	9	12	1,049
Writing	K	K	3,917
	1	1	3,731
	2	2	4,147
	2	3	4,130
	4	4	3,653
	4	5	3,152
	6	6	2,527
	6	7	2,401
	6	8	2,103
	9	9	2,101
	9	10	1,564
	9	11	1,340
	9	12	1,076

Before the samples were drawn, the following exclusions were applied to the data from Forms C, D, and E data:

- Invalidated records
- Off grade records
- Records with no scale scores for the reported domain
- Duplicate records

Item Response Theory Models

Item response theory (IRT) models were used to calibrate and scale the LAS Links Form E Operational Field Test items. Since both MC and CR items are included on the

tests, both were placed on the LAS Links Score Scale using a combination of the 3-parameter logistic (3PL) model (Lord & Novick, 1968; Lord, 1980), and the 2-parameter partial credit (2PPC) models (Muraki, 1992; Yen, 1993).

Under the 3PL model, the probability that a student with the ability θ correctly responds to item *i* is

$$P_i(\theta) = c_i + \frac{1 - c_i}{1 + \exp\left[-1.7a_i\left(\theta - b_j\right)\right]}$$

where a_i is the item discrimination, b_j is the item difficulty, and c_i is the probability of a correct response by a very low-scoring student.

For analysis of CR items, the 2PPC model is a special case of Bock's (1972) nominal model. Bock's model states that the probability of an examinee with the ability θ having a score at the k-th level of the j-th item is

$$P\left(x_j = k - 1 \mid \theta\right) = \frac{\exp Z_{jk}}{\sum_{i-1}^{mi} \exp Z_{ji}}, k = 1 \ldots m_j$$

where

$$Z_{jk} = A_{jk}\theta + C_{jk},$$

and A_{jk} is the slope of the k-th level and and C_{jk} is its intercept.

For the special case of the 2PPC model used here, the following constraints are used:

$$A_{jk} = \alpha_j(k - 1)$$

and

$$C_{jk} = -\sum_{i=0}^{k-1} \Upsilon_{ji}$$

where $\Upsilon_{i0} = 0$ and α_j and Υ_{ji} are the free parameters to be estimated from the data. The first constraint implies that higher item scores reflect higher ability levels and that the items may vary in their discriminations. For the 2PPC model, each item consists of $m_j - 1$ 1 independent Υ_{ji} parameters and one α_j parameter; a total of m_j individual item parameters are estimated for each item.

Equating the Form E Operational Field Test

An equivalent groups equating design was used whereby two randomly equivalent groups of students took the Form E Operational Field Test and Forms C and/or D. Recall from the previous discussion on sampling that equivalent groups were produced by using the sampling target to draw samples separately from 2020 (Form C) and 2021 (Form D). The samples were then combined to reduce the potential impact of COVID-19

(2020 vs. 2021) and form effect (C vs. D). The obtained target sample was used to set the target distribution of scales scores by applying the procedure specified in Crocker and Algina (1986) such that

$$Y^* = a(X - c) + d,$$

(Angoff, 1971), where X denotes a score on Form C or D, and Y^* denotes the transformed scale score on the Form E Operational Field Test that is equivalent in score meaning to X. In this expression,

$$a = \frac{\hat{\sigma}_Y}{\hat{\sigma}_X}$$

$$c = \hat{\mu}_X$$

$$d = \hat{\mu}_Y$$

where c is the scale score mean of the target sample, d is the theta score mean of the spring 2022 Form E data, and $a$represents a standard deviation of the 2022 theta score divided by the standard deviation of the target sample. The linear transformation constants were derived from a, c, and d and applied to Form E.

Scale Evaluation

The scaling and equating results for the Form E Operational Field Test were evaluated by checking summary scale score statistics, impact data, and test characteristic curves for reasonableness in terms of their alignment with expectations based on Connecticut data from the preceding three years (2019, 2020, and 2021). Results indicated good alignment with historical patterns.

Item Parameter Updates

The additional Form E Operational Field Test data from Mississippi were used to further update the item parameters and scale the field test items. Since these data were not available on the timeline for spring 2022 equating, they were used in this subsequent step to update the item parameters after the Form E Operational Field Test equating window.

After applying the same exclusion rules applied to the data in March 2022, the combined data were used to update the scored item parameters and to place all embedded field test items on the LAS Links scale. This was done through the application of the Stocking and Lord (1983) equating procedure, whereby the existing IRT item parameters for Operational Field Test Form E scored items (using the Form E Operational Field Test data from 2021 and 2022) were used as anchors in a common item, non-equivalent groups equating design.

The Stocking and Lord (1983) procedure employs a linear transformation to minimize the average squared difference between anchor item characteristic curves (ICC). Thus,

a second concurrent calibration of items by test domain over all test levels using the 2-PL and 2PPC models was conducted, and the linear transformation that minimized this difference was applied. This minimization is defined by *F,* which is a function of transformation constants M_1 and M_2:

$$F = \frac{1}{N}\sum_{j=1}^{N}\left(\hat{\gamma}_j - \hat{\gamma}_j^*\right)^2$$

where N is the number of examinees in a group, $\hat{\gamma}_j$ is the estimated true score obtained from the base test form, and $\hat{\gamma}_j^*$ is the estimated true score obtained from the equated test form after it has been transformed to the previous scale. It was transformed to the previous scale using

$$\hat{\gamma}_j = \hat{\gamma}\left(\theta_j\right)\sum_{i=1}^{N} P_i\left(\theta_j; a_i, b_i, c_i\right)$$

$$\hat{\gamma}_j^* = \hat{\gamma}\left(\theta_j\right)\sum_{i=1}^{N} P_i\left(\theta_j; \frac{a_i}{M_1}, M_1 b_i + M_2, c_i\right)$$

where a_i, b_i, c_i are the IRT discrimination, location (difficulty), guessing parameters for item i from equation (1). Equating was performed using IRTEQ (Han, 2009).

Scale Evaluation

The equating results were evaluated by comparing test characteristic curves between the March scaling and the June item parameter updates. Further, correlations between the discrimination, difficulty, and guessing parameters (MC only) for all items on the scored test were evaluated, as well as the root mean square deviation (RMSD) of the F-parameters.

As expected, the item parameter correlations were very high (no item parameter correlations were below 0.91), the equated TCCs showed near perfect alignment, and RMSDs of the F-parameters were very small (none were greater than 0.004).

Chapter 4: Validity Evidence Related to Internal Structure

Chapter 4 provides evidence of test score validity as it relates to the internal structure of the LAS Links assessments, including detailed technical information about test scale development, multiple forms equating to the LAS Links common scale, descriptive score statistics, reliability, standard error of measurement, decision consistency, confirmatory factor analysis, and scale maintenance.

Classical Item Analysis

CIA and the evaluation of DIF of field test items were conducted to assess the quality of the test items and to identify items for data review. Data from the Form E Operational Field Test were collected in the spring of 2022.

Item Difficulty

At the most general level, an item's difficulty is indicated by its mean score in some specified group (e.g., grade level):

$$\bar{x} = \frac{1}{n}\left(\sum_{i=1}^{n} x_i\right)$$

In the mean score formula above, the individual item scores (x_i) are summed and then divided by the total number of students (n). For MC items, student scores are represented by 0s and 1s (0 = wrong, 1 = right). With 0–1 scoring, the equation above also represents the number of students correctly answering the item divided by the total number of students. Therefore, this is also the proportion correct for the item, or the p-value. In theory, p-values can range from 0.00 to 1.00 on the proportion-correct scale. For example, if an item has a p-value of 0.89, it means 89 percent of the students tested answered the item correctly. Additionally, this value might suggest that the item was relatively easy and/or that the students who attempted the item were relatively high achievers. In other words, item difficulty and student ability are somewhat confounded. Note that for MC items with four response options, pure random guessing would lead to an expected p-value of 0.25.

For CR items, mean scores can range from the minimum possible score (usually zero) to the maximum possible score (e.g., four points in the case of some Speaking and Writing items). Often, a pseudo p-value is provided for a CR item. This is done by dividing the mean item score by the maximum possible item score. The minimum and maximum extremes of the difficulty scale are typically not seen in practice. However, understanding the extremes helps illustrate that relatively lower values correspond to more difficult items and that relatively higher values correspond to easier items.

Item difficulty is an important consideration for the LAS Links assessments because of the range of language proficiency levels of English learners (Beginning, Early Intermediate, Intermediate, Proficient, and Above Proficient). Items that are either very hard or very easy provide little information about student differences in language

development. However, an item answered correctly by a high percentage of students would suggest that the knowledge or skill the item taps has been mastered by most students. Conversely, an item answered incorrectly by a high percentage of students would suggest few students have mastered the knowledge or skill the item measures. On a language proficiency assessment such as LAS Links, a test development goal is to include a wide range of item difficulties. Item difficulty information can be found in Appendix D.

Item Discrimination

At the most general level, item discrimination indicates an item's ability to differentiate between high and low achievers. It is expected that students with high language proficiency (i.e., those who perform well on the LAS Links assessment overall) would be more likely to answer any given item correctly, while students with low language proficiency (i.e., those who perform poorly on the LAS Links assessment overall) would be less likely to answer the same item correctly.

Pearson's product-moment correlation coefficient between item scores and test scores is used to indicate discrimination. The item score is removed from the total score such that the resulting correlations will not be spuriously high. The correlation coefficient can range from -1.0 to +1.0 The expectation is that high-ability students tend to answer the item correctly while low-ability students tend to answer the item incorrectly. If this expectation is met, the correlation between the item score and the total test score will be both positive and noticeably large in its magnitude (i.e., well above zero). This would indicate the item discriminates well between high- and low-ability students. The correlation will be positive in value when the mean test score of the students answering the item correctly is higher than the mean test score of the students answering the item incorrectly. In other words, the relationship between student test performance and item performance is expected to be consistent.

Reliability

According to the Standards for Educational and Psychological Testing (AERA, APA, & NCME, 2014), the general notion of reliability/precision refers to

> the consistency of scores across replications of a testing procedure, regardless of how this consistency is estimated or reported. (p. 33)

Frisbie (2005) highlighted several elements of reliability. First, reliability is a property of test scores, not of a test itself. Many may appreciate this distinction, but in casual usage, individuals frequently refer to a reliable test. While reliability concerns test scores (and not the test specifically), it is important to appreciate the fact that test scores can be affected by characteristics of the instrument. For example, all other things being equal, tests with more items/points tend to be more reliable than tests with fewer items/points. Second, reliability coefficients are group specific. Reliabilities tend to be higher in populations that are more heterogeneous in terms of score ranges and lower

in populations that have more restricted score ranges. Consequently, both test length and population score ranges should be considered when evaluating reliability.

There is a reliability consideration that may be less evident from the *Standards'* definition yet still important for test users to understand. While freedom from measurement error is very important, reliability is specifically concerned with random sources of error. Indeed, the degree of inconsistency due to random error sources is what determines reliability: less consistency is associated with lower reliability and more consistency is associated with higher reliability. Of course, systematic error sources also exist which can artificially increase reliability and decrease validity.

Another noteworthy issue is that multiple sources of error exist (e.g., the day of testing, the items used, the raters who score the items). However, most widely used reliability indices only reflect a single type of error. Consequently, it is important for test users to understand what specific type of error is being considered in a reliability study and equally (if not more) importantly, what types are not.

Understanding the distinction between relative error and absolute error is also important as many reliability indices only reflect relative error. Relative error is of interest whenever the relative ordering of individuals respective to their test performance is of interest.

Understanding examinee rank-order stability is important; however, such stability might be well achieved even when the specific score values are considerably different. When specific score values are considered important (e.g., if cuts scores are used), then absolute error is too. Generally, there is more error variance when considering the absolute scores of examinees, which in turn suggests lower reliability.

As suggested, reliability is a complex, nonunitary notion that cannot be adequately represented by a single number. Therefore, consistency of scores is examined, as is their standard error. Additionally, the consistency of decisions about the level of proficiency that students have attained based on LAS Links scores is examined.

Reliability Indices

As shown below, the reliability coefficient expresses the consistency of test scores as the ratio of true score variance to total score variance. The total variance contains two components: 1) the variance in true scores and 2) the variance due to the imperfections in the measurement process. Put differently, total variance equals true score variance plus error variance, as shown below.

$$\rho_x^2 = \frac{\sigma_T^2}{\sigma_X^2} = \frac{\sigma_T^2}{\sigma_T^2 + \sigma_E^2}$$

Reliability coefficients indicate the degree to which differences in test scores reflect true differences in the attribute being tested rather than random fluctuations. Total test score variance (i.e., individual differences) is partly due to real differences in the attribute (true

variance) and partly due to random error in the measurement process (error variance). A covariance term is not required as true scores and error are assumed to be uncorrelated in classical theory.

Reliability coefficients range from 0.0 to 1.0. If all test score variances were true, the index would equal 1.0. The index will be 0.0 if none of the test score variances were true. Such scores would be pure random noise (i.e., all measurement error). If the index achieved a value of 1.0, scores would be perfectly consistent (i.e., contain no measurement error). Although values of 1.0 are never achieved in practice, larger coefficients are more desirable because they indicate that test scores are less influenced by random error.

As noted in the introduction, there are several different indices that can be used to estimate this ratio. One approach is referred to as internal consistency. This is derived from analyzing the performance consistency of individuals over the items within a test. As discussed below, these internal consistency indices do not take into account other sources of error, for example, variations due to random errors associated with the linking process, day-to-day variations (student health, testing environment, etc.), and rater inconsistency.

Coefficient Alpha

Although a number of reliability indices exist, perhaps the most frequently reported for large scale assessments is Coefficient Alpha (Cronbach, 1951). Consequently, this index is reported for LAS Links. Alpha indicates the internal consistency over the responses to a set of items measuring an underlying trait, in this case, English language proficiency in domains: Listening, Reading, Speaking, and Writing.

Alpha is an internal consistency index. It can be conceptualized as the extent to which an exchangeable set of items from the same domain would result in a similar rank ordering of students. Note that relative error is reflected in this index. Variation in student performance from one sample of items to the next should be of particular concern for any achievement test user. Consider two hypothetical vocabulary tests intended for the same group of students. Each test contains different sets of unique words that are believed to be randomly equivalent, perhaps like the ones shown below in Table 25.

Table 25. Two Hypothetical Vocabulary Tests

Test One	Test Two
Abase	Abate
Boon	Bilk
Capricious	Circuitous
Deface	Debase
….	….

If a representative group of students could take both tests and the correlation between the scores could be obtained, then that result would represent the parallel forms reliability of the test scores. However, such data-collection designs are impractical in large-scale settings and experimental confounds like fatigue and practice effects are likely to affect the results. Internal-consistency reliability indices arose in part to provide reliability measures using the data from just a single test administration. So if students only took Test One and the Coefficient Alpha index for those test scores was high, then this would suggest that Test Two would provide a very similar rank ordering of the students if they had taken it instead. If Coefficient Alpha were low, dissimilar rank orderings would likely be observed—again, relative-error variance is reflected in Alpha. It should also be noted that Coefficient Alpha is algebraically identical to a Person × Item design under Generalizability Theory when relative error variance is assumed.

Consider the following data matrix displayed in Table 26 below. The rows represent examinees, labelled “Person” (or “P”) 1 through N, and columns represent test items, labeled “Item” (or “I”) 1 through k. The score Y for each examinee on each item is represented by the cells in the matrix.

Table 26. Person × Item Score ($\mathbf{X}_{pi}$) Infinite (Population-Universe) Matrix

Person	Item			
	1	2	…I	…K
1	Y_{11}	Y_{12}	$\ldots Y_{1i}$	$\ldots X_{1k}$
2	Y_{21}	Y_{22}	$\ldots Y_{2i}$	$\ldots X_{2k}$
… …	…	…	…	…
P	Y_{p1}	Y_{p2}	$\ldots Y_{pi}$	$\ldots X_{pk}$
… …	…	…	…	…
N	Y_{N1}	Y_{N2}	$\ldots Y_{ni}$	$\ldots X_{nk}$

Note. Adapted from Cronbach and Shavelson (2004).

Then, a general computational formula for Alpha is as follows:

$$\alpha = \frac{N}{N-1}\left(1 - \frac{\sum_{i=1}^{N}\sigma_{Yi}^2}{\sigma_X^2}\right)$$

where N is the number of parts (items or testlets), σ_X^2 is the variance of the observed total test scores, and σ_{Yi}^2 is the variance of part i.

Interpretation

What reliability value is considered high enough? What values are considered too low? Although frequently asked for, any rules of thumb for interpreting the magnitude of reliability indices are mostly arbitrary. Another approach is to research the reliabilities

from similar testing instruments to see what values are commonly observed. For LAS Links, comparisons to tests of similar lengths that were administered to similar student populations from other large-scale assessment programs would be relevant. For many state academic achievement assessment programs, reliabilities in the low 0.90s are usually the highest ever observed and reliabilities in the high 0.80s are very common. Shorter domain tests in English language proficiency tests tend to have lower reliabilities than these longer achievement tests. However, there is no firm guideline regarding how low is too low. As an informative point of reference, a reliability coefficient of 0.50 would suggest that there is as much error variance as true-score variance in the scores.

Is Alpha a Lower Limit to Reliability?

According to Brennan (1998), "the conventional wisdom that Coefficient Alpha is a lower limit to reliability is based largely on a misunderstanding." In reflecting on the 50th anniversary of his seminal 1951 article, Cronbach—in Cronbach and Shavelson (2004)—expressed similar misgivings about this conventional wisdom:

> One could argue that alpha was almost an unbiased estimate of the desired reliability…the almost in the preceding sentence refers to a small mathematical detail that causes the alpha coefficient to run a trifle lower than the desired value. This detail is of no consequence and does not support the statement made frequently in textbooks or in articles that alpha is a lower value to the reliability coefficient. That statement is justified by reasoning that starts with the definition of the desired coefficient as the expected consistency among measurements that had a higher degree of parallelism than the random parallel concept implied.

The assumptions for three common parallelism models are presented in Table 27. Alpha's assumptions come from the Essentially Tau Equivalent model, which does not require equal means or equal variances across test parts. Based on this, Brennan (1998) asserts that the lower-limit issue, as conceptualized by many, provides an answer to a question that is of minimal importance. Reframed differently, the goal of selecting a reliability coefficient is not to find the one that provides the highest coefficient but the one that most accurately reflects the test data under study.

It is important to note that there are factors encountered in practice that may legitimately make Coefficient Alpha an underestimate of reliability. However, there are also factors that might make Coefficient Alpha an overestimate of reliability. Both possibilities are discussed further below and generally arise when the Essentially-Tau Equivalent assumptions are strained.

Table 27. Summary of Expectations/Observable Relationships for Different Parallelism Models

Relationship	Degree of Measurement Parallelism*		
	Classically Parallel	Essentially-Tau Equivalent	Congeneric
Content Similarity	Yes	Yes	Yes
Equal Means across Parts	Yes	No	No
Equal Variances across Parts	Yes	No	No
Equal Covariances across Parts	Yes	Yes	No
Equal Covariances with Other Variables	Yes	Yes	No

Note. Other models exist but are not considered here due to their limited application in practice.

Biases That Might Make Alpha an Underestimate of Reliability

There are factors that might negatively bias Coefficient Alpha, making the apparent reliability lower than it may actually be. Two situations frequently encountered in practice that might cause this include tests that are composed of mixed item types (e.g., MC and OE items) and tests that include a planned stratification of the test items according to topics or subdomains.

Although both situations strictly violate the assumptions on which Coefficient Alpha is derived (i.e., the tests are not based on equal part lengths in the former case and are not randomly parallel in the latter case), neither necessarily guarantees that the reliability will be markedly lower. In the latter case, reliability will be underestimated only when strand items are homogeneous enough for the average covariance within strata to exceed the average covariance between strata.

Biases That Might Make Alpha an Overestimate of Reliability

As emphasized in earlier sections, Coefficient Alpha only considers measurement error that arises from the selection of items used on a particular test form. There are other sources of random inaccuracy. One is the occasion of testing. Various random conditions that might affect students on any particular testing occasion include illness, fatigue, and anxiety.

Also, when a test includes OE items, as LAS Links does, another source that can cause random fluctuation is the OE item scorers. In a sense, Alpha may be positively biased because it does not consider these other important sources of random error. Any internal consistency reliability index could understate the overall problem of measurement error because it ignores such sources of random error.

Another positive bias can occur when items are associated (clustered) with a common stimulus. Item bundles and testlets are other frequently used terms for this situation.

One concrete example is when multiple reading comprehension items are associated with a common passage selection. Again, such a situation does not guarantee that the reliability estimate will be markedly affected, but the potential exists.

Standard Error of Measurement

The reliability coefficient is a unit-free indicator that reflects the degree to which scores are free of measurement error. It always ranges between 0.0 and 1.0 regardless of the test's scale. Reliability coefficients best reflect the extent to which measurement inconsistencies may be present or absent in a group. However, they are not that useful for helping users interpret test scores. The standard error of measurement (SEM) is another indicator of degree of consistency for the scores obtained by individual examinees. A relatively large SEM indicates relatively low reliability. The conditional SEMs (CSEM) discussed further below are SEM at that score level.

Traditional Standard Error of Measurement

A precise, theoretical interpretation of the SEM is somewhat unwieldy. A beginning point for understanding SEM is to first understand the concept of a true score. A true score is the score a person would receive if the measurement process were perfect. However, as educational and psychological assessments measure latent traits (traits that are not directly observable), some error is expected due to random factors such as differences in attention during instruction, concentration during testing, and the sampling of test items to name a few. Such random factors create a circumstance where, even if everyone being tested had the same true score, there would still be some variation in observed scores due to imperfections in the measurement process.

The standard error, then, is defined as the standard deviation of the distribution of observed scores for students with identical true scores. Because the SEM is an index of the random variability in test scores in actual score units, it represents very important information for test score users.

The SEM formula is provided below.

$$SEM = SD\sqrt{1 - \text{reliability}}$$

This formula indicates that the value of the SEM depends on both the reliability coefficient and the standard deviation of test scores. For normal distributions, the standard deviation is a measure of the dispersion of the observations about the mean, where approximately 16 percent of the observations are more than one standard deviation above the mean. If the reliability were equal to 0.00 (the lowest possible value) the SEM would be equal to the standard deviation of the test scores. If test reliability were equal to 1.00 (the highest possible value) the SEM would be 0.0. In other words, a perfectly reliable test has no measurement error (Harvill, 1991). Additionally, the value of the SEM takes the group variation (i.e., score standard deviation) into account. Consider that an SEM of 3 on a 10-point test would be very different than an SEM of 3 on a 100-point test.

Traditional Standard Error of Measurement Confidence Intervals

The SEM is an index of the random variability in test scores in actual score units, which is why it has such great utility for test score users. SEMs allow statements regarding the precision of individual test scores. SEMs help place “reasonable limits” (Gulliksen, 1950) around observed scores through the construction of an approximate score band. Often referred to as confidence intervals, these bands are constructed by taking the observed scores, X, and adding and subtracting a multiplicative factor of the SEM. As an example, students with a given true score will have observed scores that fall between +/-1 SEM about two-thirds of the time. For +/-2 SEM confidence intervals, this increases to about 95 percent.

Further Interpretations

One Standard Error of Measurement for All Test Scores

The SEM approach described above only provides a single numerical estimate for constructing the confidence intervals for examinees regardless of their score level. In reality however, such confidence intervals vary according to a student’s score. Consequently, care should be taken using the SEM for students with extreme scores.

Group Specific

As noted in the introduction, reliabilities are group specific. The same is true for SEMs because both score reliabilities and score standard deviations vary across groups.

Raw-Score Metric

The SEM approach is calculated using raw scores, and as such, the resulting confidence interval bands are on the raw score metric. Error bands on the scaled score metric are considered in the next section.

Type of Error Reflected

The interpretation of the SEM should be driven by the type of score reliability that underpins it. The LAS Links SEMs involve the same source of error relevant to internal consistency indices. In other words, if a student were tested an infinite number of times, the +/-1 SEM confidence intervals constructed for each score would capture the student’s true score about 68 percent of the time.

One simpler description is that a confidence interval represents the possible score range one would observe if a student could be tested twice with the same instrument. Taking the same test on a different day implies the only source of random error being considered is related to the occasion of testing, such as a student might be sleepier one day than another or may be sick or did not get a good breakfast. There is a reliability index that captures this source of random error, and it is referred to as the test-retest reliability coefficient. This is not the type of reliability computed for LAS Links. When

internal consistency reliability estimates are used, such an explanation blurs the fact that random error based on the occasion of testing is not considered.

When SEMs are derived from internal consistency reliability estimates, a better approach is to describe the confidence interval as providing reasonable bounds for the range of scores that a student might receive if they took an equivalent version of the test; that is, if the student took a test that covered exactly the same content but included a different set of items. If an infinite number of tests with equivalent content were taken, the student's true score would lie within the constructed confidence intervals 68 percent of the time. As an example, if the LAS Links score was 500 and the SEM band was 475 to 525, then a student would be likely to receive a score somewhere between 475 and 525 if a different version of the test had been taken.

Results

Table 28 provides raw score summaries, reliabilities, average discrimination and difficulty, and SEM estimates for each domain grade span tested. Results show that reliabilities for students who use accommodations tend to be lower than for students who do not, however, reliabilities for male and female students and Hispanic and non-Hispanic are very similar with patterns of difference that appear to be random.

It is also noted that the reliabilities for the Listening domain are lower than those for Reading, Speaking, and Writing. Although increasing the test length would be expected to increase the Listening reliabilities, the impact to overall testing time across the four domains is considered impractical at this time.

Table 28. Raw Score Summaries, Reliabilities, Average Item Discrimination and Difficulty, and SEM

Content	Grade	N	Total Score Points	Mean	SD	Average Discrimination	Average Difficulty	Alpha	SEM
Listening	K	6,532	20	12.12	3.97	0.38	0.75	0.75	1.99
	1	6,238	20	14.95	3.83	0.38	0.75	0.81	1.67
	2-3	12,616	20	13.12	3.91	0.35	0.66	0.79	1.79
	4-5	10,737	20	12.46	4.18	0.34	0.62	0.78	1.96
	6-8	11,160	23	14.08	4.62	0.35	0.61	0.8	2.07
	9-12	10,714	23	12.17	4.35	0.29	0.53	0.74	2.22
Reading	K	6,527	26	12.57	4.70	0.40	0.71	0.76	2.3
	1	6,236	30	20.12	6.43	0.40	0.68	0.88	2.23
	2-3	12,606	30	16.90	6.83	0.40	0.57	0.88	2.37
	4-5	10,737	30	14.85	6.39	0.37	0.50	0.85	2.47
	6-8	11,148	30	13.93	6.14	0.35	0.47	0.84	2.46
	9-12	10,712	30	15.53	6.83	0.40	0.53	0.88	2.37

Content	Grade	N	Total Score Points	Mean	SD	Average Discrimination	Average Difficulty	Alpha	SEM
Speaking	K	6,516	19	9.21	4.97	0.64	0.69	0.84	1.99
	1	6,229	25	16.07	6.29	0.65	0.68	0.88	2.18
	2-3	12,601	31	21.06	6.66	0.65	0.67	0.91	2
	4-5	10,727	31	17.36	6.42	0.61	0.58	0.89	2.13
	6-8	11,134	31	16.46	7.29	0.66	0.57	0.91	2.19
	9-12	10,657	31	14.34	7.71	0.67	0.49	0.91	2.31
Writing	K	6,519	18	8.07	3.68	0.44	0.71	0.72	1.95
	1	6,232	30	15.86	7.66	0.52	0.62	0.88	2.65
	2-3	12,596	32	16.66	8.43	0.52	0.54	0.89	2.79
	4-5	10,739	32	16.18	7.63	0.57	0.58	0.9	2.41
	6-8	11,138	32	13.67	6.69	0.50	0.49	0.88	2.32
	9-12	10,689	32	12.64	7.11	0.50	0.47	0.88	2.46

Decision Consistency and Accuracy

Another way to evaluate the score consistency and accuracy is in terms of the decisions made about examining the proficiency levels. Classification consistency refers to the degree to which the achievement level for each student can be replicated upon retesting using an equivalent form (Huynh, 1976).

Decision consistency answers this question: what is the agreement between the classifications based on two non-overlapping, equally difficult forms of the test? If two parallel forms of the test were given to the same students, the consistency of the measure would be reflected by the extent to which the classification decisions made from the first set of test scores matched the decisions based on the second set of test scores.

Classification accuracy refers to the agreement of the observed classifications of students with the classifications made on the basis of their true scores. An observed score contains measurement error while a true score is free of measurement error. A student's observed score can be formulated by the sum of his or her true score plus measurement error. Decision accuracy is an index to determine the extent to which measurement error causes a classification different than expected from the true score.

Since true scores are unobserved and since it is not feasible to repeat LAS Links testing to estimate the proportion of students who would be reclassified in the same performance levels, a statistical model needs to be imposed on the data to estimate the true scores and to project the consistency and accuracy of classifications solely using data from the available administration (Hambleton & Novick, 1973).

Although a number of procedures are available, one well-known method was developed by Livingston and Lewis (1995) utilizing a specific True Score Model. In this case,

classifications across the five LAS Links proficiency levels were examined using the program BB-Class (Brennan, 2004) which applies the Livingston and Lewis (1995) method.

Several factors might affect decision consistency and accuracy. One important factor is the reliability of the scores. More reliable test scores tend to result in more similar reclassifications and less measurement error. Another factor is the location of the cut score in the score distribution. More consistent and accurate classifications are observed when the cut scores are located away from the mass of the score distribution.

For example, when scores are close to being normally distributed, the mass is concentrated in the middle of the distribution, and thus, classifications tend to become more consistent when cut scores go up from 70 percent to 80 percent to 90 percent or, alternatively, go down from 30 percent to 20 percent to 10 percent. The number of performance levels is also a consideration.

Consistency and accuracy indices for four performance levels should be lower than those based on two categories. This is not surprising since classification and accuracy using four levels would allow more opportunity to change achievement levels. Hence, there would be more classification errors and less accuracy with four achievement levels, resulting in lower consistency indices.

LAS Links classification consistency and accuracy reflect the expected pattern, where consistency and accuracy are much higher when based on the Proficient cut score only versus all four cut scores. Refer to Tables 29-36 for details.

Table 29. Listening Decision Consistency and Accuracy Based on the Proficient Cut Score

Grade	Consistency	Accuracy
K	0.90	0.94
1	0.84	0.89
2	0.87	0.91
3	0.85	0.90
4	0.83	0.89
5	0.82	0.87
6	0.84	0.89
7	0.83	0.88
8	0.83	0.88
9	0.84	0.89
10	0.84	0.89
11	0.81	0.88
12	0.80	0.86

Table 30. Reading Decision Consistency and Accuracy Based on the Proficient Cut Score

Grade	Consistency	Accuracy
K	0.93	0.96
1	0.87	0.91
2	0.91	0.94
3	0.88	0.92
4	0.87	0.91
5	0.85	0.90
6	0.90	0.93
7	0.89	0.92
8	0.87	0.91
9	0.96	0.97
10	0.94	0.96
11	0.92	0.95
12	0.92	0.95

Table 31. Speaking Decision Consistency and Accuracy Based on the Proficient Cut Score

Grade	Consistency	Accuracy
K	0.92	0.96
1	0.89	0.93
2	0.91	0.94
3	0.89	0.92
4	0.87	0.91
5	0.87	0.90
6	0.87	0.91
7	0.87	0.91
8	0.87	0.91
9	0.91	0.94
10	0.90	0.93
11	0.90	0.93
12	0.90	0.93

Table 32. Writing Decision Consistency and Accuracy Based on the Proficient Cut Score

Grade	Consistency	Accuracy
K	0.99	0.99
1	0.97	0.98
2	0.92	0.95
3	0.93	0.96
4	0.89	0.92
5	0.88	0.92
6	0.87	0.91
7	0.86	0.90
8	0.85	0.89
9	0.93	0.95
10	0.91	0.94
11	0.89	0.93
12	0.89	0.93

Table 33. Listening Decision Consistency and Accuracy Based on 4 Cut Scores

Grade	Consistency	Accuracy
K	0.53	0.62
1	0.51	0.60
2	0.49	0.59
3	0.50	0.61
4	0.48	0.59
5	0.46	0.57
6	0.47	0.59
7	0.47	0.58
8	0.48	0.58
9	0.46	0.56
10	0.43	0.54
11	0.52	0.62
12	0.51	0.60

Table 34. Reading Decision Consistency and Accuracy Based on Four Cut Scores

Grade	Consistency	Accuracy
K	0.54	0.62
1	0.52	0.64
2	0.55	0.65
3	0.51	0.62
4	0.51	0.62
5	0.51	0.62
6	0.53	0.63
7	0.52	0.62
8	0.50	0.60
9	0.66	0.74
10	0.61	0.71
11	0.60	0.70
12	0.60	0.70

Table 35. Speaking Decision Consistency and Accuracy based on Four Cut Scores

Grade	Consistency	Accuracy
K	0.52	0.65
1	0.62	0.73
2	0.73	0.82
3	0.73	0.81
4	0.68	0.77
5	0.67	0.77
6	0.69	0.78
7	0.66	0.76
8	0.67	0.77
9	0.43	0.65
10	0.74	0.86
11	0.44	0.67
12	0.73	0.84

Table 36. Writing Decision Consistency and Accuracy Based on Four Cut Scores

Grade	Consistency	Accuracy
K	0.73	0.80
1	0.71	0.80
2	0.54	0.64
3	0.58	0.70
4	0.58	0.69
5	0.57	0.68
6	0.53	0.65
7	0.52	0.64
8	0.51	0.64
9	0.60	0.70
10	0.58	0.69
11	0.56	0.68
12	0.57	0.69

Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) was conducted to assess the degree to which the intended construct for each test explains performance on the operational test items within each of the four domains: Listening, Reading, Speaking, and Writing. Although causal structures can never be proven, it is useful to assess the "…degree to which the plausibility of factor models is empirically confirmed" (Kim & Mueller, 1978, p 46). Further, there are several conditions that can affect the empirical confirmation of a theorized factor structure, including the number of variables and common factors. In the case of LAS Links, we might therefore expect less certainty in the level of empirical confirmation noted for the shorter domain tests of Speaking and Writing.

A single factor model was specified for each domain and level of the LAS Links test as

$$y_i = \tau + \Lambda\eta_i + \varepsilon_i$$

where y_i is the outcome vector, τ is the intercept vector, Λ is the factor loading matrix, η_i is the common factor score, and ε_i represents the unique factor scores. For each model, the factor variance was fixed to 1.0 for model identification purposes. As the indicators in these models are ordered categorical variables and likely violate the assumption of multivariate normality required for maximum likelihood estimation, the models were fit using robust weighted least squares estimation.

Results were evaluated for the significance of factor loadings, the consistency of standardized variances of the unique factor scores, and the overall fit of the single factor models to the data. Model fit was evaluated for each model using adjusted Chi-Square tests of fit (Satorra & Bentler, 1994; Asparouhov & Muthén, 2010), Root Mean Square Error of Approximation (RMSEA), and the comparative fit index (CFI). RMSEA values

below 0.06 and CFI values of 0.90 and above are generally considered to represent good fit (Hu & Bentler, 1999).

Results for the four single factor models in each grade span show that factor loadings for all items are statistically significant. This indicates that the construct is explaining individual item performance reasonably well.

The Chi-square test of fit results for the CFAs show that, for all tests, the model does not fit perfectly in the population with p-values < 0.000. MacCallum (2001) notes that this is often the finding with larger sample sizes. The RMSEA results shows good fit for most tests, with values ranging between 0.019 and 0.116. The CFI results also show good fit for most tests, with values ranging from 0.794 to 0.997. All tests show good fit for at least one of the fit measures applied. Overall, the factor analysis results suggest that a single factor (construct) is explaining the variance in the LAS Links test well in each of the domains, supporting the four-domain reporting structure for LAS Links. Tables 37-40 provide fit details.

Table 37. Model Fit for Listening

Grade	No. Indicators (Items)	RMSEA	CFI	χ^2 df	P-Value Adj χ^2	N
K	20	0.030	0.960	190	< 0.000	4748
1	20	0.026	0.981	190	< 0.000	4486
2-3	20	0.030	0.966	190	< 0.000	9288
4-5	20	0.023	0.975	190	< 0.000	8344
6-8	23	0.023	0.977	253	< 0.000	8636
9-12	23	0.022	0.966	253	< 0.000	8607

Table 38. Model Fit for Reading

Grade	No. Indicators (Items)	RMSEA	CFI	χ^2 df	P-Value Adj χ^2	N
K	26	0.047	0.794	325	< 0.000	4721
1	30	0.042	0.944	435	< 0.000	4467
2-3	30	0.026	0.971	435	< 0.000	9230
4-5	30	0.019	0.983	435	< 0.000	8275
6-8	30	0.024	0.972	435	< 0.000	8603
9-12	30	0.022	0.985	435	< 0.000	8643

Table 39. Model Fit for Speaking

Grade	No. Indicators (Items)	RMSEA	CFI	χ^2 df	P-Value Adj χ^2	N
K	8	0.038	0.996	28	< 0.000	4646
1	10	0.030	0.997	45	< 0.000	4386
2-3	12	0.049	0.991	66	< 0.000	8559
4-5	12	0.116	0.962	66	< 0.000	7880
6-8	12	0.110	0.964	66	< 0.000	7687
9-12	12	0.086	0.982	66	< 0.000	7495

Table 40. Model Fit for Writing

Grade	No. Indicators (Items)	RMSEA	CFI	χ^2 df	P-Value Adj χ^2	N
K	14	0.082	0.926	91	< 0.000	4574
1	18	0.077	0.971	153	< 0.000	4358
2-3	17	0.053	0.989	136	< 0.000	9058
4-5	17	0.048	0.989	136	< 0.000	8058
6-8	17	0.041	0.989	136	< 0.000	8311
9-12	17	0.041	0.989	136	< 0.000	8276

Chapter 5: Scores, Interpretations, and Validating Standards

Chapter 5 covers the types of scores and reports offered for LAS Links, as well as the proficiency levels and underlying standard-setting and validation processes that support claims of their validity.

Scale Scores, Proficiency Levels, and Their Interpretations

As discussed in Chapters 1 and 2, LAS Links is a comprehensive assessment system designed to measure English-language proficiency in students from kindergarten through Grade 12. The test comprises four domains (Reading, Writing, Listening, and Speaking). Students earn test scores on each of these four domains, and composite scores are calculated as the average of their respective domain combinations as follows:

- Overall (the average of the test scores earned by the student in all four domains),
- Oral (the average of the test scores earned by the student in Listening and Speaking),
- Comprehension (the average of the test scores earned by the student in Reading and Listening),
- Literacy (the average of the test scores earned by the student in Reading and Writing),
- Productive (the average of the test scores earned by the student in Writing and Speaking),

Additionally, LAS Links percentile ranks and normal curve equivalents are provided to help users understand their students' performance relative to national student performance.

Scale score descriptive statistics can be referenced in Appendix A. Detailed performance level descriptions can be found in Appendix B. Complete raw score to scale score conversions, conditional standard errors of measurement (CSEM), percentile ranks, and normal curve equivalents are provided in Appendix C.

Standards Validation

On January 17-27, 2023, DRC sponsored a standards validation workshop for LAS Links. The purpose of the workshop was to evaluate the current cut scores (passing scores) for LAS Links and to determine whether they were valid for continued use in light of recent updates to the test design for Forms E and F. A committee of 42 language educators were engaged in the Bookmark Standard Setting Procedure (Lewis, Mitzel, & Green, 1996) to evaluate the LAS Links cut scores.

During the online, six-day workshop, educators (a) discussed the expectations for students in each LAS Links proficiency level and (b) evaluated cut scores for each of the four domains: Reading, Writing, Listening, and Speaking. Participants worked in five groups of 4-9 participants each, and each group focused on a different grade span: kindergarten and Grades 2, 4, 7, and 11.

Standards Validation Purpose

When test designs are modified, The American Educational Research Association, American Psychological Association, and National Council on Measurement in Education's Standards for Educational and Psychological Testing (2014) require that proficiency level cut scores (also commonly referred to as "standards") be evaluated for the purpose of determining whether or not they are still valid for continued use in defining the proficiency levels that are used to make decisions about students. This is commonly done through an educator workshop facilitated by experts in standard setting processes. In this case, DRC psychometricians applied the Bookmark Procedure (Lewis et al., 1996).

Standards Validation Results Summary

During DRC's application of the Bookmark Procedure (Lewis et al., 1996), educators made strong recommendations to adjust the Proficient and Above Proficient cut scores for kindergarten and Grade 1 Writing. The cut scores for the Overall, Literacy, and Productive composites were also adjusted due to their inclusion of student Writing scores.

Table 41 summarizes the adjustments that will be made to LAS Links cuts scores for Forms E and F beginning in the spring of 2023:

Table 41. Cut Score Adjustments for LAS Links Forms E/F, Kindergarten and Grade 1

Grade	Cut Score	Writing	Overall	Literacy	Productive
Kindergarten	Early Intermediate	347	389	351	388
	Intermediate	417	425	399	439
	Proficient	*437	*456	*429	*466
	Above Proficient	*452	*499	*463	*501
Grade 1	Early Intermediate	355	394	357	393
	Intermediate	435	433	410	448
	Proficient	*470	*466	*446	*483
	Above Proficient	*498	*512	*488	*524

Note. Adjusted Cut Scores are indicated with Asterisks.

Background

This section provides details regarding the uses and format of LAS Links, describes changes which have been made to LAS Links since the publication of Forms C and D, and presents the history of the LAS Links cut scores.

Changes to the Test Design and Blueprint of LAS Links

Although the updated tests are aligned to the same English Language Proficiency (ELP) Standards as Forms C and D, the following changes were implemented in the development of LAS Links Forms E and F:

- The most current guidelines regarding bias, fairness, sensitivity, and accessibility for English learners have been applied.
- Content and graphics have been adjusted to better reflect current English learner experiences and current learning environments.
- The kindergarten Reading test was reduced in length by 2 items.
- The format for items in the Writing subtest was updated to allow both the stimulus paragraph and the item to appear on the same screen in the online environment.

History of LAS Links Cut Scores

Defensible, skills-based cut scores have been a component of LAS Links since its inception. The standards validation re-evaluated the cut scores that were originally set in 2005 on Forms A and B in light of the changes to the test design and blueprint described above.

2005: Original LAS Links Standard Setting

In June 2005, CTB/McGraw-Hill sponsored a standard setting study for the original two forms of LAS Links, Forms A and B. The standard setting had two primary components: the bookmark standard setting and cut score creation.

On June 27-29, 2005, 109 educators from across the country convened in Scottsdale, Arizona, to recommend cut scores for LAS Links. Participants were divided into 10 groups: two groups each were assigned to kindergarten and Grades 2, 4, 7, and 11. Of the two groups assigned to each grade, one group focused on Speaking and Listening, and the other group focused on Reading and Writing. Each group comprised 10-12 participants. For each of these tests, participants considered cut scores associated with the Early Intermediate and Proficient proficiency levels. To make their recommendations, participants engaged in the Bookmark Standard Setting Procedure.

After the standard setting, CTB interpolated (and extrapolated) cut scores for the remaining cut scores and grades of LAS Links. Specifically, CTB used participants' recommendations to calculate cut scores for Intermediate and Above Proficient and cut scores for Grades 1, 3, 5, 6, 8, 9, 10, and 12. In addition, cut scores were calculated for

three composite scores: Oral, Comprehension, and Overall. Researchers and language acquisition experts at CTB then reviewed the cut scores and implemented them on the new product.

2013: Standards Validation for LAS Links Forms C/D

In 2013, two new forms were created—Forms C and D—the cut scores established in 2005 were applied to the new forms. The existing cut scores were applied to the new forms because (a) the new forms were designed to be substantively parallel to Forms A and B, (b) states and school systems would be encouraged to use any of the four forms of LAS Links interchangeably, and (c) the same test scales would be used to report scores from the four forms.

At the standards validation, item maps were created using items from Forms C and D to support an update to the Proficiency Level Descriptors (PLDs) for the product. Educators then convened to review the item maps and validate the cut scores.

2023: Standards Validation for LAS Links Forms E/F

At the present standards validation, DRC sought to (a) evaluate the existing LAS Links cut scores using the test items developed for Forms E/F, (b) make sure the cut scores linked students' scores on LAS Links to these expectations, and (c) were appropriate for each domain and grade. Four cut scores were evaluated that defined five proficiency levels: Beginning, Early Intermediate, Intermediate, Proficient, and Above Proficient.

Standards Validation Methodology

The Bookmark Procedure (Lewis, Mitzel, & Green, 1996) is one of the most frequently implemented methods to establish proficiency standards on educational assessments. The Bookmark Procedure was previously used on LAS Links at the original 2005 standard setting and at the 2013 standards validation.

A modification of the Bookmark Standard Setting Procedure (Lewis, Mitzel, & Green, 1996; Lewis, Mitzel, Mercado, & Schulz, 2012) was implemented to validate the cut scores for LAS Links on January 17-27, 2023. This method has a history of use on large-scale assessments across the U.S. and abroad. The process was comprised of three phases:

- A committee of 42 educators from all over the U.S. convened in a standards validation workshop, where they engaged in a modification of the Bookmark Procedure to review the existing cut scores. These educators reviewed the revised tests, considered the existing cut scores as applied to the revised tests, and engaged in content-based conversations about the extent to which the cut scores remained valid for continued use.
- A committee of five educators and administrators convened in a standards validation review workshop to consider the recommendations made during the standards validation workshop. This committee considered the percentage of

students classified in each performance level on the tests (the impact data) as well as the consistency of the existing cut scores and the recommendations made at the standards validation workshop.

- DRC content and standards validation experts reviewed committee recommendations from the preceding phases and made final cut score determinations.

Workshop Materials

The materials used at the standard setting workshop were based on empirical test data from LAS Links collected in 2021 and 2022.

LAS Links Proficiency Level Descriptors

Proficiency Level Descriptors (PLDs) are a key input into the standards validation process. PLDs summarize the knowledge and skills expected of students in each proficiency level. Egan, Schneider, and Ferrara (2012) suggest a framework of four types of PLDs, described here.

- Policy PLDs summarize the general definition for each proficiency level, providing information to stakeholders on the suggested interpretation of each level. They are typically not specific to any given grade or domain.
- Range PLDs summarize the knowledge and skills expected of students in a given proficiency level on a specific test (e.g., Grade 2 Reading, Grade 8 Speaking). The range PLDs show the types of English-language skills, as informed by the LAS Links Standards, that should be mastered by students in each proficiency level on the test at hand.
- Threshold PLDs are based on the range PLDs and summarize the English-language skills expected of students who are at the point-of-entry (the threshold) of each proficiency level. For any given test, these descriptors show the types of skills needed to be just classified in a given proficiency level (e.g., to be just classified as Proficient on Grade 4 Listening).
- Reporting PLDs are the version of the PLDs used for score reporting. Typically, versions of the policy or range PLDs are used, and the language in the reporting PLDs is adjusted to be accessible to a wide audience that may not have in-depth specialist knowledge. (Reporting PLDs were not part of the scope of this workshop.)

The policy and range PLDs were developed in 2005 and updated in 2013. Staff members from Test Development reviewed the PLDs and considered whether any adjustments should be made prior to the workshop. Some adjustments included removing references to English language skills no longer measured by LAS Links and amplifying references to skills now more prominently measured by LAS Links. The

updated PLDs were presented to the standards validation participants during the workshop. At the workshop, participants used these PLDs to develop threshold descriptors. Refer to Appendix B for a detailed presentation of the PLDs.

Ordered Item Booklets

Ordered item booklets (OIBs) lay at the heart of the Bookmark Procedure. An OIB of 38 to 87 items/score points and an accompanying item map were created for each of the 20 grade-span and domain combinations for LAS Links. Within each of the 20 OIBs, test items are ordered by ascending difficulty. Item difficulty, as defined by its scale location adjusted by a response probability (RP) value of RP67GA, is based on data from the sample of examinees used to create the LAS Links test scales.

Participants used the OIB to evaluate cut scores. Accordingly, it was important that the items included in the OIB spanned the difficulty continuum—from easy to hard—and that items were found around the points on the test scale where cut scores currently appeared. The items in the OIB reflected the test blueprint, mirroring the range of skills measured by the test.

To create the OIBs, DRC used the following plan:

- Start with the operational/field test items from Forms E and F. The items selected for the operational/field test Forms E and F comprised the core of each OIB.
- Augment with additional items as needed. Additional items were used to augment the OIBs in cases where (a) there were significant gaps between RP-adjusted scale locations in the OIB, (b) there were few items around the existing cut scores, and (c) there were few items that separate the existing cut scores from each other.
- Check the test blueprints for similarity. The items in each OIB should mirror the test blueprints in a meaningful way. Specifically, the proportion of items in each OIB should mirror the test blueprints at the Language Context Strand level (e.g., “Reading: Foundational Skills,” “Speaking: Language Arts/Social Studies/History”). The OIB proportions should match those from the blueprint within 5%.

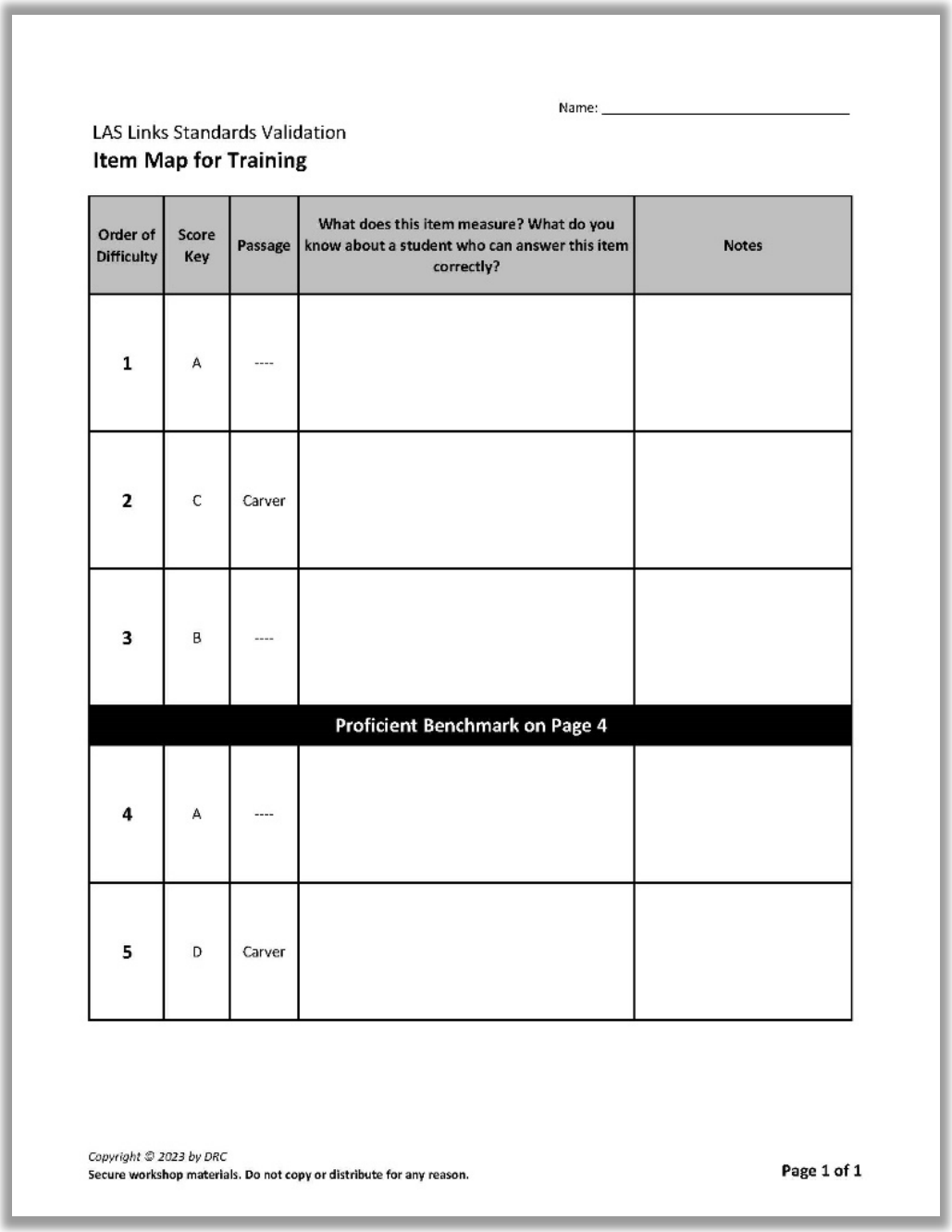
Most items on LAS Links are worth one point. As participants studied these items, they considered the English language skills that students needed to answer the item correctly.

The test also contains CR items worth multiple points. As participants studied these items, they used the items and associated scoring guides (rubrics) to consider the English language skills that students needed in order to earn the first score point, and then they considered the additional knowledge and skills needed to earn two points, and so on.

Item Maps

The item map summarizes information about the items in an OIB. For each item, the item map indicates the item sequence number and answer key. The workshop item maps incorporate secure test information and are not included in this document. However, Figure 2 shows the item map that was used during the participant training session and is included for illustration.

Figure 2. Training Item MapFi



Name: _____

LAS Links Standards Validation

Item Map for Training

Order of Difficulty	Score Key	Passage	What does this item measure? What do you know about a student who can answer this item correctly?	Notes
1	A	----		
2	C	Carver		
3	B	----		
Proficient Benchmark on Page 4				
4	A	----		
5	D	Carver		

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Secure workshop materials. Do not copy or distribute for any reason.

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Standard Setting Hub

Each participant could access the Hub, a specially designed website that contained materials accessible to workshop participants. Participants used the Hub to access selected materials (e.g., item maps), view test items, and enter standard setting recommendations. Access to the Hub was limited to workshop participants by DRC, and access was only allowed during the workshop.

DRC recognized that participants would benefit from having certain frequently referenced materials (e.g., the LAS Links proficiency level descriptors) available to them in hardcopy format. These materials were provided to participants on paper prior to the workshop and were also made available on the Hub.

Staff and Participants

Staff members from DRC served as facilitators and in support roles on all aspects of the standard setting workshop. These staff members did not contribute to the cut score recommendations during the workshop.

DRC Staff

Staff members from DRC trained participants in the standards validation methodology, facilitated workshop discussions, and answered participants' questions. Staff members from DRC Psychometric Services included Ricardo Mercado, Sr. Research Director; Sara Kendallen, Sr. Research Analyst; Michelle Boyer, Ph.D., Sr. Psychometrician; Julie Pointner, Research Coordinator; Chalin Walters, Statistical Analyst; Jess Smith, Ph.D., Sr. Psychometrician; Lee McKenna, Statistical Analyst; Keith Boughton, Ph.D., Sr. Psychometrician; Joanna Tomkowicz, Ph.D., Sr. Psychometrician; Christie Plackner, Sr. Research Director; Kim Hudson, Ph.D., Psychometrician; Daisy Ye, Statistical Analyst; Scott Li, Statistical Analyst; and Jenni Miska, Research Analyst. Huan Wang, Ph.D., Sr. Psychometrician, provided additional support with test data analyses.

Experts in language testing from DRC Test Development worked with participants to provide specialist support. These staff members included Jen Heller, Sr. Test Development Specialist; Megan Ormseth, Sr. Project Manager; Brittany Weber, Associate Test Development Specialist; and Kara Courtney, Vice President, ELA Curriculum and Assessment.

Project management for the workshop was provided by Jana Hilleren, Sr. Director of Language Solutions; Jonica Backes, Sr. Director, State Assessment Programs; and Maggie Frye, Manager of Meeting Planning.

Workshop Participants

The committee comprised a purposeful mix of educators with a variety of backgrounds. Special care was taken to promote diversity among participants in terms of background and location. Participants were asked to self-report their demographic characteristics

(e.g., ethnicity, number of years in the profession) as part of the pre-session participant survey.

Configuration of the Committee

The workshop committee was composed of a total of 42 educators. Forty-one completed the pre-workshop survey. Thirty-eight participants were female and three were male. Six were Black, 31 were white, one was American Indian and Alaska Native and Native Hawaiian or Other Pacific Islander, one was Asian, and three were of other races. Twenty-seven participants were teachers (three were special educators, and 21 were EL teachers), eight were consultants, and six were administrators of a district or other jurisdiction. 78% of participants worked in education more than 10 years, and 41% of them worked in education for more than 20 years.

Standards Validation Workshop

The workshop took place on Zoom. Before the workshop, participants were invited to a pre-workshop session to meet the workshop staff and test their computer equipment. The workshop was then conducted in three sessions:

January 17-19: Standards validation for Reading and Writing

January 24-26: Standards validation for Listening and Speaking

January 27: Review of the recommendations

Nearly all participants took part in the first two sessions, and five participants took part in the last. This section describes the standards validation method used in the first two sessions. Table 42 illustrates the committee configuration used each week of the standards validation. Table 43 provides a broad overview of the weekly agenda.

Table 42. Committee Configuration

Week 1: Reading & Writing	Week 2: Listening & Speaking
Kindergarten Reading & Writing	Kindergarten Listening & Speaking
Grade 2 Reading & Writing	Grade 2 Listening & Speaking
Grade 4 Reading & Writing	Grade 4 Listening & Speaking
Grade 7 Reading & Writing	Grade 7 Listening & Speaking
Grade 11 Reading & Writing	Grade 11 Listening & Speaking

Table 43. Summary Agenda

Day	Time	Activity
Day 1	AM	Orientation and training, begin standards validation for Reading/Listening
	PM	Continue standards validation for Reading/Listening
Day 2	AM	Complete standards validation for Reading/Listening
	PM	Begin standards validation for Writing/Speaking
Day 3	AM	Continue standards validation for Writing/Speaking
	PM	Complete standards validation, review recommendations

Opening Session and Participant Training

The workshop began for all participants on January 17, 2023. All participants began the workshop with an opening session led by DRC. During this session, Ms. Hilleren from DRC welcomed the participants to the workshop and described the purpose of the workshop. Ms. Hilleren summarized the structure of LAS Links, described how DRC would soon publish LAS Links Forms E/F, and noted the goals of the workshop.

Mr. Mercado from DRC then introduced the standards validation methodology. Participants were introduced to the materials that would be used during the rest of the workshop. Participants were instructed that their goal for the workshop was to evaluate cut scores for the tests to determine whether they were still valid for continued use and, if not, to recommend more appropriate cut scores. Participants understood that they would consider the English language skills expected of students in each proficiency level and that they would engage in the Bookmark Procedure to make recommendations.

Discussion of the Threshold Students

DRC instructed participants to read the threshold proficiency level descriptors (PLDs) to consider the English language skills that students were expected to demonstrate at the threshold of each proficiency level.

Participants engaged in discussions about the English language skills they expected to be demonstrated by each of the four threshold students. The four threshold students were just in each proficiency level, from just Early Intermediate to just Above Proficient. To engage in these discussions, participants used the PLDs and their knowledge of students.

In each group, participants discussed the expectations for each proficiency level and the differences between them. To focus participants on the lines of demarcation between

the proficiency levels, participants were asked to discuss the English language skills that separated students in one proficiency level from those in another. For example, participants were asked to discuss the English language skills that separated the highest performing Early Intermediate students from the lowest performing Intermediate students.

Participants recorded their expectations for students at the thresholds of each proficiency level on electronic whiteboards. Participants were encouraged to review these descriptions frequently throughout the workshop and to consider the threshold students when they placed their bookmarks.

By the end of this discussion, participants had thoroughly considered the LAS Links proficiency level descriptors and threshold students and had worked toward a shared understanding of the types of skills that the threshold student for each proficiency level should have.

Presentation of Benchmarks

To evaluate the existing cut scores, participants were shown the 2005 cut scores as benchmarks in their item maps. Benchmarks refer to any policy-based information that is presented to participants that help participants make their cut-score recommendations. The use of benchmarks at standards validation is well established (Phillips, 2012), especially in the Bookmark Procedure (Lewis, Mitzel, Mercado, & Schulz, 2012; Ferrara, Lewis, & D'Brot, 2021). In this context, the use of the existing cut scores as benchmarks can be thought of as a way of gathering and evaluating validity evidence associated with the 2005 cut scores (McClarty et al., 2013). Thoughtful use of benchmarks can bring policy- and content-based information together in a meaningful way. Participants were shown benchmarks based on the existing cut scores before Round 1 of a two-round process.

Study of the OIBs and Item Maps

Participants examined the OIBs in terms of what each item measured. Participants were instructed to take notes on the item maps about the English language skills required to answer the items correctly. For multi-point items, participants considered each score point separately (e.g., considered the English language skills needed to earn two points out of three).

Secondary Training on Bookmark Placement

On the morning of January 18 (and in a refresher session on January 24), Mr. Mercado provided the participants with additional training on bookmark placement. Participants were reminded how bookmarks are associated with cut scores, how to evaluate the existing cut scores by examining the benchmarks, and how to make cut score recommendations using the OIB.

Following training, participants were tested on their understanding of the Bookmark Procedure with a short quiz, termed a mid-process evaluation. Afterwards, participants were provided the correct answers for the mid-process evaluation, as well as explanations of those answers.

Round 1

Participants then began to consider the benchmarks and whether they were placed appropriately in the OIB. To evaluate each benchmark, participants were asked to consider the English language skills measured by the items (and score points) appearing before the bookmark in the OIB, and participants considered whether those skills best reflected those expected of the threshold student. If there was good correspondence between the English language skills measured by the items before the benchmark and those expected of the threshold student, participants were instructed to retain that position in the OIB as their bookmark. Otherwise, participants were instructed to move their bookmark forward or backward in the OIB, one page at a time, until there was better correspondence.

On their own, participants then made their Round 1 bookmark placements. To do so, they referred to their OIB, item map, threshold student descriptions, and PLDs. Participants recorded their bookmark placements electronically.

Presentation of Round 1 Recommendations

Participants were then presented with a summary of their Round 1 recommendations. Specifically, participants were shown the median bookmark placed for each cut score. Participants were also shown a histogram of the group's Round 1 bookmark placements.

Round 2

Participants then discussed the rationales behind their Round 1 bookmarks. Participants were instructed to engage in a discussion based on English language skills and to focus on items around their Round 1 bookmarks. Participants referred to their OIB, item map, threshold student descriptions, and the PLDs throughout the discussions.

Following this discussion, participants made their Round 2 bookmark placements on their own. Participants were reminded that they were free to retain their Round 1 bookmarks or to change any of them; but in either case, participants would need to have content-based rationales for their decisions.

Presentation of Round 2 Recommendations

Participants were then presented with a summary of their Round 2 recommendations, including the median bookmarks and a histogram of the bookmarks placed in Round 2. Participants were told that the median Round 2 bookmarks would comprise the committee's recommendation.

Repeat the Process

After completing the process for Reading, participants repeated it for Writing, Listening, and Speaking.

For Writing and Speaking, participants were shown the scoring guides (rubrics) for CR items. For Writing, Listening, and Speaking, participants experienced the audio stimuli through headphones, and they had access to written transcripts for longer listening stimuli.

Above Proficient Cut Score Review for Kindergarten Writing

Due to limitations in the availability of highly difficult content on the kindergarten Writing test, two additional modifications to the Bookmark procedure were applied for the purpose of evaluating the Proficient and Above Proficient cut scores.

When the participants began their work, the existing cut scores for Proficient and Above Proficient were on the same item in the OIB. That item was also the last item in the OIB. Therefore, participants could only reasonably begin the process by reviewing the Proficient cut score. However, after participants had made their recommendation that the final Proficient cut score should be lower than the original based on a strict application of the Bookmark procedures described herein, there was an opportunity to consider whether the Above Proficient cut score should also be adjusted downward.

Accordingly, DRC facilitators led the participants in the kindergarten group through a discussion of the Above Proficient expectations, threshold students, and the items in the OIB beyond the adjusted Proficient cut score. Participants were then asked for their recommendations about adjusting the Above Proficient cut score, both informally during discussion and formally through a survey response.

Review of Recommendations

After making their cut score recommendations, participants were presented with the cut score recommendations for all four domains. Participants were reminded that they could consider adjustments to the cut scores, if needed, to promote better articulation (consistency) of the cut scores across grades. Specifically, participants were told that representatives from each group would meet on January 27 to review the recommendations and, as needed, recommend adjustments to them.

Workshop Evaluation

All participants were thanked for their time and effort during the standards validation. To conclude the workshop each week, participants were asked to complete a post-workshop evaluation. Selected results are presented later in this section.

Results

The standard setting was conducted according to the plans created by DRC prior to the workshop. The results of the workshop are presented in this section.

Participants' Recommendations after Round 2

Table 44 shows participants' recommendations from Round 2 of the Bookmark Procedure. The committee's cut score recommendation is defined as the median cut score recommendation from each group of participants. The cut score recommendations are shown on the scale-score metric.

Table 44. Median Round 2 Cut Score Recommendations, by Grade and Domain

Grade	Cut Score	Round 2 Cut Scores by Domain			
		Speaking	Listening	Reading	Writing
Kindergarten	Early Int.	439	426	369	347
	Intermediate	461	443	385	412
	Proficient	492	470	421	437
	Above Prof.	502	490	448	443
Grade 2	Early Int.	443	442	435	425
	Intermediate	473	463	472	475
	Proficient	504	492	498	504
	Above Prof.	535	536	534	544
Grade 4	Early Int.	451	457	468	434
	Intermediate	475	484	504	498
	Proficient	510	525	535	533
	Above Prof.	559	581	588	584
Grade 7	Early Int.	462	463	502	447
	Intermediate	475	492	530	498
	Proficient	513	528	560	548
	Above Prof.	560	579	608	594
Grade 11	Early Int.	470	480	509	455
	Intermediate	479	516	547	501
	Proficient	515	545.5	583	550
	Above Prof.	541	587	634	585

Participants' Recommendations after the Review Session

During the January 27th meeting, participants reviewed all recommended cut scores for each domain and overall grade spans. As a whole, the group noted the articulation of recommendations over grade spans within domains, considered the amount of error associated with each recommendation, reviewed test items, and discussed the overall reasonableness of the round two recommendations.

Participants included the following people:

- Rachel Lease, general education teacher, Connecticut, Grade K
- Kristin Gonzalez, general education teacher, Connecticut, Grade 2

- Chalise Ross, ESOL coordinator K-12, Connecticut, Grade 4
- Michelle Johnston, administrator of a K-12 district, Mississippi, Grade 7
- Rebekah Daly Smith, consultant, Minnesota, Grade 11

The group indicated particular concern about the existing cut scores for Proficient and Above Proficient in kindergarten Writing. The group felt strongly that the existing cut scores were too high. This determination was based on a number of factors.

First, they pointed to the round 1 and round 2 results which showed a large change in the recommended cut scores. With the knowledge that the Bookmark method was implemented with fidelity, the group further discussed the many changes that have occurred in learning and assessment of very young English language learners including advancing technologies, traits of young English language learners, changes in English language instruction and classroom environments, and overall impact. Very few kindergarten students have been able to reach the Proficient and Above Proficient levels based on the historical cut scores.

Collectively, the group advised that the round 2 recommended changes were substantial and necessary.

Table 45 shows the cut score recommendations following the review session. These cut scores, as expressed on the scale metric, are considered the final recommendations of the standards validation committee.

Table 45. Cut Score Recommendations from the Review Session, by Grade and Domain

Grade	Cut Score	Cut Scores from the Review Session by Domain			
		Speaking	Listening	Reading	Writing
Kindergarten	Early Int.	439	426	369	347
	Intermediate	461	443	385	412
	Proficient	492	470	421	437
	Above Prof.	534	490	448	443
Grade 2	Early Int.	443	442	435	425
	Intermediate	473	463	472	475
	Proficient	504	492	498	504
	Above Prof.	556	536	534	544
Grade 4	Early Int.	451	457	468	434
	Intermediate	475	484	504	498
	Proficient	510	525	535	533
	Above Prof.	559	581	588	584
Grade 7	Early Int.	462	463	502	447
	Intermediate	475	492	530	498
	Proficient	513	528	560	548
	Above Prof.	560	597	608	594

Grade	Cut Score	Cut Scores from the Review Session by Domain			
		Speaking	Listening	Reading	Writing
Grade 11	Early Int.	469	480	509	455
	Intermediate	479	516	547	501
	Proficient	515	544	583	550
	Above Prof.	560	625	634	585

Statistical Error Values Associated with the Recommendations

Two independent sources of statistical error can be associated with the cut score recommendations: error associated with the variance in participants' cut score recommendations during the Bookmark Procedure (also known as the standard error of the cut score or SEcut) and error associated with the level of measurement precision of the test instrument itself (also known as the conditional standard error of measurement or CSEM). These two sources of error can be combined to create a single value, SEcombined.

Standard Error of the Cut Score (SEcut)

Even in Round 2, the cut score recommendations varied among participants. Table 46 shows the standard error associated with the Round 2 recommendations; all are expressed on the scale metric.

Table 46. Standard Error of Round 2 Cut Score Recommendations, by Grade and Domain

Grade	Cut Score	SEcut Values by Domain			
		Speaking	Listening	Reading	Writing
Kindergarten	Early Int.	0.00	0.00	1.25	4.57
	Intermediate	0.73	0.27	0.65	0.00
	Proficient	0.12	0.73	0.16	0.57
	Above Prof.	4.00	4.06	1.04	0.00
Grade 2	Early Int.	0.00	0.82	0.00	0.00
	Intermediate	0.96	0.12	0.19	0.42
	Proficient	1.66	0.94	1.00	0.45
	Above Prof.	2.38	1.00	2.36	0.00
Grade 4	Early Int.	0.72	0.44	0.67	1.78
	Intermediate	0.67	1.45	0.29	1.73
	Proficient	0.83	1.89	0.18	0.17
	Above Prof.	0.00	3.78	0.60	2.04
Grade 7	Early Int.	0.84	2.13	0.38	1.75
	Intermediate	1.23	1.24	0.00	1.00
	Proficient	0.00	0.85	0.35	1.64
	Above Prof.	0.83	3.32	0.50	1.28

Grade	Cut Score	SEcut Values by Domain			
		Speaking	Listening	Reading	Writing
Grade 11	Early Int.	0.77	0.00	1.73	0.00
	Intermediate	0.60	0.00	0.68	0.50
	Proficient	0.00	4.26	2.25	0.67
	Above Prof.	3.85	10.72	5.00	2.40

Rationale for Using ±2 Conditional Standard Errors of Measurement

The CSEM quantifies the random variability in test scores in actual scale score units, making them useful for test score users. CSEMs allow users to make statements regarding the precision of individual test scores. Specifically, they help place 'reasonable limits' (Gulliksen, 1950) around observed scores through the construction of an approximate score band. Often referred to as confidence intervals, these bands are constructed by taking the observed scores, X, and adding and subtracting a multiplicative factor of the CSEM (e.g., ±2 CSEM).

Students with a given true score will have observed scores that fall between ±1 CSEM about two-thirds of the time. For example, if a student were tested many times, the student's scores would likely be similar (but not identical) each time, and the observed scores would be expected to fall within a range of ±1 CSEM about two-thirds of the time. For ±2 CSEM confidence intervals, the student's observed score is expected to fall within this range approximately 95 percent of the time. As a reminder, critical values of ±1.96 (rounded to ±2) are the 95% confidence interval for z tests (i.e., alpha = .05.) The best practices for evaluating score differences in educational measurement are further discussed in the NCES Statistical Standards (see Standard 5.1.3, NCES, 2024).

When we adjust a cut score within ±2 CSEMs, we are moving it within a range where we have a 95% level of confidence that (a) the cut score difference lays within the "reasonable limits" associated with the level of statistical precision on the test scale; and (b) the cut score difference falls within the range of expected performance over multiple theoretical administrations for a student at a given cut score.

Table 47 shows the CSEM values associated with the committee's cut score recommendations, as expressed on the test scale.

Table 47. CSEM Associated with Cut Score Recommendations by Grade and Domain (in scale score units)

Grade	Cut Score	Speaking	Listening	Reading	Writing
Kindergarten	Early Int.	8	12	14	21
	Intermediate	8	14	12	10
	Proficient	12	21	11	13
	Above Prof.	56	19	17	15

Grade	Cut Score	Speaking	Listening	Reading	Writing
Grade 2	Early Int.	8	15	23	15
	Intermediate	7	14	12	9
	Proficient	10	16	12	11
	Above Prof.	67	73	24	24
Grade 4	Early Int.	10	24	23	17
	Intermediate	9	20	16	15
	Proficient	8	19	15	15
	Above Prof.	14	38	20	18
Grade 7	Early Int.	9	23	20	22
	Intermediate	9	20	14	16
	Proficient	9	22	14	16
	Above Prof.	13	44	21	16
Grade 11	Early Int.	7	26	13	20
	Intermediate	6	21	13	16
	Proficient	8	22	18	17
	Above Prof.	19	40	35	21

Combined Standard Error (SEcombined)

These two independent sources of error can be combined into a single value, SEcombined. Table 48 shows the SEcombined values associated with the committee's cut score recommendations as expressed on the test scale.

Table 48. Combined Standard Error of Cut Score Recommendations, by Grade and Domain

Grade	Cut Score	Speaking	Listening	Reading	Writing
Kindergarten	Early Int.	8.00	12.00	14.06	21.49
	Intermediate	8.03	14.00	12.02	10.00
	Proficient	12.00	21.01	11.00	13.01
	Above Prof.	56.14	19.43	17.03	15.00
Grade 2	Early Int.	8.00	15.02	23.00	15.00
	Intermediate	7.07	14.00	12.00	9.01
	Proficient	10.14	16.03	12.04	11.01
	Above Prof.	67.04	73.01	24.12	24.00
Grade 4	Early Int.	10.03	24.00	23.01	17.09
	Intermediate	9.02	20.05	16.00	15.10
	Proficient	8.04	19.09	15.00	15.00
	Above Prof.	14.00	38.19	20.01	18.12
Grade 7	Early Int.	9.04	23.10	20.00	22.07
	Intermediate	9.08	20.04	14.00	16.03
	Proficient	9.00	22.02	14.00	16.08
	Above Prof.	13.03	44.13	21.01	16.05

Grade	Cut Score	Speaking	Listening	Reading	Writing
Grade 11	Early Int.	7.04	26.00	13.11	20.00
	Intermediate	6.03	21.00	13.02	16.01
	Proficient	8.00	22.41	18.14	17.01
	Above Prof.	19.39	41.41	35.36	21.14

Comparison of Existing and Recommended Cut Scores

Before the standards validation, DRC noted that it was unlikely that participants at the standards validation would recommend cut scores exactly equal to the existing LAS Links cut scores. Several factors led to this expectation, including the fact that there were different and smaller numbers of participants than were involved in the original 2005 standard setting, that standards validation participants were examining different test items than used at the original standard setting, and that the mode of the workshop (virtual) was different than the mode of the original standard setting (in-person).

Because of these factors, DRC noted in advance that if participants recommended cut scores within a range of ±2 SEcombined of the existing cut scores, then this would be interpreted as evidence that the existing cut scores were still valid for continued use. If participants recommended cut scores outside this range, then DRC would investigate those cut scores further.

Table 49 presents the differences between the committee's recommended cut scores and the existing cut scores (these differences are expressed on the test scales). Table 50 presents these differences as multiples of the cut scores' respective SEcombined values.

Table 49. Differences between Recommended Cut Scores and Existing Cut Scores, in Terms of Scale Score Points, by Grade and Domain

Grade	Cut Score	Speaking	Listening	Reading	Writing
Kindergarten	Early Int.	9	0	14	0
	Intermediate	0	-1	4	-5
	Proficient	-4	0	0	-51
	Above Prof.	-16	-30	-27	-73
Grade 2	Early Int.	0	0	0	0
	Intermediate	0	1	0	0
	Proficient	-5	0	-1	0
	Above Prof.	-1	0	-13	0
Grade 4	Early Int.	2	0	0	0
	Intermediate	0	0	0	0
	Proficient	0	0	0	0
	Above Prof.	0	0	0	0

Grade	Cut Score	Speaking	Listening	Reading	Writing
Grade 7	Early Int.	11	0	0	0
	Intermediate	-2	0	0	0
	Proficient	0	-5	0	0
	Above Prof.	0	9	0	2
Grade 11	Early Int.	17	0	0	5
	Intermediate	0	0	0	0
	Proficient	-2	-11	0	0
	Above Prof.	0	-5	0	-10

Table 50. Differences between Recommended Cut Scores and Existing Cut Scores, as a Multiple of SEcombined, by Grade and Domain

Grade	Cut Score	Speaking	Listening	Reading	Writing
Kindergarten	Early Int.	1.13	0.00	1.00	0.00
	Intermediate	0.00	-0.07	0.33	-0.50
	Proficient	-0.33	0.00	0.00	-3.92
	Above Prof.	-0.29	-1.54	-1.59	-4.87
Grade 2	Early Int.	0.00	0.00	0.00	0.00
	Intermediate	0.00	0.07	0.00	0.00
	Proficient	-0.49	0.00	-0.08	0.00
	Above Prof.	-0.01	0.00	-0.54	0.00
Grade 4	Early Int.	0.20	0.00	0.00	0.00
	Intermediate	0.00	0.00	0.00	0.00
	Proficient	0.00	0.00	0.00	0.00
	Above Prof.	0.00	0.00	0.00	0.00
Grade 7	Early Int.	1.22	0.00	0.00	0.00
	Intermediate	-0.22	0.00	0.00	0.00
	Proficient	0.00	-0.23	0.00	0.00
	Above Prof.	0.00	0.20	0.00	0.12
Grade 11	Early Int.	2.41	0.00	0.00	0.25
	Intermediate	0.00	0.00	0.00	0.00
	Proficient	-0.25	-0.49	0.00	0.00
	Above Prof.	0.00	-0.12	0.00	-0.47

With several notable exceptions, participants' recommended cut scores were highly consistent with the existing cut scores. Of the 80 cut scores actively considered by participants, the committee recommended the same cut scores as currently exist 52 times, scores within a range of ±0.5 SEcombined of the current scores 72 times, scores within a range of ±1.0 SEcombined of the current scores 73 times, and scores within a range of ±2.0 SEcombined of the current scores 77 times.

Examination of the Kindergarten Cut Scores

As shown in Table 50, the greatest deviations from the existing cut scores were among the recommendations for kindergarten. Of the 16 cut scores actively considered, six differed by at least ±1.0 SEcombined and two differed by more than ±2.0 SEcombined. Based on these recommendations, DRC investigated the cut scores further.

During the January 27th meeting, the group also indicated particular concern about the existing cut scores for Proficient and Above Proficient in kindergarten Writing. The group felt strongly that the existing cut scores were too high. DRC heard the group's concern and reasonings, particularly the many changes that have recently occurred in the learning and assessment of very young English language learners including:

- advancing technologies,
- new traits of young English language learners,
- changes in English language instruction and classroom environments, and
- overall impact in which very few kindergarten students have been able to reach the Proficient and Above Proficient levels based on the historical cut scores.

The group's content-based judgments, along with these additional considerations, were treated as appropriate and compelling reasons to implement adjustments to the kindergarten Writing cut score for Proficient and Above Proficient.

Consideration of the Grade 1 Cut Scores

With the changes made to the kindergarten cut scores as described above, DRC then considered the Grade 1 cut scores. Although standards validation did not directly consider these cut scores, DRC acknowledged the following:

- Students in kindergarten and Grade 1 take substantially similar test forms.
- The changes to language demands affecting Kindergarteners likely also affect Grade 1 students.
- The changes to the test items affecting Kindergarteners also affect Grade 1 students.
- The PLDs for kindergarten and Grade 1 are similar, but also somewhat different.

The existing sets of LAS Links cut scores for kindergarten and Grade 1 are very similar: the cut scores for students in these two grades are similar, suggesting the English language skills expected of students in these grades is similar. However, the PLDs for these two grades have subtle but important differences.

To reflect the changes to the kindergarten cut scores and reflect the voice of the standards validation committee, DRC interpolated cut scores for Grade 1 by taking the simple average of the cut scores for kindergarten and Grade 1.

The Grade 1 cut scores in Table 41 preserve the same scale-score differences between the kindergarten and Grade 1 cut scores found in the existing cut scores and were reviewed and validated by a group of 4 DRC test development experts, using the same process as described for kindergarten.

Table 51 summarizes the adjustments that will be made to the LAS Links cuts scores for Forms E and F in kindergarten and Grade 1 Writing and the associated composite scores.

Table 51. Cut Score Adjustments for LAS Links Forms E/F in Kindergarten and Grade 1

Grade	Cut Score	Writing	Overall	Literacy	Productive
Kindergarten	Early Intermediate	347	389	351	388
	Intermediate	417	425	399	439
	Proficient	**437*	**456*	**429*	**466*
	Above Proficient	**452*	**499*	**463*	**501*
Grade 1	Early Intermediate	355	394	357	393
	Intermediate	435	433	410	448
	Proficient	**470*	**466*	**446*	**483*
	Above Proficient	**498*	**512*	**488*	**524*

Note. Asterisks indicate which cut scores were adjusted.

Examination of the Grade 11 Speaking Cut Scores

Participants in the Grade 11 group recommended a substantially higher cut score for Early Intermediate than had been previously implemented. Based on this recommendation, DRC investigated the cut score further.

Due to a number of process factors, DRC had low confidence in the recommended adjustment. These factors included the following:

- absenteeism that led to one participant being moved from the Grade 7 group to Grade 11 to compensate and resulting in 5 participants making the final recommendation
- too few items with difficulty in the Early Intermediate ranges

As a result, DRC sought to achieve a difficult balance between the level of confidence that the recommended changes represented true departures from the original cut scores against the risk of disruption to current and longitudinal test score interpretations for the varied purposes that LAS Links serves. In this case, for the reasons listed, confidence in the recommended change to the Early Intermediate cut score was too low to warrant a system wide disruption in interpretation and use of proficiency level designations at the high school level.

After the Standard Setting

After the standard setting, DRC reviewed participants' cut score recommendations. DRC noted that the standards validation had been conducted according to industry best practices and that the cut score recommendations were collected in a defensible manner. As the publisher of LAS Links, DRC has a responsibility to evaluate participants' cut score recommendations and to implement cut scores that best reflect the English-language skills expected of students in each proficiency level. Therefore, the conclusions drawn from panelist recommendations were as follows: (a) change the kindergarten cut score, (b) change the Grade 1 cut scores, and (c) preserve the remaining cuts.

Table 52 shows the final cut scores for LAS Links Forms E and F with adjusted cut scores indicated with an asterisk.

Table 52. Final Cut Scores for LAS Links Forms E and F

Domain/Composite	Grade	Early Intermediate	Intermediate	Proficient	Above Proficient
Reading	K	355	381	421	475
	1	360	385	423	479
	2	435	472	499	547
	3	436	474	504	549
	4	468	504	535	588
	5	470	505	536	590
	6	501	529	559	608
	7	502	530	560	608
	8	502	532	561	608
	9	507	545	581	632
	10	508	546	582	633
	11	509	547	583	634
	12	510	548	584	635

Domain/Composite	Grade	Early Intermediate	Intermediate	Proficient	Above Proficient
Listening	K	426	444	470	520
	1	432	450	476	521
	2	442	462	492	536
	3	447	468	504	546
	4	457	484	525	581
	5	458	490	528	584
	6	462	489	532	586
	7	463	492	533	588
	8	467	498	535	590
	9	471	509	546	625
	10	475	511	550	627
	11	480	516	555	630
	12	481	517	560	633
Speaking	K	430	461	496	550
	1	432	462	496	551
	2	443	473	509	557
	3	443	474	509	558
	4	449	475	510	559
	5	449	475	511	559
	6	451	476	512	560
	7	451	477	513	560
	8	451	477	514	560
	9	452	478	515	560
	10	452	478	516	560
	11	452	479	517	560
	12	452	479	518	560
Writing	K	347	417	*437	*452
	1	355	435	*470	*498
	2	425	475	504	544
	3	428	484	529	560
	4	434	498	533	584
	5	435	499	538	585
	6	447	498	548	591
	7	447	498	548	592
	8	448	499	548	593
	9	449	500	549	594
	10	449	500	549	594
	11	450	501	550	595
	12	451	502	550	596

Domain/Composite	Grade	Early Intermediate	Intermediate	Proficient	Above Proficient
Overall	K	389	425	*456	*499
	1	394	433	*466	*512
	2	436	470	501	546
	3	438	475	511	553
	4	452	490	525	578
	5	453	492	528	579
	6	465	498	537	586
	7	465	499	538	587
	8	467	501	539	587
	9	469	508	547	602
	10	471	508	549	603
	11	472	510	551	604
	12	473	511	553	606
Oral	K	430	461	487	526
	1	432	463	490	530
	2	443	470	495	540
	3	444	471	505	548
	4	450	478	514	575
	5	452	485	516	580
	6	455	481	518	575
	7	460	485	521	580
	8	465	492	525	582
	9	465	490	525	561
	10	468	495	527	566
	11	471	497	530	567
	12	472	500	531	569
Productive	K	388	439	*466	*501
	1	393	448	*483	*524
	2	434	474	506	550
	3	435	479	519	559
	4	441	486	521	571
	5	442	487	524	572
	6	449	487	530	575
	7	449	487	530	576
	8	449	488	531	576
	9	450	489	532	577
	10	450	489	532	577
	11	451	490	533	577
	12	451	490	534	578

Domain/Composite	Grade	Early Intermediate	Intermediate	Proficient	Above Proficient
Literacy	K	351	399	*429	*463
	1	357	410	*446	*488
	2	430	473	501	545
	3	432	479	516	554
	4	451	501	534	586
	5	452	502	537	587
	6	474	513	553	599
	7	474	514	554	600
	8	475	515	554	600
	9	478	522	565	613
	10	478	523	565	613
	11	479	524	566	614
	12	480	525	567	615
Comprehension	K	386	412	449	467
	1	390	416	452	486
	2	448	473	495	531
	3	452	482	500	533
	4	485	506	526	563
	5	491	509	531	573
	6	499	514	540	574
	7	500	517	546	576
	8	501	519	553	579
	9	512	534	567	597
	10	514	536	569	606
	11	515	540	575	608

Note. Asterisks indicate which cut scores were adjusted.

Evidence of Procedural Validity

The standard setting was conducted using a diverse, well-trained committee and was perceived as valid by participants. This section supports these claims.

Committee Training

During the standard setting workshop, it was clear to the facilitators that participants understood how to make judgments as part of the standard setting methodology (e.g., Bookmark ratings).

To confirm participants' knowledge of the methodology, participants were given a short quiz each week, termed a mid-process evaluation, after training. Participants answered items 1-5 on the mid-process evaluation correctly most of the time. This indicates that, on the whole, participants were well prepared to make judgments and that the training was effective. Results for each week can be found in Table 53.

Table 53. Participants Answering Each Item Correctly on the Weeks One and Two Training Quiz

Week	Item 1	Item 2	Item 3	Item 4	Item 5
Week 1	89%	100%	53%	100%	84%
Week 2	95%	100%	47%	100%	90%

Most participants struggled with question #3 which asked participants to identify which performance level a student would be in if they had a particular number of skills identified in the OIB. Participants saw the results of their training quizzes and correct answers immediately. DRC retrained the committee following these results, and participants voiced their understanding.

The mid-process evaluation also asked participants whether they felt the goals of the standard setting were made clear and whether they felt ready to proceed, or if they had additional questions to be answered before they made their bookmark placements. These questions were answered before the committee.

Participants' Perceived Validity of the Workshop

Participants indicated their perceived validity of the workshop and their recommendations as part of the post-workshop evaluation. Hambleton (2001) noted that evaluations are important evidence for establishing the validity of performance levels.

Generally, participants were satisfied with their recommendations and with the workshop as a whole. Tables 54 and 55 show participants' level of satisfaction with their recommendations each week. Particularly, participants understood the connection between the threshold students and their cut score recommendations, and participants generally agreed that the final recommendations reflected the work of the standard setting committee.

Table 54. Participants' Agreement with Various Statements on the Post-Workshop Evaluation Regarding Their Satisfaction with the Process and the Final Recommendations, Week One

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree	Agree + Strongly Agree
The proficiency level descriptors (PLDs) were useful during the process.	0%	0%	30%	70%	**100%**
My opinions were valued by my group.	0%	0%	27%	73%	**100%**
The descriptions of the threshold students were useful during the process.	0%	0%	30%	70%	**100%**
The facilitator provided clear instructions.	0%	0%	22%	78%	**100%**
I believe this process will yield defensible cut scores.	0%	2%	28%	70%	**98%**

Table 55. Participants' Agreement with Various Statements on the Post-Workshop Evaluation Regarding Their Satisfaction with the Process and the Final Recommendations, Week Two

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree	Agree + Strongly Agree
The proficiency level descriptors (PLDs) were useful during the process.	0%	0%	26%	74%	**100%**
My opinions were valued by my group.	0%	0%	24%	76%	**100%**
The descriptions of the threshold students were useful during the process.	0%	0%	18%	82%	**100%**
The facilitator provided clear instructions.	0%	0%	24%	76%	**100%**
I believe this process will yield defensible cut scores.	0%	3%	29%	68%	**97%**

Chapter 6: Validity Evidence Related to the Relationship of Scores with Other Variables

This chapter provides evidence that the relationship between LAS Links domain and composite scale scores suggests an appropriate relationship, along with recommendations for how educational authorities that use LAS Links can further demonstrate the criterion-related validity of LAS Links scores in their own unique contexts.

Where tests are intended to measure similar constructs, stronger correlations among their test scores might be expected; and where tests are intended to measure different constructs, weaker correlations might be expected. The Standards (2014) refer to this as convergent and discriminant validity, respectively.

The correlations among LAS Links domain and composite scores are provided in Table 56. Results show that the highest correlations tend to be between the overall score and each domain score (see Overall column correlations in Table 56 relative to the domain and remaining composite scores). This is desirable as the overall score is most often used for decisions about student access to English language supports, so evidence that the overall scores relates well to each related component represent evidence in support of convergent validity.

Conversely, it is expected that individual domain score relationships may be relatively weak between domains that measure components that are arguably more different from each other. For example, the relationship between reading and speaking scores tends to be quite low as might be expected, demonstrating reasonable discriminant validity.

Table 56. Domain and Composite Scale Score Correlations

Grade	Variable	Overall	Listening	Speaking	Reading	Writing	Comp.	Literacy	Oral	Prod.
K	**Overall**	1	-	-	-	-	-	-	-	-
	Listening	0.7	1	-	-	-	-	-	-	-
	Speaking	0.7	0.53	1	-	-	-	-	-	-
	Reading	0.77	0.42	0.38	1	-	-	-	-	-
	Writing	0.82	0.44	0.48	0.52	1	-	-	-	-
	Comp	0.88	0.75	0.5	0.89	0.55	1	-	-	-
	Literacy	0.92	0.48	0.49	0.84	0.88	0.82	1	-	-
	Oral	0.8	0.87	0.85	0.45	0.52	0.72	0.55	1	-
	Prod.	0.9	0.53	0.74	0.53	0.92	0.61	0.84	0.73	1
1	**Overall**	1	-	-	-	-	-	-	-	-
	Listening	0.77	1	-	-	-	-	-	-	-
	Speaking	0.78	0.58	1	-	-	-	-	-	-
	Reading	0.89	0.58	0.6	1	-	-	-	-	-
	Writing	0.92	0.6	0.65	0.8	1	-	-	-	-
	Comp	0.94	0.85	0.66	0.9	0.78	1	-	-	-
	Literacy	0.96	0.62	0.66	0.93	0.96	0.88	1	-	-
	Oral	0.87	0.9	0.85	0.66	0.69	0.86	0.71	1	-
	Prod.	0.95	0.64	0.83	0.79	0.96	0.8	0.93	0.81	1

Grade	Variable	Overall	Listening	Speaking	Reading	Writing	Comp.	Literacy	Oral	Prod.
2	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.76	1	-	-	-	-	-	-	-
	Speaking	0.73	0.61	1	-	-	-	-	-	-
	Reading	0.86	0.55	0.51	1	-	-	-	-	-
	Writing	0.89	0.6	0.64	0.66	1	-	-	-	-
	Comp	0.93	0.79	0.6	0.93	0.71	1	-	-	-
	Literacy	0.97	0.62	0.62	0.9	0.9	0.9	1	-	-
	Oral	0.83	0.93	0.84	0.59	0.68	0.79	0.69	1	-
	Prod.	0.92	0.66	0.8	0.67	0.96	0.73	0.89	0.79	1
3	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.81	1	-	-	-	-	-	-	-
	Speaking	0.75	0.61	1	-	-	-	-	-	-
	Reading	0.91	0.65	0.58	1	-	-	-	-	-
	Writing	0.88	0.62	0.62	0.75	1	-	-	-	-
	Comp	0.96	0.85	0.64	0.94	0.76	1	-	-	-
	Literacy	0.96	0.68	0.64	0.94	0.91	0.92	1	-	-
	Oral	0.87	0.94	0.83	0.68	0.67	0.85	0.73	1	-
	Prod.	0.92	0.66	0.82	0.76	0.95	0.78	0.9	0.79	1
4	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.83	1	-	-	-	-	-	-	-
	Speaking	0.8	0.61	1	-	-	-	-	-	-
	Reading	0.9	0.66	0.64	1	-	-	-	-	-
	Writing	0.91	0.64	0.71	0.77	1	-	-	-	-
	Comp	0.95	0.89	0.68	0.92	0.77	1	-	-	-
	Literacy	0.96	0.69	0.72	0.93	0.94	0.89	1	-	-
	Oral	0.91	0.94	0.82	0.72	0.73	0.9	0.77	1	-
	Prod.	0.93	0.67	0.85	0.78	0.97	0.79	0.93	0.81	1
5	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.84	1	-	-	-	-	-	-	-
	Speaking	0.79	0.6	1	-	-	-	-	-	-
	Reading	0.9	0.67	0.62	1	-	-	-	-	-
	Writing	0.89	0.62	0.7	0.76	1	-	-	-	-
	Comp	0.95	0.9	0.66	0.91	0.75	1	-	-	-
	Literacy	0.96	0.69	0.71	0.93	0.94	0.89	1	-	-
	Oral	0.91	0.94	0.81	0.72	0.71	0.9	0.76	1	-
	Prod.	0.92	0.65	0.85	0.76	0.96	0.77	0.92	0.8	1
6	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.83	1	-	-	-	-	-	-	-
	Speaking	0.79	0.6	1	-	-	-	-	-	-
	Reading	0.85	0.62	0.57	1	-	-	-	-	-
	Writing	0.89	0.63	0.69	0.69	1	-	-	-	-
	Comp	0.94	0.89	0.64	0.89	0.73	1	-	-	-
	Literacy	0.95	0.68	0.69	0.9	0.93	0.88	1	-	-
	Oral	0.91	0.94	0.81	0.66	0.71	0.88	0.75	1	-
	Prod.	0.92	0.66	0.85	0.69	0.96	0.75	0.91	0.8	1

Grade	Variable	Overall	Listening	Speaking	Reading	Writing	Comp.	Literacy	Oral	Prod.
7	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.87	1	-	-	-	-	-	-	-
	Speaking	0.81	0.64	1	-	-	-	-	-	-
	Reading	0.88	0.69	0.62	1	-	-	-	-	-
	Writing	0.9	0.69	0.7	0.72	1	-	-	-	-
	Comp	0.95	0.91	0.68	0.92	0.76	1	-	-	-
	Literacy	0.96	0.74	0.71	0.91	0.93	0.9	1	-	-
	Oral	0.93	0.94	0.85	0.72	0.75	0.9	0.79	1	-
	Prod.	0.93	0.72	0.87	0.74	0.96	0.78	0.91	0.84	1
8	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.86	1	-	-	-	-	-	-	-
	Speaking	0.81	0.63	1	-	-	-	-	-	-
	Reading	0.88	0.68	0.63	1	-	-	-	-	-
	Writing	0.9	0.68	0.72	0.73	1	-	-	-	-
	Comp	0.95	0.91	0.68	0.91	0.76	1	-	-	-
	Literacy	0.96	0.73	0.72	0.92	0.93	0.9	1	-	-
	Oral	0.93	0.94	0.83	0.72	0.76	0.9	0.79	1	-
	Prod.	0.93	0.7	0.88	0.73	0.96	0.78	0.91	0.84	1
9	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.82	1	-	-	-	-	-	-	-
	Speaking	0.84	0.62	1	-	-	-	-	-	-
	Reading	0.87	0.63	0.66	1	-	-	-	-	-
	Writing	0.92	0.65	0.76	0.76	1	-	-	-	-
	Comp	0.93	0.9	0.69	0.89	0.76	1	-	-	-
	Literacy	0.96	0.67	0.76	0.91	0.95	0.87	1	-	-
	Oral	0.92	0.92	0.85	0.7	0.75	0.9	0.77	1	-
	Prod.	0.95	0.67	0.89	0.76	0.96	0.78	0.93	0.84	1
10	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.85	1	-	-	-	-	-	-	-
	Speaking	0.82	0.63	1	-	-	-	-	-	-
	Reading	0.89	0.68	0.67	1	-	-	-	-	-
	Writing	0.91	0.68	0.73	0.78	1	-	-	-	-
	Comp	0.95	0.91	0.7	0.91	0.79	1	-	-	-
	Literacy	0.96	0.72	0.74	0.93	0.95	0.89	1	-	-
	Oral	0.93	0.94	0.83	0.73	0.76	0.91	0.79	1	-
	Prod.	0.94	0.7	0.87	0.78	0.96	0.8	0.93	0.84	1
11	Overall	1	-	-	-	-	-	-	-	-
	Listening	0.85	1	-	-	-	-	-	-	-
	Speaking	0.8	0.62	1	-	-	-	-	-	-
	Reading	0.9	0.69	0.66	1	-	-	-	-	-
	Writing	0.91	0.66	0.7	0.78	1	-	-	-	-
	Comp	0.95	0.92	0.68	0.91	0.77	1	-	-	-
	Literacy	0.96	0.71	0.72	0.93	0.95	0.88	1	-	-
	Oral	0.91	0.95	0.81	0.73	0.72	0.91	0.77	1	-
	Prod.	0.93	0.68	0.84	0.78	0.96	0.79	0.93	0.81	1

Grade	Variable	Overall	Listening	Speaking	Reading	Writing	Comp.	Literacy	Oral	Prod.
12	**Overall**	1	-	-	-	-	-	-	-	-
	Listening	0.85	1	-	-	-	-	-	-	-
	Speaking	0.8	0.61	1	-	-	-	-	-	-
	Reading	0.91	0.71	0.67	1	-	-	-	-	-
	Writing	0.9	0.65	0.69	0.78	1	-	-	-	-
	Comp	0.95	0.92	0.69	0.92	0.77	1	-	-	-
	Literacy	0.96	0.71	0.72	0.93	0.94	0.89	1	-	-
	Oral	0.92	0.94	0.81	0.76	0.72	0.92	0.78	1	-

Educational authorities may use other data sources to which they have access to further explore the relationship of LAS Links scores with other similar and different measures in their own context. For example, correlations between LAS Links scale scores and state summative assessments in ELA, used here as a measure of learning outcomes, would provide strong evidence of criterion-related validity of LAS Links scores. In other words, if such correlations are strong, this would provide additional evidence that LAS Links scores are appropriately related to learning goals for the students.

Chapter 7: Consequential Validity and Fairness

This chapter discusses the consequential validity of LAS Links test scores when used as intended, including special attention to the relationship between consequences and the fairness of test score uses. In support of consequential validity, this chapter discusses evidence that DIF over student groups is not present, that bias reviews have not detected bias or unfairness in item content, that test score reliabilities by student groups are reasonably constant, and that universal design and accommodations support student access to test content.

Consequential Validity

Messick (1989) begins a discussion of validity with a definition: “Validity is an integrated evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of the inferences and actions based on test scores or other modes of assessment” (p.13). In the same paragraph, he provides an important elaboration of this definition by writing the following: “Broadly speaking, then, validity is an inductive summary of both the existing evidence for and the potential consequences of score interpretation and use.” The use of the word inductive is informative. An inductive argument is one in which the premises are true, but the conclusions may still be false. Reasons are provided that support a possible, or even likely, truth, but that truth is not proven in any absolute sense. The use of this word provides insight into the complex interplay between evidence and theory, and ultimately into how the consequences of test score use might be supported (or not) by both.

Evidence is often thought to be concrete. It can exist without question, but in this framework of validity, the existence of evidence does not constitute a complete validity argument, and the more qualitative aspects of validation of uses are explicitly included. Accordingly, Messick further elaborates what he means by validation by discussing both the interpretive and action inferences that are made, explaining that:

> To validate an interpretive inference is to ascertain the degree to which multiple lines of evidence are consonant with the inference, while establishing that alternative inferences are less well supported. To validate an action inference requires validation not only of score meaning but also of value implications and action outcomes, especially appraisals of the relevance and utility of the test scores for particular applied purposes and of the social consequences of using the scores for applied decision making (p. 13).

These two sentences communicate the essence of Messick’s unified validity concept and its applications to test validation. Validation of the interpretive inference alone is insufficient without validation of the action inferences, and validation of action inferences cannot occur without validation of the interpretive inferences.

The Standards define validity as "…the degree to which evidence and theory support the interpretation of test scores for proposed uses of tests" (p.11). This definition draws on Messick (1989). Although it does not include explicit reference to the "integrated evaluative judgments" that are central in Messick's characterization of validity, these principles are operationalized to some extent in the inclusion of five sources of validity evidence in the validation process, namely evidence based on 1) test content, 2) response processes, 3) internal structure, 4) relation to other variables, and 5) testing consequences.

This chapter provides evidence in support of the intended action outcomes (aka consequences) of the uses of LAS Links test scores and where consideration of fairness principles is treated as foundationally related to consequential validity.

Fairness

The *Standards* emphasize fairness as a "…fundamental issue in protecting test takers and test users in all aspects of testing," further stating that, "Fairness is a fundamental validity issue…" (p. 49). This description suggests that validity and fairness are matters requiring attention at every point in the testing process, from specification through score use.

To communicate the complex nature of fairness in testing, the *Standards* lay out four views of fairness. They are (a) "Fairness in Treatment During the Testing Process," (b) "Fairness as a Lack of Measurement Bias," (c) "Fairness in Access to the Constructs as Measured," and (d) "Fairness as Validity of Individual Test Interpretations for Their Intended Uses" (pp. 51-53). The first two views focus on standardization and psychometric quality features of testing—factors that attend to the equal treatment of examinees in measuring performance relative to the intended construct.

The second two views on fairness also have equity components, but it is here where the fairness and equity discussions become more complex because they relate to many conditions beyond the test and test scores, including what is happening in the classroom, in homes, and at policy and judicial levels, namely, to the consequences of testing. This makes the notion of fairness far more difficult to characterize in terms of a single value such as equity or even by a competing set of values (for example, equity versus merit). It also implies a limit to what can be demonstrated through test data analysis alone.

For convenience and clarity of presentation amidst this complexity, then, the consequential validity of LAS Links is discussed within the validity and fairness frameworks provided in the Standards. Specifically, evidence is presented that the consequences of LAS Links use are valid and fair with respect to access to test content, measurement invariance, and how these two important sources of validity evidence are linked to testing purpose and LAS Links construct definitions.

Validity and Fairness

Evidence of validity and fairness with respect to testing purpose begins with a thoughtful, explicit, and clear description of the rationale for a testôs purpose that articulates the individual and social values explicitly considered and prioritized (i.e., the substantive components of fairness; Camilli, 2013; Kane 2006; Linn, 1984; Messick, 1989). A focus on articulating the values that underly a testôs rationale can provide a level of clarity of purpose to support coherent and effective communication of testing purpose. This can be particularly useful toward defending test score uses where there is misunderstanding, or competing values are held by stakeholders.

Testing Purpose Construct Definition

The underlying rationale for LAS Links is based on the value that is placed on supporting students in their acquisition of English language proficiency such that they are able to succeed in English language instructional contexts. Chapter 1 details the intended uses of LAS Links scores in measuring English language proficiency, specifically to

- identify students who require specific English language instruction and support programs,
- plan instructional programs,
- evaluate studentsôEnglish language proficiency growth,
- determine student readiness to transition out of English language instruction support programs, and
- include student scale scores and proficiency levels in public reporting and accountability systems.

Chapters 2ï 6 provide evidence of the validity of LAS Links scores relative to these defined uses. This evidence is discussed using the framework provided in the Standards, which calls for evidence in support of the validity of

- Test content: Chapter 2 provides detailed descriptions of the construct, its rationale, development procedures, and adherence to universal design.
- Response processes: Chapter 3 provides detailed descriptions of field testing and scoring processes and procedures, score quality, and the relationship of these elements to understanding the appropriateness of student response processes.
- Internal test structures: Chapter 4 provides detailed analysis results that demonstrate the validity of the internal test structures, including test reliabilities, item-level statistics, measurement error, decision consistency, and factor structures.

- Relationship with other variables: Chapters 5 and 6 detail the scores provided, their specific interpretations and methods employed to determine those interpretations, and evidence that the relationship of LAS Links domain scores with one another, and with scores on a similar measure, is appropriate.
- Consequences of testing: The remaining sections of this chapter provide evidence from LAS Links accessibility features, results of bias reviews, and from test data analysis that the consequences of LAS Links testing are fair and validð that scores do not depend on any construct-irrelevant student traits.

Accessibility

LAS Links was developed under the principles of universal design as discussed in detail in Chapter 2. Additionally, universal tools, designated supports, and accommodations are available for students who require further supports to fully access the assessment content. Guidance on accommodations and their use is provided to users in an accommodations supplement for LAS Links assessments (DRC, 2023) and summarized here.

Universal Tools

Universal tools are online tools that are available to all students and are õon for all,ò meaning they are available by default. For LAS Links, the following universal tools are available to all students:

- Pointer
- Cross-Off
- Highlighter
- Sticky Notes
- Magnifier
- Line Guide
- Mark for Review/Flag (Reading and Writing)
- Color Choices
- Color Contrast
- Reverse Contrast
- Masking

Designated Supports

Designated supports are locally approved supports for students for whom a need has been identified by the studentôs educator or team. Schools and districts may choose to document such supports during student data collection but are not required to do so.

Accommodations

Accommodations provide changes to the format of a test (e.g., large print or Braille), the administration procedure, the student response method (e.g., communication device), or the setting (e.g., small group, special lighting).

Designated school professionals, typically the studentôs IEP/SSP team or other instructional team, must determine appropriate accommodations on an individual basis. There should be a clearly articulated purpose for using any accommodation based on the studentôs current level of functioning, learning characteristics, and individual needs. School, district, or state policy should dictate the specific determination and implementation of accommodations.

Print-Based Administration

The following assessment accommodations are available for print-based administration. Students are not limited to this list, and any accommodations not included in these options can be recorded in the student data in the Other category.

- Braille
- Large Print
- Manipulating Test Materials
- Read Aloud
- Scribe
- Sign Language
- Other

Online Administration

The following assessment accommodations are available for online administration. Students are not limited to this list, and any accommodations not included in these options can be recorded as Other.

- Manipulating Test Materials
- Read Aloud
- Scribe
- Sign Language
- Text To Speech (TTS) for Reading and Writing Subtests
- Other

Measurement Invariance

An important source of evidence for fairness and consequential validity is derived from analyses that evaluates measurement properties across different student groups, often referred to as measurement invariance. When scores are interpreted as intended and supported by the validity evidence described throughout this report, it is important to

provide evidence of measurement invariance that demonstrates that those interpretations are well-supported across student groups. To that end, DIF is used to evaluate content at the item level, and reliabilities by student groups provide information about invariance at the test level.

Differential Item Functioning

DIF analyses were performed on gender for all field-tested items on gender. The DIF studies included a systematic item analysis to determine whether examinees with the same underlying level of ability had the same probability of getting the item correct. The Mantel-Haenszel (M-H) procedure (Mantel & Haenszel, 1959) was applied in the DIF analyses. The M-H procedure has been widely used in DIF studies. In this procedure, the focal and reference groups are matched on ability using a test score interval as a proxy.

Based on the DIF statistics, an item can be classified into one of three categories: A, B, or C. These categories stand for negligible, intermediate, and large DIF, respectively. The classification rules that were used in the evaluation are listed below. These rules align with those used in the National Assessment of Educational Progress (NAEP) to determine DIF (U.S. Department of Education, Office of Educational Research and Improvement, & National Center for Education Statistics, 2001). Delta statistics for MC items were also considered with the criteria of |Delta|<1 applied for Category A.

- Category A. Either Mantel's chi-square is not significantly different from zero ($p \geq 0.05$), or if the absolute value of the effect size is less than or equal to 0.17.
- Category B. Mantel's chi-square is significant, and the absolute value of the effect size is over 0.17 and less than or equal to 0.25.
- Category C. Mantel's chi-square is significant, and the absolute value of the effect size is over 0.25.

Typically, items flagged with Category B or Category C are examined to determine whether item performance differences between identifiable subgroups of the population were due to extraneous or construct-irrelevant information, making the items unfairly difficult. The Data Review section of Chapter 2 discusses DIF analysis results and item reviews in detail. Very few items were flagged for DIF during item analyses, and item selections for the final LAS Links 3rd Edition forms minimized inclusion of such items, even where no source of bias was identified during the data review process.

Reliability

Table 57 provides reliability and SEM for each domain and grade span tested by student groups based on gender, ethnicity, and accommodations. The reader may refer to Chapter 4 for a detailed discussion of analysis procedures and for the overall test reliability and SEM information.

Reliabilities by student groups based on a binary gender indication, ethnicity, and student accommodations show that reliabilities for students who use accommodations tend to be lower than for students who do not, however, reliabilities for male and female and Hispanic and non-Hispanic students are very similar.

Table 57. Reliability by Student Group, Domain, and Grade Span

Student Group	Domain	Grade	N	Alpha	SEM
Hispanic	Listening	K	4434	0.74	1.99
		1	4251	0.81	1.71
		2-3	8798	0.78	1.82
		4-5	7757	0.78	1.96
		6-8	8803	0.79	2.13
		9-12	8538	0.74	2.20
	Reading	K	4431	0.70	2.35
		1	4249	0.87	2.26
		2-3	8790	0.86	2.44
		4-5	7753	0.85	2.42
		6-8	8796	0.83	2.49
		9-12	8537	0.88	2.35
	Speaking	K	4426	0.85	1.93
		1	4246	0.88	2.24
		2-3	8788	0.91	2.06
		4-5	7751	0.89	2.15
		6-8	8784	0.91	2.21
		9-12	8494	0.92	2.21
	Writing	K	4429	0.68	1.96
		1	4246	0.88	2.52
		2-3	8785	0.89	2.75
		4-5	7756	0.90	2.42
		6-8	8789	0.88	2.31
		9-12	8520	0.88	2.45
Not Hispanic	Listening	K	2006	0.77	1.92
		1	1925	0.79	1.58
		2-3	3730	0.79	1.72
		4-5	2896	0.77	1.91
		6-8	2261	0.79	2.02
		9-12	2080	0.74	2.18
	Reading	K	2004	0.81	2.26
		1	1925	0.89	2.00
		2-3	3728	0.89	2.29
		4-5	2900	0.86	2.41
		6-8	2258	0.85	2.46
		9-12	2078	0.88	2.38

Student Group	Domain	Grade	N	Alpha	SEM
Not Hispanic (cont.)	**Speaking**	K	1998	0.81	2.01
		1	1921	0.86	2.03
		2-3	3725	0.89	1.92
		4-5	2894	0.87	2.12
		6-8	2256	0.90	2.14
		9-12	2068	0.89	2.26
	Writing	K	1998	0.74	1.95
		1	1924	0.87	2.67
		2-3	3723	0.89	2.67
		4-5	2898	0.88	2.49
		6-8	2255	0.87	2.37
		9-12	2074	0.87	2.51
Male	**Listening**	K	3440	0.75	2.00
		1	3294	0.81	1.71
		2-3	6633	0.79	1.83
		4-5	5854	0.79	1.96
		6-8	6153	0.79	2.12
		9-12	6055	0.74	2.22
	Reading	K	3438	0.76	2.33
		1	3293	0.89	2.18
		2-3	6626	0.87	2.45
		4-5	5855	0.85	2.47
		6-8	6149	0.84	2.46
		9-12	6050	0.88	2.40
	Speaking	K	3433	0.85	1.92
		1	3290	0.88	2.19
		2-3	6620	0.90	2.11
		4-5	5849	0.89	2.13
		6-8	6143	0.91	2.19
		9-12	6020	0.92	2.20
	Writing	K	3431	0.73	1.94
		1	3292	0.89	2.53
		2-3	6616	0.89	2.80
		4-5	5850	0.90	2.40
		6-8	6142	0.88	2.32
		9-12	6041	0.88	2.45
Female	**Listening**	K	3090	0.75	1.95
		1	2941	0.80	1.64
		2-3	5980	0.78	1.79
		4-5	4877	0.76	1.98
		6-8	5001	0.80	2.07
		9-12	4649	0.74	2.21

Student Group	Domain	Grade	N	Alpha	SEM
Female (cont.)	**Reading**	K	3087	0.75	2.31
		1	2940	0.88	2.17
		2-3	5977	0.88	2.38
		4-5	4876	0.85	2.47
		6-8	4995	0.84	2.45
		9-12	4651	0.87	2.41
	Speaking	K	3081	0.84	1.98
		1	2936	0.88	2.16
		2-3	5978	0.91	1.99
		4-5	4874	0.89	2.13
		6-8	4987	0.91	2.18
		9-12	4628	0.91	2.27
	Writing	K	3086	0.71	1.94
		1	2937	0.88	2.65
		2-3	5977	0.89	2.77
		4-5	4882	0.89	2.53
		6-8	4992	0.87	2.38
		9-12	4639	0.87	2.55
Accommodations	**Listening**	K	64	0.66	2.08
		1	94	0.77	1.89
		2-3	453	0.68	1.99
		4-5	739	0.68	2.07
		6-8	990	0.72	2.16
		9-12	365	0.62	2.22
	Reading	K	64	0.76	2.35
		1	93	0.86	2.39
		2-3	453	0.78	2.56
		4-5	743	0.77	2.48
		6-8	987	0.80	2.47
		9-12	361	0.84	2.44
	Speaking	K	63	0.82	1.88
		1	93	0.88	2.16
		2-3	451	0.88	2.09
		4-5	739	0.85	2.04
		6-8	983	0.86	2.18
		9-12	362	0.87	2.26
	Writing	K	63	0.74	1.78
		1	94	0.89	2.52
		2-3	452	0.87	2.75
		4-5	742	0.89	2.31
		6-8	985	0.86	2.24
		9-12	364	0.83	2.48

Student Group	Domain	Grade	N	Alpha	SEM
No Accommodations	Listening	K	6467	0.75	1.98
		1	6142	0.81	1.66
		2-3	12161	0.79	1.79
		4-5	9992	0.78	1.95
		6-8	10165	0.80	2.08
		9-12	10342	0.75	2.18
	Reading	K	6462	0.76	2.30
		1	6141	0.88	2.23
		2-3	12151	0.88	2.38
		4-5	9988	0.86	2.40
		6-8	10158	0.84	2.47
		9-12	10343	0.88	2.38
	Speaking	K	6452	0.84	1.99
		1	6134	0.88	2.18
		2-3	12148	0.91	2.00
		4-5	9984	0.89	2.15
		6-8	10148	0.91	2.22
		9-12	10289	0.91	2.33
	Writing	K	6455	0.72	1.95
		1	6136	0.88	2.65
		2-3	12142	0.89	2.78
		4-5	9990	0.89	2.51
		6-8	10150	0.88	2.32
		9-12	10319	0.88	2.48

Summary and Recommendations

The preceding describes several important sources of consequential validity evidence that are derived from test development and data analysis processes and procedures. Collectively this evidence offers assurances that the intended uses for LAS Links 3rd Edition test scores are appropriate in that students are afforded comprehensive access to the test content through universal design and test accommodations and that the risk of content bias and construct irrelevant variance is mitigated in substantive ways as demonstrated by the results of DIF analysis and score consistency and accuracy analysis by student groups.

It is important to note, however, that the consequences of test score use extend well beyond the procedures used to develop LAS Links and the student group level analysis that are possible given the test data alone. The Standards acknowledge that

> A full consideration of the topic would explore the multiple functions of testing in relation to its many goals, including the broad goal of achieving equality of opportunity in our society. It would consider the technical properties of tests, the ways in which test results are reported and used, the factors that affect

> the validity of score interpretations, and the consequences of test use. A comprehensive analysis of fairness in testing also would examine the regulations, statutes, and case law that govern test use and the remedies for harmful testing practices. The Standards cannot hope to deal adequately with all of these broad issues, some of which have occasioned sharp disagreement among testing specialists and others interested in testing (p. 49).

Therefore, LAS Links 3rd Edition test score users are encouraged to routinely examine the context in which they are using scores and the consequences for stakeholders. Where scores are used to make judgments about students, care should be taken to use multiple measures to the extent practical. Educational authorities should also monitor test score use for any unintended consequences or misuse of test scores that may arise. Finally, although disparate outcomes over student groups are not considered to be inherently unfair (AERA et al, 2014), consistent disparate impact is cause for heightened scrutiny to ensure that both interpretation and use of LAS Links scores are consonant with the intended uses described herein and for which this body of evidence is offered.

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Appendix A Scale Score Descriptive Statistics

Table A.1. Forms E Speaking Scale Score Descriptive Statistics

Grades	Mean	SD	Median
K	451	46.43	463
1	469	41.63	476
2-3	488	30.03	493
4-5	493	36.54	499
6-8	496	41.31	504
9-12	483	40.59	493

Table A.2. Forms E Listening Scale Score Descriptive Statistics

Grades	Mean	SD	Median
K	428	41.43	433
1	450	40.17	455
2-3	466	39.99	468
4-5	494	55.08	503
6-8	497	55.09	500
9-12	502	59.00	509

Table A.3. Forms E Reading Scale Score Descriptive Statistics

Grades	Mean	SD	Median
K	349	57.54	363
1	393	57.97	395
2-3	450	65.30	458
4-5	497	57.94	504
6-8	509	57.25	517
9-12	513	54.57	518

Table A.4. Forms E Writing Scale Score Descriptive Statistics

Grades	Mean	SD	Median
K	315	70.94	316
1	369	77.76	374
2-3	449	70.05	464
4-5	487	73.88	503
6-8	501	67.68	513
9-12	475	73.05	486

Appendix B Proficiency Level Definitions and Proficiency Level Descriptors

Table B.1. LAS Links Proficiency Level Definitions

Proficiency Level	Proficiency Description
5 Above Proficient	Level 5 students communicate effectively in English, with few if any errors, across a wide range of grade-level-appropriate language demands in social, school, and academic contexts. The students command a high degree of productive and receptive control of lexical, syntactic, phonological, and discourse features when addressing new or familiar topics. Level 5 students apply their language mastery to critically evaluate and synthesize written and oral information and to formulate hypotheses. Their facility with language allows them to analyze information, draw sophisticated inferences, and explain their reasoning. They skillfully organize information for presentations and can express subtle nuances of meaning. They apply literary techniques such as identifying author tone and point of view and can tailor language to a particular purpose and audience.
4 Proficient	Level 4 students communicate effectively in English, but with some errors, across a range of grade-level-appropriate language demands in social, school, and academic contexts. The students exhibit productive and receptive control of lexical, syntactic, phonological, and discourse features when addressing new or familiar topics. Level 4 students interpret, analyze, and evaluate written and oral information, basing their responses on implicit and explicit context clues and information from personal and academic experiences. They adequately express themselves and organize their responses in logical and sequenced order. They distinguish nuances of meaning and incorporate idiomatic expressions and academic vocabulary.
3 Intermediate	Level 3 students communicate in English across a range of grade-level-appropriate language demands in social, school, and academic contexts. However, errors interfere with their communication and comprehension. Repetition and clarification are often needed. The students exhibit a limited range of productive and receptive control of lexical, syntactic, phonological, and discourse features when addressing new or familiar topics. Level 3 students use limited vocabulary when defining concepts across and within academic disciplines. They can compare, contrast, summarize, and relate text to graphic organizers. They decode words, apply grammar conventions, and use context clues to identify word meanings. They identify proper and improper use of basic grammar. Although their language is generally coherent, it lacks significant elaboration or detail.

Proficiency Level	Proficiency Description
2 Early Intermediate	Level 2 students are developing the ability to communicate in English in social, school, and academic contexts. Errors frequently impede basic communication and comprehension. Their receptive and productive control of lexical, syntactic, phonological, and discourse features of English is emerging. Early Intermediate students have minimal vocabulary and grammar skills. They identify, describe, and discuss simple pictorial or text prompts. Students interpret language related to familiar social, school, and academic topics. They draw simple inferences and make simple comparisons. They restate rather than create original expressions. Restricted vocabulary and rudimentary grammar limit their expression and comprehension.
1 Beginning	Level 1 students are starting to develop receptive and productive uses of English in social, school, and academic contexts. Their comprehension may be demonstrated nonverbally or through their native language rather than in English.

Table B.2. Proficiency Level Descriptors, Kindergarten

Please note that the performance level descriptors represent a progression of skills and abilities. Skills and abilities specified in lower-performance levels are likely demonstrated by students in the higher-performance levels and may not be noted in the higher-level descriptors for a grade or grade range.

Kindergarten	Speaking	Listening	Reading	Writing
1 Beginning	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.
2 Early Intermediate	Early Intermediate students typically use basic vocabulary and simple phrases to name or describe common objects and express opinions or preferences in social and academic situations. They narrate a story related to a sequence of pictures about school-related activities using basic vocabulary. Restricted vocabulary and developing grammar limit expression. Errors frequently impede communication.	Early Intermediate students typically follow some simple oral directions using knowledge of everyday tasks and basic academic vocabulary. They identify common shapes, letters, numbers, and familiar locations. They identify details in simple oral stories. Their restricted vocabulary and developing grammar limit comprehension. Errors frequently impede communication and comprehension.	Early Intermediate students typically identify capital and lowercase letters in isolation and identify beginning, middle, and ending sounds. They identify main ideas and details in simple text, match text to pictures, and apply letter-sound relationships. Their restricted vocabulary and developing grammar limit comprehension. Errors frequently impede comprehension.	Early Intermediate students copy simple words and sentences that describe pictures or respond to other prompts. Errors frequently impede communication.
3 Intermediate	Intermediate students typically use appropriate words and phrases when conducting transactions, making requests, and asking for clarification in social and academic settings. They narrate a story related to a sequence of pictures about school-related activities using mostly accurate, although limited, vocabulary. They provide mostly clear information although errors interfere with communication.	Intermediate students typically follow simple oral directions and identify locations. They identify main ideas and make some inferences in simple oral stories. Errors interfere with communication and comprehension.	Intermediate students typically decode words with short vowel sounds, match text to pictures, and recall details and main ideas in short passages. Students make simple inferences and recognize words that relate to spatial relationships. Errors interfere with comprehension.	Intermediate students typically write one or more words to describe a picture or respond to other prompts. Students are beginning to recognize correct sentence format. Errors interfere with communication.
4 Proficient	Proficient students typically produce simple and accurate sentences when making requests and asking for clarifications. They use appropriate words and phrases to label and describe the purpose of less common objects. They narrate a story related to a sequence of pictures about school-related activities using accurate vocabulary. Minor errors do not interfere with communication.	Proficient students typically follow oral directions to distinguish the location of an object in relation to another object, recall details in an oral story, and make inferences. They identify main ideas in more complex stories.	Proficient students typically identify rhyming words, match words to definitions or descriptions, make inferences, recall events from short passages, and read simple sentences independently. Errors do not interfere with comprehension.	Proficient students typically use correct basic grammar, capitalize the beginning of a sentence, and use correct ending punctuation in declarative, interrogative, and imperative sentences. They identify standard sentence structure and generate descriptive and explanatory sentences. Errors do not interfere with communication.
5 Above Proficient	Above Proficient students typically produce simple sentences and use correct grammar when making requests, asking for clarification, and describing situations. They narrate a story with extensive and accurate vocabulary and grammar appropriate to their age.	Above Proficient students typically recall details and sequence of events, and determine main ideas in oral stories that have advanced vocabulary.	Above Proficient students typically use context clues to determine meanings of words and recall subtle details. They identify sequence in short passages and recognize words that relate to spatial relationships.	Above Proficient students typically write a complete sentence to describe a picture or respond to other prompts. They form regular plural nouns and possessive pronouns, and choose correct sentence-ending punctuation. Communication is clear and complete, although content may contain minor errors.

Table B.3. Proficiency Level Descriptors, Grade 1

Please note that the performance level descriptors represent a progression of skills and abilities. Skills and abilities specified in lower-performance levels are likely demonstrated by students in the higher-performance levels and may not be noted in the higher-level descriptors for a grade or grade range.

Grade 1	Speaking	Listening	Reading	Writing
1 Beginning	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.
2 Early Intermediate	Early Intermediate students typically use basic vocabulary and simple phrases to name or describe common objects and express opinions or preferences in social and academic situations. They narrate a story related to a sequence of pictures about school-related activities using basic vocabulary. Restricted vocabulary and developing grammar limit expression. Errors frequently impede communication.	Early Intermediate students typically follow some simple oral directions using knowledge of everyday tasks and basic academic vocabulary. They identify common shapes, letters, numbers, and familiar locations. They identify details in simple oral stories. Their restricted vocabulary and developing grammar limit comprehension. Errors frequently impede communication and comprehension.	Early Intermediate students typically identify capital and lowercase letters in isolation, identify beginning, middle, and ending sounds, and recall main ideas and important details in simple text. They apply letter-sound relationships. Their restricted vocabulary and developing grammar limit comprehension. Errors frequently impede comprehension.	Early Intermediate students typically copy simple sentences and write one or more words to describe or explain a picture. They select grammatically correct sentences from a set of choices. Their restricted vocabulary and developing grammar limit expression. Errors frequently impede communication.
3 Intermediate	Intermediate students typically use appropriate words and phrases when conducting transactions, making requests, and asking for clarification in social and academic settings. They narrate a story related to a sequence of pictures about school-related activities using mostly accurate, although limited, vocabulary. They provide mostly clear information although errors interfere with communication.	Intermediate students typically follow simple oral directions and identify locations. They identify main ideas and draw simple inferences in simple oral stories. Errors interfere with communication and comprehension.	Intermediate students typically decode basic words and match text to pictures. Students make simple inferences and recognize words related to spatial relationships. Errors interfere with comprehension.	Intermediate students typically write words, phrases, or sentences that attempt to describe or explain a picture. They are beginning to recognize sentences illustrating correct grammar, proper subject/verb agreement, and correct pluralization and capitalization. They have limited range of vocabulary knowledge. Errors interfere with communication.
4 Proficient	Proficient students typically produce simple and accurate sentences when making requests and asking for clarifications. They use appropriate words and phrases to label and describe the purpose of less common objects. They narrate a story related to a sequence of pictures about school-related activities using accurate vocabulary. Minor errors do not interfere with communication.	Proficient students typically follow oral directions to distinguish the location of an object in relation to another object, recall details in an oral story, and draw inferences. They identify main ideas in more complex stories.	Proficient students typically identify rhyming words, match basic text to pictures, make inferences, recall details and main ideas in short passages, and read simple sentences independently. Errors do not interfere with comprehension.	Proficient students typically use correct basic grammar, capitalize the beginning of a sentence, and use correct ending punctuation in declarative, interrogative, and imperative sentences. They identify standard sentence structure and generate descriptive and explanatory sentences. Errors do not interfere with communication.
5 Above Proficient	Above Proficient students typically produce simple sentences and use correct grammar when making requests and conducting transactions in the classroom or describing familiar social situations or a process. They narrate a story with extensive and accurate vocabulary and grammar appropriate to their age.	Above Proficient students typically recall details and the sequence of events, and determine main ideas in oral stories that have advanced vocabulary.	Above Proficient students use context clues to determine meanings of words, recall subtle details, and determine sequence in short passages. They use interpretation and inference to comprehend a story. Students recognize words that relate to spatial relationships.	Above Proficient students typically write a complete sentence to describe a picture or respond to other prompts. They form regular plural nouns and possessive pronouns, and choose correct sentence-ending punctuation. Communication is clear and complete, although content may contain minor errors.

Table B.4. Proficiency Level Descriptors, Grades 2-3

Please note that the performance level descriptors represent a progression of skills and abilities. Skills and abilities specified in lower-performance levels are likely demonstrated by students in the higher-performance levels and may not be noted in the higher-level descriptors for a grade or grade range.

Grades 2-3	Speaking	Listening	Reading	Writing
1 Beginning	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.
2 Early Intermediate	Early Intermediate students typically use basic vocabulary and grammar, and simple phrases or sentences to make requests or comparisons, ask questions, express opinions or preferences, or describe a sequence of pictures about familiar events and situations. Errors frequently impede communication.	Early Intermediate students typically follow simple oral directions and identify high-frequency vocabulary. They identify a few details and draw simple inferences in oral stories. Errors frequently impede communication and comprehension.	Early Intermediate students typically understand word meanings and synonyms, possess basic knowledge of morphemes and syllables, identify one-syllable words, recognize simple rhyming words, and make simple inferences. Errors frequently impede comprehension.	Early Intermediate students typically describe, explain, or express ideas in sentences. They make simple comparisons. Students demonstrate basic vocabulary knowledge and grammar skills such as use of auxiliary verbs, verb tenses, and conjunctions. Errors frequently impede communication.
3 Intermediate	Intermediate students typically use appropriate words and phrases when expressing a preference, asking questions, providing information and explanations, naming common objects, and describing common functions. They produce mostly accurate sentences when narrating simple stories about familiar events and situations. Errors interfere with communication.	Intermediate students typically understand a limited range of vocabulary. They recall details, identify main ideas, and draw inferences in more complex oral stories. Errors interfere with communication and comprehension.	Intermediate students typically match words to definitions or descriptions, interpret words and basic phrases, and apply knowledge of morphemes and syllables. They recall stated details and main ideas, make inferences, and determine characters' feelings. Errors interfere with comprehension.	Intermediate students typically respond to various prompts or pictures using multiple sentences. Students make simple predictions and express some opinions in response to pictures. Meaning is somewhat clear although vocabulary may be limited. They identify appropriate verb forms and articles based on contextual clues. Errors interfere with communication.
4 Proficient	Proficient students typically produce complete sentences with few grammatical and vocabulary errors when describing situations, explaining their reasoning, or narrating a story. They use broad vocabulary to accurately express opinions or preferences and ask appropriate questions. Minor errors do not interfere with communication.	Proficient students typically understand academic vocabulary and follow some complex directions. They recall subtle details, determine main ideas, and identify speaker purpose.	Proficient students typically identify synonyms of social and academic vocabulary and interpret words and phrases. They use context clues to determine meaning, recall implicit details and main ideas, draw complex inferences, identify literary features, and transfer concepts to new situations. Errors do not interfere with comprehension.	Proficient students typically make predictions and express opinions in response to pictures using complete sentences. They use correct auxiliary verb forms and verb tenses and correctly use writing conventions such as capitalization and punctuation. They organize and write responses in logical and sequential order. Errors do not interfere with communication.
5 Above Proficient	Above Proficient students typically produce sentences with sophisticated vocabulary and correct grammar when providing information, describing situations, or explaining their reasoning.	Above Proficient students typically recall details and sequence of events, and determine main ideas in oral stories that have advanced vocabulary.	Above Proficient students typically identify two-syllable words and rhyming words written with digraphs, use common multiple-meaning words, and recognize synonyms. They determine story sequence and details of fictional and academic texts, make generalizations, and use self-monitoring techniques to check for understanding.	Above Proficient students typically write fluently to a variety of pictures, prompts, or purposes with precise vocabulary and ease of expression. They use correct verb tenses and subject/verb agreement, appropriate articles and punctuation. Responses contain few digressions or repetitions. Communication is clear and complete, though it may contain minor errors.

Table B.5. Proficiency Level Descriptors, Grades 4-5

Please note that the performance level descriptors represent a progression of skills and abilities. Skills and abilities specified in lower-performance levels are likely demonstrated by students in the higher-performance levels and may not be noted in the higher-level descriptors for a grade or grade range.

Grades 4-5	Speaking	Listening	Reading	Writing
1 Beginning	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.
2 Early Intermediate	Early Intermediate students typically use basic vocabulary and grammar and simple sentences to identify common objects and describe their function, provide basic information, make requests, ask questions, and express opinions or preferences. They construct a narrative from a sequence of pictures about familiar events and school-related activities and compare and contrast information found in texts and graphic organizers using basic vocabulary. Errors frequently impede communication.	Early Intermediate students typically follow some simple oral directions and understand common vocabulary and idiomatic expressions. They identify details. Errors frequently impede communication and comprehension.	Early Intermediate students typically interpret basic words and phrases and identify some main ideas and details in simple text. Errors frequently impede comprehension.	Early Intermediate students typically write sentences using basic vocabulary and grammar to describe and discuss text, interpret graphic organizers, and compare and contrast information. Errors in organization, grammar, word choice, and mechanics frequently impede communication.
3 Intermediate	Intermediate students typically use appropriate words and phrases and complete sentences when making requests, expressing opinions or preferences, providing information, and describing locations. They construct a narrative from a sequence of pictures and compare and contrast information found in texts and graphic organizers using mostly accurate, although limited, vocabulary. Errors interfere with communication.	Intermediate students typically follow oral directions and interpret both basic vocabulary and idiomatic expressions. They identify some main ideas and make simple inferences from passages and understand details within graphic organizers. Errors interfere with communication and comprehension.	Intermediate students typically use knowledge of high-frequency affixes to determine word meanings. They recall main ideas and stated details in text, and interpret simple words and phrases. Errors interfere with comprehension.	Intermediate students typically respond appropriately to various verbal prompts or graphic organizers by using complete sentences that exhibit correct basic grammar. Meaning is somewhat clear, although vocabulary may be limited. They demonstrate a grasp of pronouns, prepositions, auxiliary verbs and verb tenses. Errors in organization, grammar, word choice, and mechanics interfere with communication.
4 Proficient	Proficient students typically produce complete sentences when providing information, asking questions, explaining a process, expressing an opinion, and narrating a story. They organize responses in logical and sequential order. They accurately identify and compare and contrast features of less common objects. Minor errors do not interfere with communication.	Proficient students typically follow multistep directions using academic vocabulary, recall details, identify main ideas, and determine sequence of steps in classroom discussions and lessons. They draw inferences from more complex oral stories and interpret tables and other graphic organizers.	Proficient students typically use knowledge of more advanced affixes to determine word meanings. They identify synonyms, use context clues to determine word meanings, and interpret slightly complex words and phrases. They read for specific information in graphic organizers, infer information, and draw conclusions. Errors do not interfere with comprehension.	Proficient students typically write complete sentences with mostly accurate vocabulary and grammar that demonstrates appropriate use of punctuation, prepositional phrases, and other conventions. They summarize passages; interpret, compare, and contrast information from graphic organizers and from implicit and explicit context clues; and organize and write responses to open-ended questions in logical and sequential order. Errors do not interfere with communication.
5 Above Proficient	Above Proficient students typically produce sentences with sophisticated vocabulary and correct grammar when providing information, describing situations, asking questions, expressing opinions and subtle nuances of meanings, and explaining processes and their reasoning. They create a detailed and structured narrative.	Above Proficient students typically follow directions that use verb phrases and determine key information to summarize a task. They recall subtle details, identify main ideas and speaker purpose, and draw sophisticated inferences from classroom discussions and lessons.	Above Proficient students typically identify synonyms and antonyms of less familiar words and interpret complex words and phrases. They use prediction, determine story sequence, and use self-monitoring techniques to check for understanding.	Above Proficient students typically write fluently in response to a variety of prompts and purposes. They skillfully organize, interpret, summarize, and evaluate information from texts and graphic organizers. Communication is clear and complete, though it may contain minor errors.

Table B.6. Proficiency Level Descriptors, Grades 6-8

Please note that the performance level descriptors represent a progression of skills and abilities. Skills and abilities specified in lower-performance levels are likely demonstrated by students in the higher-performance levels and may not be noted in the higher-level descriptors for a grade or grade range.

Grades 6-8	Speaking	Listening	Reading	Writing
1 Beginning	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.
2 Early Intermediate	Early Intermediate students typically produce simple sentences using basic vocabulary and grammar when describing social situations, giving instructions, and identifying locations. They construct a narrative from a sequence of pictures about familiar events and school-related activities and compare and contrast information found in texts and graphic organizers. Errors frequently impede communication.	Early Intermediate students typically follow simple oral directions and understand common vocabulary and idiomatic expressions. They identify details. Errors frequently impede communication and comprehension.	Early Intermediate students typically follow simple oral directions and understand common vocabulary and idiomatic expressions. They identify some details. Errors frequently impede comprehension.	Early Intermediate students typically write complete sentences using basic vocabulary and grammar to describe, explain, or compare verbal or graphic prompts. They respond to simple open-ended questions and summarize simple passages. Errors in organization, grammar, word choice, and mechanics frequently impede communication.
3 Intermediate	Intermediate students typically use appropriate words and phrases and complete sentences when expressing opinions, providing information, conducting transactions, or describing common functions. They describe common social situations and narrate simple stories. Grammatical or vocabulary errors interfere with communication, but the intended meaning is somewhat clear.	Intermediate students typically follow multistep directions that use academic vocabulary. They recall details from class discussions or short oral stories and identify the main purpose of conversation. They interpret graphic organizers and extrapolate conclusions from discussions. Errors interfere with communication and comprehension.	Intermediate students identify synonyms of familiar social and academic vocabulary and interpret common idioms using context clues. They distinguish main ideas from supporting details and draw inferences from clues in text. Errors interfere with comprehension.	Intermediate students typically write complete sentences to describe, explain, or compare or contrast verbal or graphic prompts. They write responses to open-ended questions and summarize passages. They use sentence-ending punctuation, pronouns, prepositional phrases, auxiliary verbs, and verb tenses. Responses have limited range of vocabulary. Errors in organization, grammar, word choice, and mechanics interfere with communication.
4 Proficient	Proficient students typically produce complete sentences to express opinions, provide information, conduct transactions, make a request, explain processes, give instructions, and describe social situations. They produce generally fluent narratives with some hesitations or self-corrections that do not obscure meaning. They organize responses in logical and sequential order and incorporate idiomatic expressions. Speech is coherent and clear but lacks elaboration or detail.	Proficient students typically follow complex multistep directions. They determine main ideas, infer directions, draw simple conclusions and predict logical outcomes in oral stories. They understand metaphorical language and uncommon idiomatic expressions, and recognize technical academic vocabulary.	Proficient students interpret idioms and determine synonyms of grade-level words. They recall stated and implicit details in a variety of genres, identify specific information in graphic organizers, and determine main ideas in fiction and academic texts. They analyze the structure of texts and identify literary techniques. Errors do not interfere with comprehension.	Proficient students typically write logically-sequenced responses that incorporate idiomatic expressions and convey original thought in response to open-ended prompts. They accurately interpret pictures or graphical information. They use correct verb tense and agreement, subordinating conjunctions, capitalization, punctuation, and adjective and adverb placement. Errors do not interfere with communication.
5 Above Proficient	Above Proficient students typically produce sentences with sophisticated vocabulary and correct grammar and subtle nuances of meaning, when expressing opinions, providing information, making requests, identifying and describing objects, and explaining processes and their reasoning. They produce detailed narratives of complex structure and skillfully organize information for presentations.	Above Proficient students typically follow complex instructions, recall subtle details, determine and evaluate key information to summarize a task, and make sophisticated inferences and predictions from classroom discussions or lengthy oral stories. They understand increasingly abstract idiomatic expressions, locate new information in a wider context, and distinguish relevant from extraneous information.	Above Proficient students typically identify synonyms and antonyms, interpret less familiar idioms, apply word definitions, and restate meanings in variant language. They prioritize main and supporting details, and read closely to make logical inferences. They use prediction to read fluently and to identify author's purpose and literary techniques.	Above Proficient students typically craft original responses to prompts, fluently conveying sequenced logical exposition. Students respond to open-ended questions requiring them to extrapolate from information indicated in prompts, interpret and synthesize complex information from graphic organizers, draw sophisticated inferences, explain reasoning, and express and support opinions. Minor errors are possible, but generally negligible.

Table B.7. Proficiency Level Descriptors, Grades 9-12

Please note that the performance level descriptors represent a progression of skills and abilities. Skills and abilities specified in lower-performance levels are likely demonstrated by students in the higher-performance levels and may not be noted in the higher-level descriptors for a grade or grade range.

Grades 9-12	Speaking	Listening	Reading	Writing
1 Beginning	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.	Beginning students are starting to develop receptive and productive skills in English.
2 Early Intermediate	Early Intermediate students typically produce simple sentences using basic vocabulary and grammar when interpreting language related to social, school, and academic contexts, explaining personal preferences or describing a sequence of pictures about familiar events and social situations. Minimal vocabulary and grammar knowledge and errors frequently impede communication.	Early Intermediate students typically follow multistep directions. They identify main ideas and draw simple inferences and conclusions. Errors frequently impede communication and comprehension.	Early intermediate students recall simple information from text, identify main ideas and supporting details, and make simple inferences. They identify common idiomatic expressions and paraphrase passages. Errors frequently impede comprehension.	Early Intermediate students typically write complete sentences using basic vocabulary and grammar to express ideas. They compare and summarize information found in texts or graphic organizers. They demonstrate a basic knowledge of auxiliary verbs, pronouns, and conjunctions. Errors in organization, grammar, word choice, and mechanics frequently impede communication.
3 Intermediate	Intermediate students typically use appropriate words and phrases and complete sentences when providing information, expressing preferences, conducting transactions, and describing personal experiences. They describe social situations, give instructions, and narrate a simple story. Intended meaning is mostly clear, but sometimes requires comprehension-check questions. They are capable of communicating some nuances of meaning. Grammatical or vocabulary errors interfere with communication, but the intended meaning is somewhat clear.	Intermediate students typically interpret simple academic vocabulary and idiomatic expressions. They extrapolate logical outcomes, place new information in a broader context, and recall details from classroom discussions or oral stories. Errors interfere with communication and comprehension.	Intermediate students typically use knowledge of high-frequency affixes and context clues to determine word meanings and identify synonyms of high-frequency social and academic vocabulary. From a simple narrative, they recall stated and implicit details, distinguish main ideas, compare and contrast information, draw conclusions, and make some inferences. Errors interfere with comprehension.	Intermediate students typically use correct basic grammar and begin to demonstrate use of conjunctions in compound sentences. They summarize texts and analyze information in graphic organizers. Meaning is somewhat clear, although vocabulary may be limited. Errors interfere with communication.
4 Proficient	Proficient students typically use complete sentences to express opinions, explain processes, conduct transactions, and describe personal experiences. They use accurate vocabulary and grammar to describe the purpose of less common objects and fluently narrate stories with creative detail. They organize responses in logical and sequential order and incorporate idiomatic expressions. They convey subtle distinctions through rich, specific, and varied vocabulary.	Proficient students typically interpret idiomatic expressions and complex academic vocabulary and concepts. They distinguish essential details and nuances of meaning, synthesize answers from fragmentary information, and determine key information to summarize a task from complex narratives and discussions.	Proficient students typically draw complex conclusions from lengthy passages and distinguish nuances of meanings. They interpret alternate expressions of ideas, analyze the organization of passages, and identify theme, tone, and author purpose. Errors do not interfere with comprehension.	Proficient students typically write fluently, using complete sentences with accurate vocabulary to interpret texts and graphical information, while distinguishing nuances of meaning. They incorporate idiomatic expressions and produce responses to open-ended questions and write summaries and comparisons that correctly use verb forms, capitalization, punctuation, and advanced grammar. Responses exhibit minor errors in grammar and content organization that do not interfere with communication.
5 Above Proficient	Above Proficient students typically produce complex sentences with sophisticated and precise vocabulary and correct grammar. They convey detailed academic content and expressive nuances of meaning and skillfully organize information for presentations.	Above Proficient students typically interpret more complex grammar and academic vocabulary to follow complex instructions. They use context clues to interpret new vocabulary and draw conclusions about characters in oral stories. They distinguish subtleties of tone and point of view, recall extensive details, grasp abstract and uncommon idiomatic expressions, and analyze the structure of oral passages.	Above Proficient students recognize uncommon synonyms, subtle gradations of meanings using context clues, and unfamiliar idioms. They use prediction to read fluently, make inferences from challenging texts, synthesize text, recognize literary techniques, and use self-monitoring techniques to check for understanding.	Above Proficient students typically write using precise, sophisticated, and varied vocabulary. They demonstrate fluent and varied expression, express subtle nuances of meaning, and expand responses to prompts using related background knowledge. Minor errors are possible, but generally negligible.

Appendix C Scoring Tables

Table C.1. Form E Kindergarten Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	1	0	300	59
		1	344	31
		2	369	22
		3	385	17
		4	396	14
		5	404	12
		6	410	11
		7	416	10
		8	421	9
		9	425	9
	2	10	430	9
		11	434	8
		12	437	8
		13	441	8
		14	445	8
		15	448	8
		16	452	8
		17	456	8
		18	459	8
	3	19	463	9
		20	467	9
		21	471	9
		22	476	10
		23	481	10
		24	487	11
		25	495	13
	4	26	505	15
		27	520	20
	5	28	580	80

Subject	Performance Level	Raw Score	Scale Score	SEM
Listening	1	0	300	117
		1	300	117
		2	300	117
		3	300	117
		4	300	117
		5	300	117
		6	368	49
		7	391	26
		8	402	18
		9	410	15
		10	416	13
		11	422	12
	2	12	427	11
		13	433	11
		14	439	12
	3	15	445	13
		16	453	14
		17	463	16
	4	18	476	20
		19	500	32
	5	20	530	52
Reading	1	0	240	117
		1	240	117
		2	240	117
		3	240	117
		4	240	117
		5	240	117
		6	240	117
		7	259	98
		8	301	56
		9	322	35
		10	334	25
		11	344	19
		12	351	16

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading (cont.)	**2**	13	358	15
		14	364	14
		15	370	14
		16	376	14
	3	17	382	14
		18	389	14
		19	395	14
		20	402	14
		21	410	14
		22	419	15
	4	23	429	16
		24	441	18
		25	459	24
	5	26	550	115
Writing	**1**	0	200	70
		1	200	70
		2	200	70
		3	200	70
		4	200	70
		5	200	70
		6	227	66
		7	260	57
		8	287	46
		9	309	36
		10	326	31
		11	342	28
	2	12	356	27
		13	369	26
		14	383	26
		15	397	26
		16	411	27
	3	17	429	30
		18	453	39
	4	19	498	64
	5	20	630	189

Table C.2. Form E Grade 1 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	1	0	300	58
		1	343	30
		2	367	21
		3	382	16
		4	392	14
		5	400	12
		6	406	10
		7	411	9
		8	415	9
		9	419	8
		10	422	8
		11	425	8
		12	428	7
		13	431	7
	2	14	433	7
		15	436	7
		16	438	7
		17	441	7
		18	443	7
		19	445	7
		20	447	7
		21	450	7
		22	452	7
		23	454	7
		24	456	7
		25	459	7
		26	461	7
	3	27	464	7
		28	466	7
		29	469	7
		30	472	8
		31	475	8
		32	479	8
		33	482	9
		34	486	9
		35	491	10
	4	36	497	11
		37	504	12
		38	513	15
		39	528	20
	5	40	580	72

Subject	Performance Level	Raw Score	Scale Score	SEM
Listening	1	0	300	117
		1	300	117
		2	300	117
		3	300	117
		4	300	117
		5	300	117
		6	368	49
		7	391	26
		8	402	18
		9	410	15
		10	416	13
		11	422	12
		12	427	11
	2	13	433	11
		14	439	12
		15	445	13
	3	16	453	14
		17	463	16
	4	18	476	20
		19	500	32
	5	20	530	52
Reading	1	0	240	120
		1	240	120
		2	240	120
		3	240	120
		4	240	120
		5	240	120
		6	240	120
		7	240	120
		8	257	103
		9	301	59
		10	321	39
		11	334	26
		12	343	20
		13	350	17
		14	357	16

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading (cont.)	**2**	15	363	15
		16	369	14
		17	374	14
		18	380	14
	3	19	386	13
		20	391	13
		21	397	13
		22	403	13
		23	410	13
		24	416	13
	4	25	423	13
		26	431	14
		27	440	15
		28	451	17
		29	469	24
	5	30	550	105
Writing	**1**	0	200	64
		1	200	64
		2	200	64
		3	200	64
		4	200	64
		5	200	64
		6	218	59
		7	247	51
		8	270	42
		9	289	35
		10	304	29
		11	317	26
		12	328	23
		13	337	22
		14	346	20
		15	354	19

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing (cont.)	**2**	16	362	19
		17	369	18
		18	376	17
		19	382	17
		20	388	17
		21	395	17
		22	401	17
		23	407	17
		24	413	17
		25	420	18
		26	427	19
	3	27	436	20
		28	446	23
		29	459	27
		30	478	35
	4	31	516	58
	5	32	630	172

Table C.3. Form E Grade 2 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	**1**	0	350	72
		1	405	17
		2	417	12
		3	425	10
		4	431	9
		5	435	8
		6	439	7
		7	442	7
	2	8	445	6
		9	447	6
		10	450	6
		11	452	6
		12	454	5
		13	456	5
		14	458	5
		15	460	5

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**2** (cont.)	16	461	5
		17	463	5
		18	465	5
		19	467	5
		20	469	5
		21	470	5
		22	472	5
	3	23	474	5
		24	476	5
		25	478	5
		26	480	5
		27	482	5
		28	484	5
		29	486	6
		30	488	6
		31	490	6
		32	493	6
		33	496	6
		34	499	7
		35	502	7
		36	505	8
	4	37	510	8
		38	515	10
		39	523	12
		40	535	17
	5	41	600	82
Listening	**1**	0	310	122
		1	310	122
		2	310	122
		3	310	122
		4	310	122
		5	368	64
		6	398	34
		7	411	21
		8	420	16
		9	427	14
		10	433	13
		11	439	13
	2	12	446	13
		13	453	14
		14	460	15

Subject	Performance Level	Raw Score	Scale Score	SEM
Listening (cont.)	**3**	15	470	17
		16	481	20
	4	17	495	23
		18	513	25
	5	19	538	30
		20	560	39
Reading	**1**	0	300	129
		1	300	129
		2	300	129
		3	300	129
		4	300	129
		5	300	129
		6	300	129
		7	309	120
		8	369	60
		9	390	39
		10	403	29
		11	413	24
		12	422	21
		13	430	19
	2	14	437	18
		15	443	17
		16	450	17
		17	456	17
		18	463	16
		19	469	16
	3	20	476	16
		21	483	17
		22	490	17
		23	498	17
	4	24	507	18
		25	516	18
		26	526	19
		27	538	21
	5	28	553	24
		29	579	35
		30	610	56

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing	1	0	270	80
		1	270	80
		2	270	80
		3	270	80
		4	276	74
		5	310	46
		6	332	37
		7	349	33
		8	364	30
		9	377	28
		10	388	26
		11	399	24
		12	408	22
		13	417	21
		14	424	19
	2	15	432	18
		16	438	18
		17	445	17
		18	451	17
		19	457	17
		20	463	17
		21	470	17
	3	22	476	17
		23	483	18
		24	490	18
		25	498	19
	4	26	507	20
		27	518	22
		28	530	24
	5	29	546	28
		30	567	34
		31	603	49
		32	640	75

Table C.4. Form E Grade 3 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	1	0	350	72
		1	405	17
		2	417	12
		3	425	10
		4	431	9
		5	435	8
		6	439	7
		7	442	7
	2	8	445	6
		9	447	6
		10	450	6
		11	452	6
		12	454	5
		13	456	5
		14	458	5
		15	460	5
		16	461	5
		17	463	5
		18	465	5
		19	467	5
		20	469	5
		21	470	5
		22	472	5
	3	23	474	5
		24	476	5
		25	478	5
		26	480	5
		27	482	5
		28	484	5
		29	486	6
		30	488	6
		31	490	6
		32	493	6
		33	496	6
		34	499	7
		35	502	7
		36	505	8

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**4**	37	510	8
		38	515	10
		39	523	12
		40	535	17
	5	41	600	82
Listening	**1**	0	310	122
		1	310	122
		2	310	122
		3	310	122
		4	310	122
		5	368	64
		6	398	34
		7	411	21
		8	420	16
		9	427	14
		10	433	13
		11	439	13
		12	446	13
	2	13	453	14
		14	460	15
	3	15	470	17
		16	481	20
		17	495	23
	4	18	513	25
		19	538	30
	5	20	560	39
Reading	**1**	0	300	129
		1	300	129
		2	300	129
		3	300	129
		4	300	129
		5	300	129
		6	300	129
		7	309	120
		8	369	60
		9	390	39
		10	403	29
		11	413	24
		12	422	21
		13	430	19

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading (cont.)	**2**	14	437	18
		15	443	17
		16	450	17
		17	456	17
		18	463	16
		19	469	16
	3	20	476	16
		21	483	17
		22	490	17
		23	498	17
	4	24	507	18
		25	516	18
		26	526	19
		27	538	21
	5	28	553	24
		29	579	35
		30	610	56
Writing	**1**	0	270	80
		1	270	80
		2	270	80
		3	270	80
		4	276	74
		5	310	46
		6	332	37
		7	349	33
		8	364	30
		9	377	28
		10	388	26
		11	399	24
		12	408	22
		13	417	21
		14	424	19
	2	15	432	18
		16	438	18
		17	445	17
		18	451	17
		19	457	17
		20	463	17
		21	470	17
		22	476	17
		23	483	18

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing (cont.)	**3**	24	490	18
		25	498	19
		26	507	20
		27	518	22
	4	28	530	24
		29	546	28
	5	30	567	34
		31	603	49
		32	640	75

Table C.5. Form E Grade 4 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	**1**	0	360	37
		1	366	33
		2	391	23
		3	405	18
		4	416	15
		5	424	14
		6	430	13
		7	436	11
		8	441	11
		9	446	10
	2	10	450	10
		11	453	9
		12	457	9
		13	461	9
		14	464	8
		15	467	8
		16	470	8
		17	473	8
	3	18	476	8
		19	479	8
		20	482	8
		21	485	8
		22	488	8
		23	491	7
		24	494	7
		25	497	7

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**3** (cont.)	26	500	7
		27	503	7
		28	506	8
		29	509	8
	4	30	513	8
		31	516	8
		32	520	8
		33	523	8
		34	527	9
		35	532	9
		36	536	10
		37	542	11
		38	549	12
		39	558	15
	5	40	575	23
		41	635	83
Listening	**1**	0	350	127
		1	350	127
		2	350	127
		3	350	127
		4	350	127
		5	350	127
		6	368	109
		7	416	61
		8	439	40
		9	456	32
	2	10	470	29
		11	483	26
	3	12	495	25
		13	508	25
		14	521	25
	4	15	534	26
		16	550	28
		17	569	31
	5	18	593	36
		19	631	49
		20	640	54

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading	1	0	360	117
		1	360	117
		2	360	117
		3	360	117
		4	360	117
		5	360	117
		6	395	82
		7	427	50
		8	445	35
		9	458	28
	2	10	469	24
		11	478	22
		12	486	20
		13	494	19
		14	502	18
	3	15	509	18
		16	516	17
		17	523	17
		18	529	17
	4	19	536	17
		20	543	17
		21	551	17
		22	559	18
		23	567	18
		24	576	19
		25	586	21
	5	26	598	23
		27	612	26
		28	633	33
		29	669	51
		30	680	59
Writing	1	0	290	122
		1	290	122
		2	290	122
		3	338	74
		4	372	43
		5	392	32
		6	406	26
		7	418	23
		8	428	21

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing (cont.)	**2**	9	437	20
		10	445	19
		11	453	18
		12	460	18
		13	467	18
		14	475	18
		15	482	18
		16	489	18
		17	497	18
	3	18	504	18
		19	512	18
		20	520	18
		21	528	18
	4	22	536	19
		23	544	19
		24	553	19
		25	562	20
		26	571	20
		27	582	21
	5	28	594	23
		29	609	26
		30	628	31
		31	661	45
		32	680	56

Table C.6. Form E Grade 5 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	**1**	0	360	37
		1	366	33
		2	391	23
		3	405	18
		4	416	15
		5	424	14
		6	430	13
		7	436	11
		8	441	11
		9	446	10
	2	10	450	10
		11	453	9
		12	457	9
		13	461	9

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**2** (cont.)	14	464	8
		15	467	8
		16	470	8
		17	473	8
	3	18	476	8
		19	479	8
		20	482	8
		21	485	8
		22	488	8
		23	491	7
		24	494	7
		25	497	7
		26	500	7
		27	503	7
		28	506	8
		29	509	8
	4	30	513	8
		31	516	8
		32	520	8
		33	523	8
		34	527	9
		35	532	9
		36	536	10
		37	542	11
		38	549	12
		39	558	15
	5	40	575	23
		41	635	83
Listening	**1**	0	350	127
		1	350	127
		2	350	127
		3	350	127
		4	350	127
		5	350	127
		6	368	109
		7	416	61
		8	439	40
		9	456	32
	2	10	470	29
		11	483	26

Subject	Performance Level	Raw Score	Scale Score	SEM
Listening (cont.)	**3**	12	495	25
		13	508	25
		14	521	25
	4	15	534	26
		16	550	28
		17	569	31
	5	18	593	36
		19	631	49
		20	640	54
Reading	**1**	0	360	117
		1	360	117
		2	360	117
		3	360	117
		4	360	117
		5	360	117
		6	395	82
		7	427	50
		8	445	35
		9	458	28
		10	469	24
	2	11	478	22
		12	486	20
		13	494	19
		14	502	18
	3	15	509	18
		16	516	17
		17	523	17
		18	529	17
	4	19	536	17
		20	543	17
		21	551	17
		22	559	18
		23	567	18
		24	576	19
		25	586	21
	5	26	598	23
		27	612	26
		28	633	33
		29	669	51
		30	680	59

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing	1	0	290	122
		1	290	122
		2	290	122
		3	338	74
		4	372	43
		5	392	32
		6	406	26
		7	418	23
		8	428	21
	2	9	437	20
		10	445	19
		11	453	18
		12	460	18
		13	467	18
		14	475	18
		15	482	18
		16	489	18
		17	497	18
	3	18	504	18
		19	512	18
		20	520	18
		21	528	18
		22	536	19
	4	23	544	19
		24	553	19
		25	562	20
		26	571	20
		27	582	21
	5	28	594	23
		29	609	26
		30	628	31
		31	661	45
		32	680	56

Table C.7. Form E Grade 6 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	1	0	365	51
		1	365	51
		2	403	31
		3	423	21
		4	435	16
		5	444	13
		6	450	11
	2	7	455	10
		8	459	9
		9	463	9
		10	467	8
		11	470	8
		12	473	7
		13	475	7
	3	14	478	7
		15	481	7
		16	483	7
		17	486	7
		18	488	7
		19	491	7
		20	493	7
		21	496	7
		22	498	7
		23	501	7
		24	503	7
		25	506	7
		26	509	7
	4	27	512	7
		28	515	7
		29	518	7
		30	521	8
		31	524	8
		32	528	8
		33	532	8
		34	536	9
		35	541	10
		36	547	11
		37	554	14
	5	38	567	21
		39	592	37
		40	645	89

Subject	Performance Level	Raw Score	Scale Score	SEM
Listening	1	0	360	115
		1	360	115
		2	360	115
		3	360	115
		4	360	115
		5	360	115
		6	360	115
		7	385	90
		8	422	53
		9	441	36
		10	455	30
	2	11	468	27
		12	479	27
	3	13	491	27
		14	504	27
		15	517	28
		16	530	28
	4	17	545	29
		18	561	30
		19	579	32
	5	20	601	35
		21	627	38
		22	665	48
		23	680	55
Reading	1	0	380	113
		1	380	113
		2	380	113
		3	380	113
		4	380	113
		5	380	113
		6	414	79
		7	445	48
		8	462	35
		9	476	28
		10	487	25
		11	496	24
	2	12	506	22
		13	514	21
		14	522	20

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading (cont.)	**3**	15	530	20
		16	538	19
		17	545	19
		18	553	19
	4	19	561	18
		20	568	18
		21	576	18
		22	584	19
		23	593	19
		24	602	19
	5	25	612	20
		26	623	20
		27	635	21
		28	651	24
		29	676	35
		30	690	43
Writing	**1**	0	300	152
		1	300	152
		2	300	152
		3	382	70
		4	413	39
		5	431	29
		6	444	24
	2	7	455	21
		8	464	20
		9	472	19
		10	480	18
		11	487	18
		12	494	18
	3	13	502	18
		14	509	18
		15	516	18
		16	524	18
		17	531	18
		18	539	18
		19	547	18
	4	20	555	18
		21	563	18
		22	572	18
		23	580	18
		24	589	18

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing (cont.)	**5**	25	599	19
		26	609	20
		27	620	21
		28	633	22
		29	648	25
		30	669	31
		31	702	44
		32	710	47

Table C.8. Form E Grade 7 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	**1**	0	365	51
		1	365	51
		2	403	31
		3	423	21
		4	435	16
		5	444	13
		6	450	11
	2	7	455	10
		8	459	9
		9	463	9
		10	467	8
		11	470	8
		12	473	7
		13	475	7
	3	14	478	7
		15	481	7
		16	483	7
		17	486	7
		18	488	7
		19	491	7
		20	493	7
		21	496	7
		22	498	7
		23	501	7
		24	503	7
		25	506	7
		26	509	7
		27	512	7

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**4**	28	515	7
		29	518	7
		30	521	8
		31	524	8
		32	528	8
		33	532	8
		34	536	9
		35	541	10
		36	547	11
		37	554	14
	5	38	567	21
		39	592	37
		40	645	89
Listening	**1**	0	360	115
		1	360	115
		2	360	115
		3	360	115
		4	360	115
		5	360	115
		6	360	115
		7	385	90
		8	422	53
		9	441	36
		10	455	30
	2	11	468	27
		12	479	27
		13	491	27
	3	14	504	27
		15	517	28
		16	530	28
	4	17	545	29
		18	561	30
		19	579	32
	5	20	601	35
		21	627	38
		22	665	48
		23	680	55

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading	1	0	380	113
		1	380	113
		2	380	113
		3	380	113
		4	380	113
		5	380	113
		6	414	79
		7	445	48
		8	462	35
		9	476	28
		10	487	25
		11	496	24
	2	12	506	22
		13	514	21
		14	522	20
	3	15	530	20
		16	538	19
		17	545	19
		18	553	19
	4	19	561	18
		20	568	18
		21	576	18
		22	584	19
		23	593	19
		24	602	19
	5	25	612	20
		26	623	20
		27	635	21
		28	651	24
		29	676	35
		30	690	43
Writing	1	0	300	152
		1	300	152
		2	300	152
		3	382	70
		4	413	39
		5	431	29
		6	444	24

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing (cont.)	2	7	455	21
		8	464	20
		9	472	19
		10	480	18
		11	487	18
		12	494	18
	3	13	502	18
		14	509	18
		15	516	18
		16	524	18
		17	531	18
		18	539	18
		19	547	18
	4	20	555	18
		21	563	18
		22	572	18
		23	580	18
		24	589	18
	5	25	599	19
		26	609	20
		27	620	21
		28	633	22
		29	648	25
		30	669	31
		31	702	44
		32	710	47

Table C.9. Form E Grade 8 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	1	0	365	51
		1	365	51
		2	403	31
		3	423	21
		4	435	16
		5	444	13
		6	450	11
	2	7	455	10
		8	459	9
		9	463	9

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**2** (cont.)	10	467	8
		11	470	8
		12	473	7
		13	475	7
	3	14	478	7
		15	481	7
		16	483	7
		17	486	7
		18	488	7
		19	491	7
		20	493	7
		21	496	7
		22	498	7
		23	501	7
		24	503	7
		25	506	7
		26	509	7
		27	512	7
	4	28	515	7
		29	518	7
		30	521	8
		31	524	8
		32	528	8
		33	532	8
		34	536	9
		35	541	10
		36	547	11
		37	554	14
	5	38	567	21
		39	592	37
		40	645	89
Listening	**1**	0	360	115
		1	360	115
		2	360	115
		3	360	115
		4	360	115

Subject	Performance Level	Raw Score	Scale Score	SEM
Listening (cont.)	**1** (cont.)	5	360	115
		6	360	115
		7	385	90
		8	422	53
		9	441	36
		10	455	30
	2	11	468	27
		12	479	27
		13	491	27
	3	14	504	27
		15	517	28
		16	530	28
	4	17	545	29
		18	561	30
		19	579	32
	5	20	601	35
		21	627	38
		22	665	48
		23	680	55
Reading	**1**	0	380	113
		1	380	113
		2	380	113
		3	380	113
		4	380	113
		5	380	113
		6	414	79
		7	445	48
		8	462	35
		9	476	28
		10	487	25
		11	496	24
	2	12	506	22
		13	514	21
		14	522	20
		15	530	20
	3	16	538	19
		17	545	19
		18	553	19

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading (cont.)	**4**	19	561	18
		20	568	18
		21	576	18
		22	584	19
		23	593	19
		24	602	19
	5	25	612	20
		26	623	20
		27	635	21
		28	651	24
		29	676	35
		30	690	43
Writing	**1**	0	300	152
		1	300	152
		2	300	152
		3	382	70
		4	413	39
		5	431	29
		6	444	24
	2	7	455	21
		8	464	20
		9	472	19
		10	480	18
		11	487	18
		12	494	18
	3	13	502	18
		14	509	18
		15	516	18
		16	524	18
		17	531	18
		18	539	18
		19	547	18
	4	20	555	18
		21	563	18
		22	572	18
		23	580	18
		24	589	18

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing (cont.)	**5**	25	599	19
		26	609	20
		27	620	21
		28	633	22
		29	648	25
		30	669	31
		31	702	44
		32	710	47

Table C.10. Form E Grade 9 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	**1**	0	370	54
		1	409	22
		2	425	15
		3	434	12
		4	441	10
		5	446	9
		6	451	8
	2	7	455	8
		8	458	7
		9	461	7
		10	463	6
		11	466	6
		12	468	6
		13	471	6
		14	473	6
		15	475	6
		16	477	5
	3	17	479	5
		18	481	5
		19	483	5
		20	485	5
		21	488	6
		22	490	6
		23	492	6
		24	494	6
		25	497	6

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**3** (cont.)	26	499	6
		27	502	6
		28	505	7
		29	508	7
		30	511	7
		31	514	7
	4	32	517	7
		33	521	7
		34	525	7
		35	529	8
		36	533	8
		37	539	10
		38	547	14
	5	39	562	22
		40	592	41
		41	650	78
Listening	**1**	0	370	121
		1	370	121
		2	370	121
		3	370	121
		4	370	121
		5	370	121
		6	370	121
		7	391	100
		8	429	62
		9	452	44
		10	470	37
	2	11	485	33
		12	499	31
	3	13	513	31
		14	527	32
		15	542	33
	4	16	559	34
		17	577	36
		18	596	36
		19	614	29
	5	20	634	32
		21	665	52
		22	724	78
		23	730	82

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading	1	0	390	105
		1	390	105
		2	390	105
		3	390	105
		4	390	105
		5	390	105
		6	392	103
		7	436	59
		8	457	39
		9	471	31
		10	483	26
		11	492	24
		12	501	22
	2	13	509	20
		14	517	19
		15	524	19
		16	531	18
		17	539	18
	3	18	546	18
		19	553	18
		20	561	19
		21	569	19
		22	578	20
	4	23	587	21
		24	597	22
		25	608	24
		26	622	26
	5	27	640	31
		28	665	40
		29	709	60
		30	715	64
Writing	1	0	310	121
		1	310	121
		2	310	121
		3	356	75
		4	390	41
		5	409	30
		6	423	25
		7	434	23
		8	443	21

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing (cont.)	**2**	9	452	20
		10	460	20
		11	468	20
		12	476	20
		13	485	20
		14	493	20
	3	15	501	20
		16	510	20
		17	518	20
		18	526	19
		19	535	19
		20	543	19
	4	21	551	19
		22	560	19
		23	569	20
		24	578	20
		25	587	21
	5	26	597	22
		27	609	23
		28	623	26
		29	639	29
		30	662	37
		31	704	57
		32	720	68

Table C.11. Form E Grade 10 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	**1**	0	370	54
		1	409	22
		2	425	15
		3	434	12
		4	441	10
		5	446	9
		6	451	8
	2	7	455	8
		8	458	7
		9	461	7
		10	463	6
		11	466	6

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**2** (cont.)	12	468	6
		13	471	6
		14	473	6
		15	475	6
		16	477	5
	3	17	479	5
		18	481	5
		19	483	5
		20	485	5
		21	488	6
		22	490	6
		23	492	6
		24	494	6
		25	497	6
		26	499	6
		27	502	6
		28	505	7
		29	508	7
		30	511	7
		31	514	7
	4	32	517	7
		33	521	7
		34	525	7
		35	529	8
		36	533	8
		37	539	10
		38	547	14
	5	39	562	22
		40	592	41
		41	650	78
Listening	**1**	0	370	121
		1	370	121
		2	370	121
		3	370	121
		4	370	121
		5	370	121
		6	370	121
		7	391	100
		8	429	62
		9	452	44
		10	470	37

Subject	Performance Level	Raw Score	Scale Score	SEM
Listening (cont.)	**2**	11	485	33
		12	499	31
	3	13	513	31
		14	527	32
		15	542	33
	4	16	559	34
		17	577	36
		18	596	36
		19	614	29
	5	20	634	32
		21	665	52
		22	724	78
		23	730	82
Reading	**1**	0	390	105
		1	390	105
		2	390	105
		3	390	105
		4	390	105
		5	390	105
		6	392	103
		7	436	59
		8	457	39
		9	471	31
		10	483	26
		11	492	24
		12	501	22
	2	13	509	20
		14	517	19
		15	524	19
		16	531	18
		17	539	18
	3	18	546	18
		19	553	18
		20	561	19
		21	569	19
		22	578	20
	4	23	587	21
		24	597	22
		25	608	24
		26	622	26

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading (cont.)	**5**	27	640	31
		28	665	40
		29	709	60
		30	715	64
Writing	**1**	0	310	121
		1	310	121
		2	310	121
		3	356	75
		4	390	41
		5	409	30
		6	423	25
		7	434	23
		8	443	21
	2	9	452	20
		10	460	20
		11	468	20
		12	476	20
		13	485	20
		14	493	20
	3	15	501	20
		16	510	20
		17	518	20
		18	526	19
		19	535	19
		20	543	19
	4	21	551	19
		22	560	19
		23	569	20
		24	578	20
		25	587	21
	5	26	597	22
		27	609	23
		28	623	26
		29	639	29
		30	662	37
		31	704	57
		32	720	68

Table C.12. Form E Grade 11 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	1	0	370	54
		1	409	22
		2	425	15
		3	434	12
		4	441	10
		5	446	9
		6	451	8
	2	7	455	8
		8	458	7
		9	461	7
		10	463	6
		11	466	6
		12	468	6
		13	471	6
		14	473	6
		15	475	6
		16	477	5
	3	17	479	5
		18	481	5
		19	483	5
		20	485	5
		21	488	6
		22	490	6
		23	492	6
		24	494	6
		25	497	6
		26	499	6
		27	502	6
		28	505	7
		29	508	7
		30	511	7
		31	514	7
	4	32	517	7
		33	521	7
		34	525	7
		35	529	8
		36	533	8
		37	539	10
		38	547	14

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**5**	39	562	22
		40	592	41
		41	650	78
Listening	**1**	0	370	121
		1	370	121
		2	370	121
		3	370	121
		4	370	121
		5	370	121
		6	370	121
		7	391	100
		8	429	62
		9	452	44
		10	470	37
	2	11	485	33
		12	499	31
		13	513	31
	3	14	527	32
		15	542	33
	4	16	559	34
		17	577	36
		18	596	36
		19	614	29
	5	20	634	32
		21	665	52
		22	724	78
		23	730	82
Reading	**1**	0	390	105
		1	390	105
		2	390	105
		3	390	105
		4	390	105
		5	390	105
		6	392	103
		7	436	59
		8	457	39
		9	471	31
		10	483	26
		11	492	24
		12	501	22

Subject	Performance Level	Raw Score	Scale Score	SEM
Reading (cont.)	**2**	13	509	20
		14	517	19
		15	524	19
		16	531	18
		17	539	18
		18	546	18
	3	19	553	18
		20	561	19
		21	569	19
		22	578	20
	4	23	587	21
		24	597	22
		25	608	24
		26	622	26
	5	27	640	31
		28	665	40
		29	709	60
		30	715	64
Writing	**1**	0	310	121
		1	310	121
		2	310	121
		3	356	75
		4	390	41
		5	409	30
		6	423	25
		7	434	23
		8	443	21
	2	9	452	20
		10	460	20
		11	468	20
		12	476	20
		13	485	20
		14	493	20
	3	15	501	20
		16	510	20
		17	518	20
		18	526	19
		19	535	19
		20	543	19

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing (cont.)	**4**	21	551	19
		22	560	19
		23	569	20
		24	578	20
		25	587	21
	5	26	597	22
		27	609	23
		28	623	26
		29	639	29
		30	662	37
		31	704	57
		32	720	68

Table C.13. Form E Grade 12 Scoring Table

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking	**1**	0	370	54
		1	409	22
		2	425	15
		3	434	12
		4	441	10
		5	446	9
		6	451	8
	2	7	455	8
		8	458	7
		9	461	7
		10	463	6
		11	466	6
		12	468	6
		13	471	6
		14	473	6
		15	475	6
		16	477	5
	3	17	479	5
		18	481	5
		19	483	5
		20	485	5
		21	488	6
		22	490	6

Subject	Performance Level	Raw Score	Scale Score	SEM
Speaking (cont.)	**3** (cont.)	23	492	6
		24	494	6
		25	497	6
		26	499	6
		27	502	6
		28	505	7
		29	508	7
		30	511	7
		31	514	7
		32	517	7
	4	33	521	7
		34	525	7
		35	529	8
		36	533	8
		37	539	10
		38	547	14
	5	39	562	22
		40	592	41
		41	650	78
Listening	**1**	0	370	121
		1	370	121
		2	370	121
		3	370	121
		4	370	121
		5	370	121
		6	370	121
		7	391	100
		8	429	62
		9	452	44
		10	470	37
	2	11	485	33
		12	499	31
		13	513	31
	3	14	527	32
		15	542	33
		16	559	34
	4	17	577	36
		18	596	36
		19	614	29

Subject	Performance Level	Raw Score	Scale Score	SEM
Listening (cont.)	**5**	20	634	32
		21	665	52
		22	724	78
		23	730	82
Reading	**1**	0	390	105
		1	390	105
		2	390	105
		3	390	105
		4	390	105
		5	390	105
		6	392	103
		7	436	59
		8	457	39
		9	471	31
		10	483	26
		11	492	24
		12	501	22
		13	509	20
	2	14	517	19
		15	524	19
		16	531	18
		17	539	18
		18	546	18
	3	19	553	18
		20	561	19
		21	569	19
		22	578	20
	4	23	587	21
		24	597	22
		25	608	24
		26	622	26
	5	27	640	31
		28	665	40
		29	709	60
		30	715	64

Subject	Performance Level	Raw Score	Scale Score	SEM
Writing	1	0	310	121
		1	310	121
		2	310	121
		3	356	75
		4	390	41
		5	409	30
		6	423	25
		7	434	23
		8	443	21
	2	9	452	20
		10	460	20
		11	468	20
		12	476	20
		13	485	20
		14	493	20
		15	501	20
	3	16	510	20
		17	518	20
		18	526	19
		19	535	19
		20	543	19
	4	21	551	19
		22	560	19
		23	569	20
		24	578	20
		25	587	21
	5	26	597	22
		27	609	23
		28	623	26
		29	639	29
		30	662	37
		31	704	57
		32	720	68

Table C.14. Form E Kindergarten Normal Curve Equivalent Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-310	1-362	1-311	1-231	1-287
2	311-312	363-364	312-314	232-233	288-289
3	313-314	365-367	315-316	234-235	290-293
4	315-316	368-369	317-318	236-237	294-295
5	317-319	370-373	319-321	238-240	296-298
6	320-321	374	322-323	241-243	299-300
7	322-323	375-377	324-325	244-245	301-302
8	324	378-381	326-327	246-247	303-305
9	325-326	382-384	328-329	248-250	306-307
10	327	385-387	330-331	251-253	308-309
11	328-329	388-390	332-333	254-255	310
12	330-331	391	334-336	256-257	311-312
13	332-333	392-393	337-338	258-259	313-314
14	334-335	394-395	339-340	260-261	315-317
15	336-337	396-398	341-343	262	318-319
16	338-339	399-400	344-346	263-264	320-321
17	340	401-402	347	265-266	322-323
18	341-342	403-404	348-351	267-268	324-325
19	343-344	405-406	352-353	269-270	326-328
20	345-346	407-408	354-355	271-272	329-330
21	347-348	409-410	356-358	273-274	331
22	349-350	411-413	359-360	275-276	332-333
23	351-352	414-415	361-362	277-278	334-335
24	353	416	363-364	279-280	336-337
25	354-355	417-418	365-366	281-282	338-339
26	356-357	419	367-368	283-285	340-342
27	358-359	420-421	369-370	286-287	343-344
28	360-361	422	371	288-290	345-346
29	362-363	423-424	372-373	291-293	347-348
30	364-365	425-426	374-375	294-295	349-350
31	366	427	376-377	296-298	351-353
32	367-368	428-429	378-379	299-300	354-355
33	369-370	430-431	380	301-303	356-357
34	371-372	432	381	304-306	358-359
35	373-374	433-434	382-383	307-309	360-362
36	375	435	384	310-311	363-364
37	376-377	436	385-386	312-314	365-367
38	378-379	437-438	387	315-317	368-369
39	380-381	439	388-389	318-319	370-371
40	382	440-441	390-391	320-322	372-373
41	383-384	442	392	323-325	374-376

NCE	OV	OR	CO	LT	PR
42	385-386	443-444	393-394	326-328	377-378
43	387-388	445	395	329-330	379-380
44	389-390	446	396-397	331-333	381-382
45	391-392	447-448	398	334-335	383-385
46	393-394	449	399	336-338	386-388
47	395	450	400-401	339-340	389-390
48	396-397	451-452	402	341-343	391-393
49	398-399	453-454	403-404	344-346	394-395
50	400-401	455	405	347-349	396-398
51	402-403	456	406-407	350-351	399-400
52	404-405	457-458	408	352-354	401-403
53	406-407	459	409-410	355-356	404-405
54	408	460	411	357-359	406-408
55	409-410	461-462	412-413	360-361	409-410
56	411-412	463	414	362-363	411-412
57	413-414	464-465	415-416	364-365	413-414
58	415-416	466	417	366-367	415-416
59	417-418	467	418-419	368-370	417-418
60	419	468-469	420	371-373	419-421
61	420-421	470	421-422	374-375	422-423
62	422-423	471-472	423	376-378	424-425
63	424-425	473-474	424-425	379-380	426-427
64	426-427	475	426-427	381-382	428-429
65	428-429	476-477	428-429	383-385	430-432
66	430-431	478-479	430	386-387	433-434
67	432-433	480	431-432	388-390	435-436
68	434-435	481-482	433-434	391-392	437-438
69	436-437	483	435-436	393-394	439-440
70	438-439	484-485	437-438	395-396	441-443
71	440-441	486-487	439	397-399	444-446
72	442-443	488-489	440-441	400-401	447-448
73	444-445	490-491	442-443	402-404	449-450
74	446-447	492-493	444	405-406	451-452
75	448-449	494-495	445-446	407-409	453-455
76	450-451	496-498	447-448	410-412	456-457
77	452-454	499-500	449	413-415	458-460
78	455-456	501-502	450-451	416-418	461-463
79	457-458	503-505	452	419-420	464-465
80	459-460	506-507	453-455	421-423	466-468
81	461-463	508-509	456-457	424-426	469-471
82	464-465	510	458	427-429	472-474
83	466-467	511-513	459-460	430-432	475-478
84	468-469	514-515	461-462	433-435	479-481

NCE	OV	OR	CO	LT	PR
85	470-471	516-517	463-465	436-439	482-484
86	472-474	518-519	466-467	440-444	485-488
87	475-476	520-521	468-469	445-447	489-490
88	477-478	522-523	470-472	448-451	491-493
89	479	524	473-475	452-455	494-497
90	480-481	525-527	476	456-459	498-500
91	482-484	528	477-478	460-464	501-504
92	485-486	529-530	479-480	465-469	505-510
93	487-489	531-532	481-484	470-474	511-515
94	490-492	533	485-488	475-481	516-517
95	493-495	534	489-493	482-491	518-522
96	496-500	535	494	492-499	523-527
97	501-503	536-537	495-498	500-505	528-533
98	504-505	538-540	499-503	506-511	534-546
99	506-999	541-999	504-999	512-999	547-999

Table C.15. Form E Grade 1 Normal Curve Equivalent Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-342	1-372	1-323	1-272	1-331
2	343-344	373	324-326	273-276	332
3	345	374-376	327	277-279	333-334
4	346-347	377-379	328-330	280-282	335-337
5	348-349	380-382	331-332	283	338-341
6	350-351	383-385	333-334	284-286	342-344
7	352-353	386-388	335-338	287-289	345-347
8	354-355	389-392	339-342	290-292	348-351
9	356-358	393-395	343	293-295	352-354
10	359-361	396-400	344-347	296-300	355-357
11	362-364	401-404	348-350	301-303	358-361
12	365-366	405-408	351-353	304-306	362-366
13	367-368	409-410	354-356	307-309	367-369
14	369-371	411-412	357-358	310-313	370-372
15	372	413-414	359-360	314-316	373-376
16	373-375	415-416	361-362	317-321	377-378
17	376-377	417-418	363-364	322-323	379-381
18	378-379	419	365-366	324-326	382-383
19	380-381	420-422	367-369	327-330	384-386
20	382-383	423-424	370	331-333	387-389
21	384	425	371-372	334-336	390-393
22	385-387	426-427	373-374	337-339	394-396
23	388-389	428	375-376	340-342	397-398
24	390-391	429-430	377-378	343-346	399-401

NCE	OV	OR	CO	LT	PR
25	392-393	431-432	379-380	347-349	402-403
26	394-395	433	381	350-351	404-405
27	396-397	434-435	382-383	352-354	406-407
28	398-399	436	384	355-357	408-409
29	400	437	385-386	358-359	410-411
30	401-402	438-439	387-388	360-361	412-413
31	403-404	440-441	389	362-363	414
32	405-406	442	390-391	364-365	415-416
33	407-408	443	392	366-368	417-418
34	409	444-445	393-394	369-371	419-420
35	410-411	446	395-396	372-373	421
36	412-413	447	397-398	374-376	422-423
37	414	448-449	399-400	377-378	424-425
38	415-416	450	401	379-380	426-427
39	417	451	402-403	381-382	428-429
40	418-419	452	404-405	383-384	430-431
41	420-421	453	406	385-386	432-433
42	422	454-455	407-408	387-389	434-435
43	423-424	456	409-410	390-391	436
44	425	457	411	392-393	437-438
45	426-427	458	412-413	394-396	439
46	428	459	414-415	397-398	440-441
47	429-430	460-461	416	399-400	442-443
48	431	462	417-418	401-402	444-445
49	432-433	463	419-420	403-404	446
50	434-435	464	421	405-406	447-448
51	436	465-466	422-423	407-408	449-450
52	437-438	467	424-425	409-410	451-452
53	439-440	468	426-427	411-413	453-454
54	441-442	469	428	414-415	455-456
55	443	470-471	429-430	416-417	457-458
56	444-445	472	431-432	418-420	459-460
57	446-447	473	433	421-422	461-462
58	448-449	474	434-435	423-424	463-464
59	450-451	475-476	436	425-427	465-466
60	452-453	477	437-438	428-429	467
61	454-455	478-479	439-440	430-432	468-470
62	456	480	441-442	433-434	471-472
63	457-459	481	443	435-437	473-474
64	460-461	482-483	444-445	438-440	475
65	462-463	484	446-447	441-443	476-477
66	464-465	485-486	448-449	444-447	478-479
67	466-467	487	450-451	448-450	480-482

NCE	OV	OR	CO	LT	PR
68	468-470	488-489	452-453	451-453	483-485
69	471-472	490-491	454-455	454-456	486-487
70	473-474	492-493	456-457	457-460	488-490
71	475-476	494	458-459	461-464	491-493
72	477-479	495-496	460-461	465-468	494-497
73	480-481	497-498	462-463	469-473	498-500
74	482-484	499	464-465	474-477	501-505
75	485-487	500-501	466-467	478-482	506-509
76	488-490	502-503	468-470	483-487	510-513
77	491-493	504	471-472	488-492	514-518
78	494-496	505-506	473-475	493-497	519-524
79	497-499	507-508	476-477	498-503	525-531
80	500-502	509	478-480	504-509	532-543
81	503-504	510-511	481-484	510-513	544-552
82	505-507	512-513	485-486	514-517	553-556
83	508-510	514-515	487-488	518-521	557-559
84	511-513	516-517	489-492	522-526	560-563
85	514-515	518-519	493-494	527-530	564-565
86	516-518	520	495-497	531-534	566-568
87	519-520	521-522	498-499	535-537	569-571
88	521-522	523	500-502	538-543	572-574
89	523-524	524-525	503-505	544-545	575
90	525-526	526-527	506-508	546-549	576-577
91	527-530	528-529	509-511	550-552	578
92	531	530	512	553-555	579
93	532-534	531-533	513-515	556-558	580-581
94	535-536	534-535	516-517	559-560	582-583
95	537-539	536	518-520	561-564	584-585
96	540-542	537-538	521-523	565-566	586
97	543	539-540	524-526	567-570	587
98	544	541-542	527-528	571-572	588
99	545-999	543-999	529-999	573-999	589-999

Table C.16. Form E Grades 2-3 Normal Curve Equivalent Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-392	1-420	1-323	1-329	1-380
2	393	421-425	324-327	330-336	381-382
3	394-398	426-427	328-330	337-341	383-386
4	399-400	428-430	331-332	342-344	387-391
5	401-402	431-433	333-334	345-349	392-395
6	403-404	434-436	335-336	350-352	396-402
7	405-406	437-439	337-340	353-355	403-407

NCE	OV	OR	CO	LT	PR
8	407	440-441	341-342	356-359	408-411
9	408-410	442-443	343-344	360-363	412-415
10	411-412	444-446	345-347	364-366	416-418
11	413-414	447	348-350	367-370	419-421
12	415-416	448-449	351-353	371-374	422-424
13	417-418	450	354-356	375-378	425-426
14	419-420	451-452	357-358	379-381	427-429
15	421-422	453	359-361	382-385	430-432
16	423-425	454	362	386-390	433-434
17	426	455	363-365	391-393	435-436
18	427-428	456	366-367	394-397	437-438
19	429-430	457-458	368	398-400	439-441
20	431-433	459	369-370	401-402	442-443
21	434-435	460	371-372	403-405	444-445
22	436	461	373-374	406-407	446-447
23	437-438	462	375-376	408-409	448-449
24	439-441	463-464	377-378	410-412	450-451
25	442	465	379	413-414	452
26	443-444	466	380-381	415-417	453-454
27	445-446	467	382	418-420	455-456
28	447-448	468	383-384	421-423	457-458
29	449	469-470	385-386	424-426	459-460
30	450-451		387-388	427-428	461-462
31	452-453	471-472	389-390	429-431	463
32	454-455	473	391-392	432-433	464-465
33	456	474	393	434-435	466-467
34	457-458	475	394-395	436-437	468-469
35	459-460	476	396-397	438-440	470
36	461-462	477	398	441-443	471-472
37	463-464	478	399-400	444-446	473
38	465-466	479	401-402	447-448	474-475
39	467	480	403	449-450	476
40	468-469	481	404-405	451-453	477-478
41	470-471	482	406	454-455	479-480
42	472	483-484	407-408	456-457	481
43	473-474	485	409	458-459	482-483
44	475	486	410-411	460-462	484-485
45	476-477	487	412-413	463-464	486
46	478-479	488	414	465-466	487-488
47	480	489-490	415-416	467-469	489
48	481-482	491	417	470-472	490-491
49	483-484	492	418-419	473-474	492
50	485	493	420-421	475-477	493-494

NCE	OV	OR	CO	LT	PR
51	486-487	494	422	478-479	495-496
52	488-489	495-496	423-424	480-481	497
53	490-491	497	425-426	482-484	498-499
54	492	498	427-428	485-486	500
55	493-494	499-500	429-430	487-488	501-502
56	495-496	501	431	489-491	503-504
57	497	502	432-433	492-493	505-506
58	498-499	503-504	434-435	494-495	507-508
59	500-501	505	436-437	496-497	509
60	502	506	438-439	498-500	510-511
61	503-504	507-508	440-441	501-502	512-513
62	505-506	509	442-443	503-505	514-515
63	507-508	510-511	444	506-507	516-517
64	509-510	512	445-446	508-509	518-519
65	511	513-514	447-448	510-512	520
66	512-513	515-516	449-450	513-514	521-522
67	514-515	517-518	451-452	515-516	523-524
68	516	519-520	453	517-518	525-527
69	517-518	521-522	454-455	519-521	528-529
70	519-520	523-524	456-457	522	530-531
71	521-522	525-526	458-459	523-524	532-533
72	523-525	527-529	460-461	525-526	534-535
73	526-527	530-531	462-463	527-529	536-538
74	528-529	532-533	464-465	530-531	539-540
75	530	534-535	466-467	532-533	541-543
76	531-532	536-537	468-469	534-536	544-546
77	533	538-539	470-471	537-538	547-548
78	534-535	540-541	472-474	539-541	549-551
79	536-537	542-543	475-476	542-543	552-554
80	538-539	544-545	477-479	544-546	555-557
81	540-541	546-547	480-481	547-548	558-560
82	542	548-549	482-483	549-551	561-562
83	543-544	550-551	484-486	552-553	563-565
84	545-546	552	487-489	554-556	566-567
85	547-548	553-554	490-493	557-558	568-570
86	549-550	555-556	494-497	559-562	571-572
87	551	557	498-499	563-565	573-575
88	552-553	558-560	500-505	566-568	576-577
89	554	561	506-507	569-572	578-579
90	555-556	562-564	508-509	573-575	580-582
91	557	565-566	510-511	576-579	583-584
92	558-559	567	512-514	580-581	585-587
93	560-561	568	515-518	582-584	588

NCE	OV	OR	CO	LT	PR
94	562-563	569	519-520	585-586	589-590
95	564-565	570-571	521-523	587-590	591
96	566-568	572	524-525	591-592	592-593
97	569-572	573	526-527	593-595	594-595
98	573	574-576	528-530	596-597	596-597
99	574-999	577-999	531-999	598-999	598-999

Table C.17. Form E Grades 4-5 Normal Curve Equivalent Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-419	1-423	1-368	1-384	1-400
2	420-422	424-426	369-370	385	401-403
3	423-424	427-429	371-372	386-390	404-407
4	425-426	430-432	373-374	391-392	408-413
5	427-429	433-437	375-378	393-396	414-423
6	430-431	438-439	379-380	397-401	424-432
7	432-434	440-441	381-383	402-407	433-436
8	435-436	442-443	384-387	408-411	437-443
9	437-439	444	388-390	412-413	444-446
10	440-441	445-446	391-393	414-416	447-448
11	442-444	447-449	394-395	417-420	449-450
12	445-446	450-451	396-398	421-424	451-453
13	447-448	452-455	399-401	425-426	454-455
14	449-450	456-457	402-403	427-429	456-457
15	451-452	458-459	404-406	430-433	458-460
16	453-454	460-462	407-409	434-436	461-463
17	455-456	463-464	410-411	437-438	464-466
18	457-458	465-466	412-414	439-441	467-468
19	459-460	467-469	415-416	442-445	469-470
20	461-462	470-471	417-418	446-448	471-472
21	463-464	472-473	419-421	449-451	473-474
22	465-467	474-475	422	452-453	475-476
23	468-469	476-477	423-425	454-457	477-478
24	470-471	478	426-427	458-459	479-480
25	472-473	479-480	428-429	460-462	481
26	474-475	481	430-431	463-465	482-484
27	476-477	482-483	432	466-468	485-486
28	478-480	484	433-434	469-471	487-488
29	481	485-486	435-436	472-473	489
30	482-483	487	437-439	474-476	490-491
31	484-485	488-489	440-441	477-478	492-493
32	486-488	490-491	442-443	479-481	494-495
33	489	492	444-445	482-483	496-497

NCE	OV	OR	CO	LT	PR
34	490-491	493-494	446	484-486	498-499
35	492-493	495-496	447-448	487-488	500
36	494-495	497	449-450	489-490	501-502
37	496-497	498-499	451-452	491-492	503-504
38	498-499	500	453-454	493-495	505
39	500-501	501-502	455	496-497	506-507
40	502-503	503	456-457	498-499	508
41	504-505	504	458-460	500-502	509-510
42	506	505-506	461-462	503-504	511-512
43	507-508	507-508	463-464	505-506	513
44	509-510	509	465	507-509	514-515
45	511-512	510-511	466-467	510-511	516
46	513-514	512	468-470	512-514	517-518
47	515-516	513-514	471	515	519
48	517	515-516	472-473	516-518	520-521
49	518-519	517	474-475	519-520	522
50	520-521	518-519	476-477	521-522	523-524
51	522-523	520-521	478-479	523-524	525
52	524-525	522	480	525-526	526-527
53	526-527	523-524	481-482	527-529	528-529
54	528	525	483-484	530-531	530
55	529-530	526-527	485-486	532-533	531-532
56	531-532	528-529	487-488	534-535	533-534
57	533-534	530	489-490	536-537	535
58	535	531-532	491-492	538-539	536
59	536-537	533	493-494	540-541	537-538
60	538-539	534-535	495	542-543	539-540
61	540-541	536-537	496-497	544-546	541
62	542	538-539	498-499	547-548	542-543
63	543-544	540-541	500	549-550	544-545
64	545-546	542-543	501-502	551-552	546-547
65	547	544-545	503-504	553-554	548
66	548-549	546-547	505-506	555-556	549-550
67	550-551	548-549	507-508	557-558	551-552
68	552-553	550-551	509	559-560	553-554
69	554-555	552-553	510-511	561-563	555-556
70	556-557	554-556	512-513	564	557-558
71	558	557-558	514-515	565-567	559-561
72	559-560	559-560	516	568-569	562-563
73	561-562	561-562	517-518	570-571	564-565
74	563-564	563-565	519-520	572-573	566-568
75	565	566-567	521	574-575	569-570
76	566-567	568-570	522-523	576-577	571-572

NCE	OV	OR	CO	LT	PR
77	568-569	571-572	524-525	578-579	573-574
78	570-571	573-574	526-527	580-581	575-576
79	572-573	575-577	528-529	582-583	577-579
80	574-575	578-579	530-531	584-585	580-582
81	576-578	580-581	532	586-587	583-585
82	579-580	582-584	533-534	588-590	586-587
83	581-582	585-586	535-536	591-592	588-590
84	583-584	587-588	537	593-594	591-592
85	585-586	589-590	538-540	595-596	593-595
86	587-588	591-592	541-542	597-599	596-597
87	589-590	593-594	543-544	600-601	598-600
88	591-592	595-596	545-546	602-604	601-602
89	593-594	597-598	547-548	605-606	603
90	595-596	599-600	549-551	607-608	604-605
91	597-598	601	552	609-610	606-607
92	599-600	602-603	553-554	611-613	608-609
93	601	604	555-556	614-616	610
94	602	605-607	557-558	617	611
95	603-604	608-609	559	618-619	612-613
96	605	610-612	560-561	620	614-615
97	606	613-615	562	621	616-617
98	607-609	616-617	563-564	622	618
99	610-999	618-999	565-999	623-999	619-999

Table C.18. Form E Grades 6-8 Normal Curve Equivalent Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-433	1-424	1-398	1-401	1-408
2	434	425-427	399-401	402-406	409-415
3	435-438	428-432	402-405	407-410	416-420
4	439-440	433-434	406	411-414	421-426
5	441-442	435-438	407-410	415-419	427-432
6	443	439-443	411-413	420-422	433-437
7	444-445	444	414-417	423-428	438-440
8	446-447	445-447	418	429-432	441-444
9	448-449	448-450	419-420	433-434	445-447
10	450-453	451-453	421-424	435-438	448-450
11	454-455	454-455	425-426	439-441	451-453
12	456-458	456-457	427-428	442-445	454-455
13	459-460	458-459	429-431	446-448	456-458
14	461-462	460-461	432-435	449-451	459-461
15	463-464	462-463	436-437	452-454	462-465
16	465-468	464-465	438-439	455-458	466-467

NCE	OV	OR	CO	LT	PR
17	469-470	466-467	440-442	459-462	468-469
18	471-472	468-469	443-444	463-465	470-471
19	473-474	470-471	445-447	466-468	472-474
20	475-476	472	448-450	469-470	475-476
21	477-478	473-474	451-452	471-472	477-478
22	479-480	475	453-454	473-475	479-480
23	481-482	476-477	455-458	476-478	481-482
24	483-484	478-479	459-460	479-481	483-484
25	485-486	480-482	461-462	482-484	485-487
26	487-488	483-484	463-464	485-487	488-489
27	489	485-487	465-466	488-490	490-491
28	490-492	488	467-468	491-492	492-493
29	493-494	489-490	469-471	493-494	494-495
30	495-496	491-493	472-473	495-496	496-497
31	497-498	494-495	474-475	497-499	498
32	499-500	496	476-478	500-501	499-500
33	501-502	497-498	479	502-504	501
34	503-504	499-500	480-482	505-506	502-503
35	505-506	501-502	483-484	507-508	504-505
36	507-509	503	485-486	509-511	506-507
37	510	504-506	487-488	512-513	508
38	511-512	507-508	489-491	514-515	509-510
39	513-514	509	492-493	516-517	511
40	515-516	510-511	494-495	518-519	512-513
41	517-518	512-513	496-497	520-521	514-515
42	519	514-515	498-499	522-524	516-517
43	520-521	516-517	500-502	525-526	518
44	522-523	518-519	503-504	527-528	519-520
45	524-525	520-521	505-506	529-530	521-522
46	526	522	507-508	531-533	523
47	527-528	523-524	509-511	534-535	524-525
48	529-531	525-526	512-513	536-537	526-527
49	532	527-528	514-515	538-539	528-529
50	533-534	529	516-518	540-541	530-531
51	535-536	530-531	519-520	542-543	532
52	537-538	532-533	521-522	544-545	533-534
53	539-540	534-535	523-524	546-547	535
54	541-542	536-537	525-526	548-549	536-537
55	543-544	538	527-528	550-551	538
56	545-546	539-541	529-530	552-553	539-540
57	547-548	542	531-532	554-555	541-542
58	549-550	543-544	533-534	556-557	543
59	551-552	545-546	535-536	558-560	544-545

NCE	OV	OR	CO	LT	PR
60	553	547-548	537-538	561	546-547
61	554-555	549-550	539-540	562-563	548
62	556-557	551-552	541-542	564-565	549-550
63	558-559	553-554	543-544	566-567	551-552
64	560-561	555-556	545-546	568-569	553-554
65	562-563	557-558	547-548	570-572	555
66	564-565	559-560	549-550	573-574	556-557
67	566-567	561-562	551-552	575-576	558-559
68	568-569	563-564	553-554	577-578	560
69	570-571	565-566	555-556	579-580	561-562
70	572-573	567-568	557-559	581-582	563-564
71	574-575	569-570	560-561	583-585	565-566
72	576-577	571-572	562-563	586-587	567-568
73	578	573-574	564-565	588-589	569-570
74	579-581	575-577	566-567	590	571-572
75	582-583	578-579	568-569	591-592	573-574
76	584-585	580-581	570-571	593-594	575-576
77	586-587	582-583	572-574	595-597	577-578
78	588-589	584-586	575-576	598-599	579-581
79	590-591	587-588	577-578	600-601	582-584
80	592-593	589-590	579-580	602-603	585-586
81	594	591-593	581-583	604-605	587-588
82	595-597	594-595	584-585	606-608	589-591
83	598	596-598	586-587	609-610	592-594
84	599-600	599-600	588-589	611-612	595-597
85	601-602	601-603	590-591	613-615	598-600
86	603-604	604-605	592-593	616-617	601-602
87	605-606	606-608	594	618-619	603-604
88	607	609-610	595-597	620-621	605-607
89	608-609	611-612	598-599	622-624	608-609
90	610-612	613-614	600-602	625-626	610-611
91	613	615-616	603-604	627-629	612-613
92	614-615	617-619	605-606	630-631	614-616
93	616	620	607-608	632-634	617-618
94	617-618	621-622	609-611	635-636	619-620
95	619-621	623-624	612-614	637-639	621-623
96	622	625-627	615-618	640-642	624-626
97	623-625	628	619-620	643-644	627
98	626-627	629-630	621-623	645-646	628
99	628-999	631-999	624-999	647-999	629-999

Table C.19. Form E Grades 9-12 Normal Curve Equivalent Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-433	1-432	1-415	1-403	1-410
2	434-438	433	416-418	404-407	411-416
3	439-440	434-436	419-420	408-412	417-422
4	441-443	437-441	421-423	413-416	423-429
5	444-447	442-443	424-426	417-422	430-435
6	448-449	444-445	427-428	423-426	436-438
7	450-452	446-448	429-430	427-430	439-441
8	453-454	449-451	431-433	431-434	442-444
9	455-456	452-454	434-436	435-438	445-449
10	457-458	455-456	437-440	439-442	450-454
11	459-460	457-458	441-442	443-447	455-461
12	461-462	459-461	443-445	448-450	462-464
13	463-464	462-464	446-448	451-454	465-468
14	465-467	465-466	449-450	455-457	469-471
15	468-469	467-468	451-452	458-459	472-476
16	470-472	469-471	453-456	460-462	477-479
17	473-474	472-473	457-458	463-465	480-482
18	475-476	474-475	459-460	466-469	483-484
19	477-478	476-477	461-463	470-472	485-487
20	479-481	478-479	464-466	473-475	488-489
21	482	480-481	467-469	476-478	490-491
22	483-485	482-483	470-472	479-481	492-493
23	486-487	484-486	473-474	482-484	494
24	488-489	487-488	475-477	485-486	495-496
25	490-491	489-490	478-479	487-488	497-498
26	492-493	491-492	480-481	489-490	499-500
27	494-495	493	482-484	491-493	501-502
28	496-497	494-495	485-488	494-495	503-504
29	498-499	496-497	489-490	496-498	505-506
30	500-501	498	491-492	499-500	507
31	502-503	499-500	493-495	501-503	508-509
32	504-505	501	496-498	504-505	510-511
33	506-507	502-503	499-500	506-508	512-513
34	508-509	504	501-502	509-510	514-515
35	510-511	505-506	503-504	511-513	516
36	512-513	507-508	505-506	514-515	517-518
37	514-515	509	507-508	516-517	519
38	516-517	510-511	509-510	518-519	520-521
39	518-519	512-513	511-512	520-522	522-523
40	520	514	513-515	523-524	524
41	521-522	515-516	516-517	525-526	525-526

NCE	OV	OR	CO	LT	PR
42	523-524	517-518	518-519	527-528	527
43	525-526	519-520	520-521	529-530	528
44	527-528	521	522-524	531-532	529-530
45	529	522-523	525-526	533-534	531
46	530-531	524	527-528	535-536	532-533
47	532-533	525-526	529-530	537-538	534-535
48	534-535	527-528	531-532	539-540	536
49	536	529-530	533-534	541-542	537-538
50	537-538	531	535-537	543-544	539
51	539-540	532-533	538-539	545-546	540
52	541-542	534-535	540-542	547-549	541-542
53	543	536-537	543-544	550-551	543
54	544-545	538	545-546	552	544-545
55	546-547	539-541	547-548	553-554	546
56	548-549	542	549-550	555-557	547-548
57	550-551	543-544	551-552	558-559	549
58	552-553	545-546	553-554	560-561	550-551
59	554-555	547	555-556	562	552
60	556-557	548-549	557-559	563-565	553-554
61	558-559	550-551	560-561	566-567	555
62	560-561	552-553	562-563	568-569	556-557
63	562	554-555	564-566	570-571	558-559
64	563-564	556-557	567-568	572-573	560
65	565-566	558-559	569-570	574-575	561-562
66	567-568	560-561	571-572	576-577	563-564
67	569	562-563	573-574	578-579	565-566
68	570-571	564-565	575-576	580-581	567-568
69	572-573	566-567	577-578	582-583	569-570
70	574-575	568-569	579-580	584-585	571
71	576	570-571	581-583	586-587	572-573
72	577-578	572-573	584-585	588-589	574-576
73	579-580	574-576	586-588	590-592	577-578
74	581-582	577-578	589-590	593-594	579-581
75	583-584	579-581	591-592	595-596	582-583
76	585-586	582-583	593-594	597-598	584-585
77	587-588	584-585	595-596	599-600	586-588
78	589-590	586-588	597-599	601-602	589-590
79	591-592	589-591	600-602	603-604	591-592
80	593	592-593	603-604	605-606	593-595
81	594-595	594-595	605-606	607-608	596-598
82	596-597	596-597	607-608	609-611	599-600
83	598-600	598-599	609-611	612-613	601-602
84	601-602	600-602	612-613	614-616	603

NCE	OV	OR	CO	LT	PR
85	603-604	603-604	614-616	617-618	604-606
86	605-607	605-607	617-618	619-620	607-608
87	608-609	608-610	619-620	621-624	609-610
88	610-612	611-612	621-622	625-626	611-612
89	613	613-615	623-624	627-628	613-615
90	614	616-619	625-627	629-630	616
91	615-617	620-622	628-629	631-633	617-618
92	618-619	623-625	630-632	634-635	619-620
93	620-622	626-628	633-634	636	621-622
94	623	629	635-636	637-638	623-624
95	624-626	630-634	637-639	639-640	625
96	627	635-636	640-642	641-646	626-627
97	628-629	637	643-645	647-649	628
98	630-632	638-640	646-647	650-652	629
99	633-999	641-999	648-999	653-999	630-999

Table C.20. Form E Kindergarten Percentile Ranking Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-316	1-368	1-317	1-236	1-295
2	317-325	369-382	318-327	237-248	296-305
3	326-330	383-390	328-334	249-255	306-311
4	331-335	391-395	335-339	256-260	312-316
5	336-338	396-400	340-345	261-264	317-321
6	339-341	401-403	346-350	265-267	322-325
7	342-344	404-406	351-353	268-270	326-328
8	345-347	407-409	354-357	271-274	329-331
9	348-349	410-413	358-360	275-276	332-333
10	350-352	414-415	361-362	277-278	334-335
11	353-354	416-417	363-364	279-281	336-338
12	355-356	418	365-366	282-283	339-340
13	357-358	419-420	367-368	284-285	341-342
14	359	421	369-370	286-288	343-344
15	360-361	422-423	371-372	289-291	345-346
16	362-363	424	373	292-293	347-348
17	364	425	374-375	294-295	349-350
18	365-366	426-427	376	296-297	351-352
19	367	428	377-378	298-299	353
20	368	429	379	300-301	354-355
21	369	430	380	302-303	356
22	370-371	431-432	381	304-305	357-358
23	372	433	382	306	359-360
24	373-374	434	383	307-309	361-362

NCE	OV	OR	CO	LT	PR
25	375	435	384	310	363-364
26	376	-	385	311-312	365
27	377	436	386	313	366
28	378	437	387	314-316	367-368
29	379	438	388	317	369
30	380	439	389	318-319	370
31	381	440	390	320	371-372
32	382	441	-	321-322	373
33	383	-	391	323	374
34	384-385	442	392	324-325	375-376
35	386	443	393	326-327	377
36	387	444	394	328	378
37	388	445	395	329-330	379-380
38	389	446	396	331	381
39	390	-	-	332	382
40	391	447	397	333-334	383-384
41	392	448	398	335	385
42	393	-	399	336-337	386-387
43	394	449	-	338	388
44	395	450	400	339	389
45	396	451	401	340-341	390-391
46	397	452	402	342	392
47	398	-	403	343-344	393
48	399	453	-	345	394
49	400	454	404	346-347	395-396
50	401	455	405	348	397
51	402	-	406	349	398
52	403	456	407	350-351	399-400
53	404	457	-	352	401
54	405	458	408	353	402
55	406	-	409	354-355	403-404
56	407	459	410	356	405
57	408	460	411	357	406
58	-	-	-	358-359	407-408
59	409	461	412	360	409
60	410	462	413	361	410
61	411	463	414	362-363	411
62	412	464	415	364	412
63	413	-	-	365	413-414
64	414-415	465	416	366	415
65	416	466	417	367	416
66	417	467	418	368-369	417
67	418	-	419	370	418-419

NCE	OV	OR	CO	LT	PR
68	419	468	420	371-372	420
69	420	469	421	373	421
70	421	470	422	374-375	422-423
71	422	471	-	376	424
72	423	472	423-424	377-378	425
73	424-425	473	425	379	426
74	426	474	426	380-381	427-428
75	427	475	427	382	429-430
76	428	476-477	428	383-384	431
77	429-430	478	429	385-386	432-433
78	431	479	430-431	387-388	434
79	432-433	480	432	389-390	435-436
80	434	481	433	391	437
81	435-436	482	434-435	392-393	438-439
82	437	483-484	436	394	440-441
83	438-439	485	437-438	395-396	442-443
84	440-441	486-487	439	397-399	444-445
85	442	488-489	440	400-401	446-447
86	443-444	490-491	441-442	402-403	448-449
87	445-447	492-493	443-444	404-406	450-452
88	448-449	494-495	445-446	407-409	453-454
89	450-451	496-498	447-448	410-412	455-457
90	452-454	499-500	449-450	413-415	458-460
91	455-457	501-503	451	416-419	461-464
92	458-460	504-506	452-454	420-423	465-468
93	461-463	507-509	455-458	424-427	469-472
94	464-467	510-513	459-460	428-432	473-479
95	468-471	514-518	461-465	433-440	480-485
96	472-477	519-522	466-471	441-449	486-492
97	478-483	523-528	472-478	450-462	493-503
98	484-496	529-534	479-493	463-493	504-523
99	497-999	535-999	494-999	494-999	524-999

Table C.21. Form E Grade 1 Percentile Ranking Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-347	1-379	1-330	1-281	1-336
2	348-356	380-393	331-342	282-293	337-352
3	357-365	394-406	343-351	294-304	353-363
4	366-371	407-412	352-358	305-312	364-371
5	372-374	413-416	359-362	313-320	372-378
6	375-378	417-419	363-365	321-324	379-382
7	379-381	420-422	366-369	325-330	383-386
8	382-384	423-425	370-372	331-335	387-392

NCE	OV	OR	CO	LT	PR
9	385-386	426-427	373-374	336-339	393-395
10	387-389	428-429	375-376	340-343	396-398
11	390-391	430	377-378	344-346	399-401
12	392-394	431-432	379-380	347-349	402-403
13	395	433	381-382	350-352	404-405
14	396-397	434-435	383	353-355	406-408
15	398-399	436	384-385	356-357	409
16	400	437	386	358-359	410-411
17	401-402	438-439	387	360	412
18	403	440	388-389	361-362	413-414
19	404-405	441	390	363-364	415
20	406	442	391	365-366	416
21	407	443	392	367	417-418
22	408-409	444	393	368-370	419
23	410	445	394-395	371	420
24	411	446	396	372-373	421
25	412	447	397	374-375	422
26	413	448	398-399	376	423-424
27	414	-	400	377-378	425
28	415	449	401	379	426-427
29	416	450	402	380	428
30	417	451	403	381-382	429
31	418	-	404	383	430
32	419	452	405	384	431
33	420	453	-	385	432
34	421	-	406	386-387	433
35	422	454	407	388	434
36	-	455	408	389	435
37	423	456	409	390	436
38	424	-	410	391-392	437
39	425	457	411	393	438
40	426	458	412	394	439
41	427	-	413	395-396	-
42	428	459	414	397	440
43	429	-	415	398	441
44	-	460	416	399	442
45	430	461	417	400	443
46	431	-	418	401	444
47	432	462	419	402	445
48	433	463	-	403-404	446
49	-	-	420	405	447
50	434	464	421	406	448
51	435	465	422	407	-

NCE	OV	OR	CO	LT	PR
52	436	-	423	408	449-450
53	437	466	424	409	451
54	438	467	-	410	452
55	439	-	425	411	453
56	440	468	426	412-413	454
57	441	469	427	414	455
58	442	-	428	415	456
59	-	470	429	416	457
60	443	471	430	417-418	458
61	444	-	431	419	459
62	445	472	432	420	460
63	446-447	473	433	421	461-462
64	448	-	434	422-423	463
65	449	474	435	424	464
66	450	475	436	425-426	465
67	451	476	437	427	466
68	452	477	438	428	467
69	453	-	439	429-430	468
70	454	478	440	431-432	469
71	455	479	441	433	470-471
72	456-457	480	442	434-435	472
73	458	481	443	436-437	473
74	459-460	482	444	438-439	474
75	461	483	445	440-441	475
76	462	484	446-447	442	476-477
77	463	485	448	443-445	478
78	464-465	486	449-450	446-447	479-480
79	466-467	487	451	448-449	481-482
80	468-469	488	452-453	450-452	483-484
81	470	489-490	454	453-454	485-486
82	471-472	491	455-456	455-456	487-488
83	473-474	492-493	457	457-460	489-490
84	475-476	494	458-459	461-463	491-493
85	477-478	495-496	460-461	464-467	494-496
86	479-481	497	462-463	468-471	497-499
87	482-484	498-499	464-465	472-476	500-503
88	485-486	500-501	466-467	477-481	504-508
89	487-490	502-503	468-470	482-486	509-513
90	491-493	504	471-473	487-492	514-519
91	494-497	505-507	474-476	493-500	520-526
92	498-501	508-509	477-480	501-507	527-540
93	502-505	510-512	481-484	508-515	541-554
94	506-510	513-515	485-489	516-521	555-560

NCE	OV	OR	CO	LT	PR
95	511-515	516-519	490-495	522-531	561-565
96	516-522	520-523	496-500	532-542	566-573
97	523-529	524-529	501-510	543-551	574-578
98	530-540	530-537	511-520	552-564	579-585
99	541-999	538-999	521-999	565-999	586-999

Table C.22. Form E Grades 2-3 Percentile Ranking Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-400	1-429	1-332	1-344	1-389
2	401-408	430-441	333-343	345-359	390-412
3	409-414	442-448	344-351	360-372	413-422
4	415-420	449-452	352-357	373-381	423-429
5	421-424	453-454	358-362	382-389	430-434
6	425-428	455-456	363-366	390-395	435-438
7	429-431	457-458	367-369	396-401	439-441
8	432-434	459	370-371	402-404	442-444
9	435-436	460-461	372-374	405-406	445-447
10	437-439	462-463	375-377	407-409	448-449
11	440-441	464	378	410-412	450-451
12	442-443	465	379-380	413-415	452-453
13	444	466	381	416-418	454
14	445-446	467	382-383	419-421	455-456
15	447-448	468	384	422-423	457-458
16	449	469-470	385-386	424-426	459-460
17	450	-	387	427-428	461
18	451-452	471	388-389	429-430	462
19	453-454	472	390-391	431	463-464
20	455	473	392	432-433	465
21	456	-	393	434-435	466-467
22	457-458	474	394	436	468
23	459	475	395	437-438	469
24	460	476	396-397	439-440	470
25	461	-	398	441-442	471
26	462	477	399	443	472
27	463-464	478	400	444-445	473
28	465	479	401	446-447	474
29	466	-	402	448	475
30	467	480	403	449-450	476
31	468	481	404	451	477
32	469	-	-	452	478
33	470	482	405	453-454	479
34	471	483	406-407	455	480
35	472	-	-	456	481

NCE	OV	OR	CO	LT	PR
36	473	484	408	457-458	-
37	474	485	409	459	482
38	-	-	410	460	483
39	475	486	411	461-462	484
40	476	487	412	463	485
41	477	-	413	464	486
42	478	488	414	465	487
43	479	-	-	466-467	488
44	480	489	415	468	489
45	481	490	416	469	-
46	-	-	417	470-471	490
47	482	491	418	472	491
48	483	492	419	473	492
49	484	-	-	474-475	493
50	485	493	420	476	-
51	486	-	421	477-478	494
52	487	494	422	479	495
53	488	495	423	480	496
54	489	-	424	481	497
55	490	496	425	482	498
56	491	497	426	483	499
57	-	-	427	484-485	500
58	492	498	428	486	-
59	493	499	429	487	501
60	494	500	430	488	502
61	495	-	431	489-490	503
62	496	501	432	491	504
63	497	502	433	492	505
64	498	503	434	493-494	506
65	499	-	435	495	507
66	500	504	436	496	508
67	501	505	437	497	509
68	502	506	438	498-499	510-511
69	503	-	439-440	500-501	512
70	504	507-508	441	502	513
71	505	-	442	503-504	514
72	506	509	443	505	515
73	507	510	444	506	516
74	508	511-512	445	507-508	517-518
75	509-510	-	446	509	519
76	511	513-514	447	510-511	520
77	512	515	448-449	512	521
78	513	516	450	513-514	522-523

NCE	OV	OR	CO	LT	PR
79	514	517-518	451	515-516	524
80	515-516	519	452-453	517	525-526
81	517	520-521	454	518-519	527-528
82	518	522	455-456	520-521	529-530
83	519-520	523-524	457	522	531
84	521-522	525-526	458-459	523-524	532-533
85	523-524	527-528	460-461	525-526	534-535
86	525-526	529-530	462-463	527-528	536-537
87	527-528	531-533	464-465	529-530	538-539
88	529-530	534-535	466-467	531-533	540-542
89	531-532	536-537	468-469	534-535	543-546
90	533	538-539	470-472	536-539	547-549
91	534-536	540-542	473-475	540-542	550-552
92	537-538	543-545	476-478	543-545	553-557
93	539-541	546-548	479-482	546-549	558-561
94	542-544	549-551	483-487	550-554	562-565
95	545-549	552-554	488-494	555-559	566-571
96	550-552	555-559	495-504	560-567	572-576
97	553-557	560-565	505-511	568-578	577-583
98	558-566	566-571	512-523	579-590	584-591
99	567-999	572-999	524-999	591-999	592-999

Table C.23. Form E Grades 4-5 Percentile Ranking Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-426	1-430	1-373	1-392	1-412
2	427-437	431-443	374-388	393-411	413-443
3	438-445	444-450	389-396	412-421	444-450
4	446-449	451-457	397-403	422-429	451-457
5	450-453	458-461	404-408	430-435	458-462
6	454-457	462-465	409-413	436-440	463-467
7	458-460	466-469	414-417	441-445	468-470
8	461-463	470-473	418-420	446-450	471-473
9	464-466	474-475	421-422	451-453	474-476
10	467-469	476-477	423-425	454-457	477-478
11	470-471	478	426-427	458-460	479-480
12	472-474	479-480	428-429	461-463	481-482
13	475-476	481-482	430-431	464-466	483-484
14	477-478	483	432-433	467-468	485-486
15	479-480	484-485	434	469-471	487-488
16	481	486	435-436	472-473	489
17	482-483	487	437-438	474-475	490-491
18	484-485	488	439-440	476-477	492-493
19	486	489-490	441-442	478-479	494

NCE	OV	OR	CO	LT	PR
20	487-488	491	443	480-481	495
21	489	492	444	482-483	496-497
22	490-491	493	445-446	484-485	498
23	492	494-495	447	486	499
24	493	496	448	487-488	500
25	494	497	449	489-490	501
26	495-496	498	450-451	491	502
27	497	499	452	492	503
28	498	500	453	493-494	504
29	499	501	454	495	505
30	500-501	502	455	496	506
31	502	-	456	497-498	507
32	503	503	457	499	508
33	504	504	458-459	500-501	509
34	505	505	460	502	510
35	506	506	461	503	511
36	507	507	462	504	512
37	508	-	463	505-506	513
38	509	508	464	507	514
39	510	509	465	508	515
40	511	510	466	509-510	-
41	512	511	467	511	516
42	513	512	468-469	512	517
43	514	-	470	513-514	518
44	515	513	471	515	519
45	516	514	-	516	-
46	517	515	472	517	520
47	518	516	473	518	521
48	519	517	474	519	522
49	520	518	475	520	523
50	521	519	476	521-522	524
51	522	520	477	523	-
52	523	-	478	524	525
53	524	521	479	525	526
54	525	522	480	526	527
55	526	523	481	527	528
56	-	524	482	528-529	529
57	527	-	483	530	-
58	528	525	484	531	530
59	529	526	485	532	531
60	530	527	486	533	532
61	531	528	487	534	533
62	532	529	488	535	534

NCE	OV	OR	CO	LT	PR
63	533	530	489	536-537	535
64	534	531	490	538	536
65	535	532	491-492	539	-
66	536	533	493	540	537
67	537	-	494	541	538
68	538	534	495	542-543	539
69	539	535-536	496	544	540
70	540	537	497	545	541
71	541	538	498	546	542
72	542	539	499	547-548	543
73	543	540	500	549	544
74	544	541-542	501	550	545
75	545-546	543	502	551-552	546-547
76	547	544-545	503	553	548
77	548	546	504-505	554-555	549
78	549	547	506	556	550-551
79	550-551	548-549	507	557	552
80	552	550	508-509	558-559	553
81	553-554	551-552	510	560-561	554-555
82	555	553-554	511-512	562-563	556-557
83	556-557	555-556	513	564-565	558-559
84	558	557	514-515	566	560
85	559-560	558-559	516	567-569	561-562
86	561	560-562	517-518	570	563-564
87	562-563	563-564	519	571-573	565-567
88	564-565	565-567	520-521	574-575	568-569
89	566-567	568-569	522-523	576-577	570-572
90	568-570	570-572	524-525	578-579	573-574
91	571-572	573-575	526-527	580-582	575-577
92	573-575	576-579	528-530	583-585	578-581
93	576-579	580-582	531-533	586-588	582-586
94	580-583	583-586	534-536	589-592	587-590
95	584-587	587-590	537-540	593-597	591-596
96	588-591	591-595	541-545	598-603	597-601
97	592-598	596-601	546-552	604-610	602-607
98	599-604	602-610	553-560	611-619	608-613
99	605-999	611-999	561-999	620-999	614-999

Table C.24. Form E Grades 6-8 Percentile Ranking Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-440	1-433	1-406	1-412	1-425
2	441-448	434-448	407-419	413-433	426-445
3	449-456	449-456	420-427	434-443	446-453

NCE	OV	OR	CO	LT	PR
4	457-461	457-460	428-434	444-450	454-461
5	462-467	461-465	435-439	451-457	462-467
6	468-471	466-468	440-443	458-464	468-471
7	472-475	469-471	444-447	465-468	472-474
8	476-477	472-473	448-451	469-471	475-477
9	478-480	474-475	452-454	472-475	478-480
10	481-482	476-477	455-458	476-479	481-482
11	483-484	478-480	459-461	480-482	483-485
12	485-486	481-482	462-463	483-484	486-487
13	487-488	483-485	464	485-487	488-489
14	489-490	486-487	465-466	488-490	490-491
15	491-492	488-489	467-468	491-492	492-493
16	493-494	490	469-471	493-494	494-495
17	495-496	491-492	472-473	495-496	496
18	497	493-494	474	497-498	497-498
19	498-499	495	475-476	499-500	499
20	500	496-497	477-478	501	500
21	501-502	498	479	502-503	501
22	503	499	480-481	504-505	502
23	504-505	500-501	482	506-507	503-504
24	506	502	483-484	508	505
25	507-508	503	485	509-510	506
26	509	504	486-487	511	507
27	510	505	488	512-513	508
28	511	506-507	489-490	514	509
29	512-513	508	491	515-516	510
30	514	509	492	517	511
31	515	510	493-494	518	512
32	516	511	495	519	513
33	517	512	496	520	514
34	518	513	497-498	521-522	515
35	519	514-515	499	523	516
36	520	516	500	524	517
37	521	517	501	525-526	518
38	522	518	502-503	527	519
39	523	519	504	528	520
40	524	-	505	529	521
41	525	520-521	506	530	522
42	-	522	507	531-532	523
43	526	-	508-509	533	-
44	527	523	510	534	524
45	528	524	511	535	525
46	529-530	525	512	536	526

NCE	OV	OR	CO	LT	PR
47	531	526	513-514	537	527
48	532	527	515	538-539	528
49	533	528	516	540	529
50	534	529	517	541	530
51	535	530	518	542	531
52	536	531	519-520	543	532
53	537	---	521	544	533
54	538	532	522	545	534
55	539	533-534	523	546	-
56	540	535	-	547	535
57	541	536	524-525	548	536
58	542	537	526	549	537
59	543	538	527	550	538
60	544	539	528	551	539
61	545	540	529-530	552-553	540
62	546	541	531	554	541
63	547	542	532	555	-
64	548-549	543	533	556	542
65	550	544	534	557	543
66	551	545	535	558	544
67	552	546	536	559-560	545
68	553	547	537	561	546
69	554	548	538	562	547
70	555	549	539-540	563	548
71	556	550-551	541	564	549
72	557-558	552	542	565	550
73	559	553	543	566-567	551-552
74	560	554-555	544-545	568	553
75	561	556	546	569-570	554
76	562	557	547	571	555
77	563-564	558	548-549	572	556
78	565	559-560	550	573-574	557
79	566	561-562	551-552	575	558-559
80	567-568	563	553	576-578	560
81	569	564-565	554-555	579	561
82	570-571	566	556-557	580-581	562
83	572-573	567-568	558-559	582	563-564
84	574-575	569-570	560	583-584	565-566
85	576	571-572	561-563	585-586	567-568
86	577-578	573-574	564-565	587-588	569-570
87	579-580	575-576	566-567	589-590	571
88	581-582	577-579	568-569	591-592	572-573
89	583-585	580-581	570-571	593-594	574-576

NCE	OV	OR	CO	LT	PR
90	586-588	582-583	572-574	595-597	577-578
91	589-590	584-587	575-577	598-600	579-582
92	591-593	588-590	578-580	601-603	583-585
93	594-595	591-594	581-583	604-606	586-589
94	596-599	595-599	584-587	607-610	590-594
95	600-602	600-604	588-592	611-615	595-600
96	603-607	605-609	593-596	616-620	601-605
97	608-613	610-616	597-604	621-628	606-613
98	614-621	617-624	605-615	629-640	614-624
99	622-999	625-999	616-999	641-999	625-999

Table C.25. Form E Grades 9-12 Percentile Ranking Norming Table for Composites

NCE	OV	OR	CO	LT	PR
1	1-442	1-440	1-422	1-415	1-426
2	443-454	441-452	423-434	416-435	427-445
3	455-460	453-459	435-443	436-448	446-463
4	461-467	460-466	444-450	449-456	464-471
5	468-472	467-471	451-455	457-462	472-478
6	473-475	472-475	456-459	463-467	479-483
7	476-479	476-478	460-463	468-473	484-487
8	480-482	479-480	464-468	474-477	488-490
9	483-485	481-483	469-471	478-481	491-492
10	486-488	484-486	472-474	482-484	493-495
11	489	487-488	475-477	485-486	496-497
12	490-492	489-490	478-480	487-488	498-499
13	493-494	491-492	481-482	489-491	500-501
14	495-496	493-494	483-485	492-494	502
15	497	495	486-488	495-496	503-504
16	498-499	496-497	489-490	497-498	505-506
17	500-501	498	491-492	499-500	507
18	502-503	499	493-494	501-502	508-509
19	504	500	495-496	503-504	510
20	505	501-502	497-498	505-506	511
21	506-507	503	499	507-508	512-513
22	508	504	500-501	509	514
23	509	505	502	510-511	515
24	510-511	506	503-504	512-513	516
25	512	507	505	514	517
26	513	508	506	515	518
27	514-515	509	507-508	516-517	519
28	516	510	509	518	520
29	517	511	510	519-520	521

NCE	OV	OR	CO	LT	PR
30	518	512	511-512	521	522
31	519	513	513	522	523
32	520	514	514-515	523	524
33	521	515	516	524-525	525
34	522	516	517	526	526
35	523	517	518	527	527
36	524	518	519-520	528	-
37	525	519	521	529	528
38	526	520	522	530-531	529
39	527	521	523-524	532	530
40	528	522	525	533	531
41	529	523	526	534	-
42	530	524	527	535	532
43	531	-	528	536	533
44	532	525-526	529	537	534
45	533	-	530	538	535
46	534	527	531	539	536
47	535	528	532-533	540	-
48	536	529	534	541	537
49	537	530	535	542	538
50	538	531	536	543-544	539
51	539	532	537	545	540
52	540	533	538-539	546	-
53	-	534	540	547	541
54	541	535	541	548	542
55	542	536	542-543	549	543
56	543	537	544	550	-
57	544	538	545	551	544
58	545	539	546	552	545
59	546	540	547	553-554	546
60	547	541	548	555	547
61	548	542	549	556	-
62	549	543	550	557	548
63	550	544	551-552	558	549
64	551-552	545	553	559	550
65	-	-	554	560	551
66	553	546	555	561-562	552
67	554-555	547	556-557	563	-
68	556	548-549	558	564	553
69	557		559	565	554
70	558	550	560-561	566	555
71	559-560	551	562	567-568	556
72	561	552-553	563-564	569	557

NCE	OV	OR	CO	LT	PR
73	562	554	565	570	558
74	563	555	566	571-572	559
75	564	556-557	567-568	573	560
76	565	558	569-570	574-575	561-562
77	566-567	559	571	576	563
78	568	560-561	572-573	577	564
79	569	562-563	574	578-579	565
80	570	564	575-576	580	566-567
81	571-572	565-566	577	581-582	568
82	573	567	578-579	583	569-570
83	574-575	568-569	580	584-585	571
84	576	570-571	581-582	586-587	572-573
85	577-578	572-573	583-585	588-589	574-575
86	579	574-575	586-587	590-591	576-577
87	580-581	576-577	588-589	592-593	578-580
88	582-583	578-580	590-591	594-595	581-582
89	584-585	581-583	592-594	596-598	583-585
90	586-588	584-586	595-597	599-600	586-588
91	589-591	587-589	598-601	601-603	589-591
92	592-593	590-592	602-604	604-606	592-595
93	594-596	593-596	605-607	607-609	596-599
94	597-601	597-599	608-612	610-614	600-602
95	602-605	600-605	613-617	615-618	603-606
96	606-611	606-611	618-621	619-625	607-611
97	612-617	612-621	622-628	626-633	612-618
98	618-626	622-634	629-640	634-641	619-625
99	627-999	635-999	641-999	642-999	626-999

Appendix D Item Difficulty

Table D.1. Form E Speaking Item Difficulty

Item	Grade Span					
	K	1	2-3	4-5	6-8	9-12
1	0.82	0.93	0.93	0.96	0.97	0.94
2	0.86	0.92	0.62	0.99	0.94	0.98
3	-	-	0.98	0.91	-	0.88
4	0.94	0.97	0.71	0.89	0.69	0.86
5	0.93	0.97	0.84	0.89	0.66	0.30
6	0.82	0.94	0.74	0.61	0.58	0.60
7	0.79	0.87	0.71	0.80	0.43	0.31
8	0.65	0.81	0.88	0.88	0.82	0.89
9	0.55	0.71	0.91	0.91	0.85	0.93
10	0.59	0.74	0.87	0.58	0.66	0.78
11	0.57	0.74	0.83	0.62	0.67	0.78
12	0.59	0.76	0.78	0.68	0.65	0.78
13	0.66	0.81	0.78	0.61	0.78	0.86
14	-	0.82	0.84	0.71	0.66	0.80
15	-	0.77	0.85	0.73	0.68	0.80
16	-	0.76	0.82	0.76	0.73	0.79
17	-	0.68	0.79	0.85	0.77	0.86
18	0.50	0.64	0.73	0.73	0.65	0.77

Table D.2. Form E Listening Item Difficulty

Item	Grade Span					
	K	1	2-3	4-5	6-8	9-12
1	0.80	0.95	0.47	0.90	0.83	1
2	0.67	0.81	0.70	0.75	0.68	2
3	0.59	0.69	0.65	0.76	0.49	3
4	0.72	0.89	0.93	0.78	0.55	4
5	0.62	0.91	0.71	0.91	0.40	5
6	0.89	0.95	0.82	0.81	0.72	6
7	0.75	0.76	0.78	0.92	0.58	7
8	0.79	0.91	0.81	0.58	0.45	8
9	0.88	0.87	0.58	0.77	0.64	9
10	0.80	0.53	0.68	0.84	0.68	10
11	0.74	0.75	0.83	0.60	0.52	11
12	0.79	0.92	0.65	0.70	0.74	12
13	0.72	0.87	0.66	0.55	0.84	13

Item	Grade Span					
	K	1	2-3	4-5	6-8	9-12
14	0.70	0.75	0.49	0.47	0.72	14
15	0.73	0.73	0.64	0.49	0.84	15
16	0.63	0.43	0.81	0.59	0.72	16
17	0.83	0.36	0.75	0.77	0.73	17
18	0.60	0.74	0.42	0.47	0.58	18
19	0.63	0.91	0.51	0.44	0.65	19
20	0.37	0.70	0.47	0.49	0.44	20
21	-	-	-	0.58	0.19	21
22	-	-	-	0.81	0.85	22
23	-	-	-	0.74	0.58	23

Table D.3. Form E Reading Item Difficulty

Item	Grade Span					
	K	1	2-3	4-5	6-8	9-12
1	0.47	0.56	0.68	0.77	0.72	0.79
2	0.87	0.93	0.66	0.81	0.78	0.69
3	0.76	0.82	0.83	0.67	0.52	0.49
4	0.68	0.82	0.56	0.44	0.52	0.41
5	0.69	0.80	0.66	0.58	0.62	0.77
6	0.63	0.81	0.75	0.61	0.48	0.56
7	0.61	0.80	0.76	0.50	0.72	0.51
8	0.66	0.83	0.65	0.47	0.40	0.69
9	0.57	0.78	0.58	0.62	0.57	0.41
10	0.51	0.72	0.76	0.77	0.69	0.47
11	0.56	0.75	0.77	0.51	0.52	0.71
12	0.55	0.75	0.74	0.56	0.82	0.77
13	0.77	0.85	0.48	0.68	0.88	0.70
14	0.59	0.75	0.74	0.56	0.73	0.57
15	0.57	0.73	0.69	0.53	0.29	0.51
16	0.65	0.77	0.73	0.55	0.42	0.44
17	0.53	0.69	0.59	0.34	0.48	0.62
18	0.75	0.86	0.41	0.52	0.53	0.50
19	0.41	0.58	0.65	0.68	0.61	0.42
20	0.20	0.31	0.58	0.49	0.46	0.53
21	0.27	0.43	0.60	0.56	0.53	0.52
22	0.41	0.55	0.47	0.77	0.44	0.46
23	-	0.59	0.40	0.50	0.41	0.72
24	-	0.54	0.42	0.37	0.65	0.82
25	-	0.45	0.48	0.47	0.53	0.48

Item	Grade Span					
	K	1	2-3	4-5	6-8	9-12
26	-	0.43	0.60	0.64	0.66	0.46
27	0.55	0.72	0.62	0.67	0.26	0.54
28	0.53	0.67	0.66	0.30	0.46	0.49
29	0.45	0.61	0.58	0.24	0.32	0.77
30	0.44	0.59	0.66	0.41	0.61	0.77

Table D.4. Form E Writing Item Difficulty

Item	Grade Span					
	K	1	2-3	4-5	6-8	9-12
1	0.92	0.98	0.67	0.88	0.74	0.88
2	0.92	0.99	0.57	0.78	0.79	0.74
3	0.67	0.84	0.61	0.80	0.73	0.67
4	0.79	0.94	0.55	0.73	0.65	0.42
5	0.63	0.83	0.57	0.91	0.63	0.71
6	0.45	0.83	0.57	0.79	0.67	0.91
7	0.31	0.65	0.72	0.67	0.59	0.87
8	0.44	0.80	0.54	0.88	0.63	0.50
9	0.47	0.86	0.41	0.90	0.59	0.49
10	0.22	0.58	0.63	0.59	0.55	0.43
11	-	0.62	0.79	0.53	0.55	0.47
12	-	0.67	0.78	0.63	0.38	0.65
13	-	0.63	0.75	0.48	0.41	0.54
14	-	0.56	0.77	0.52	0.46	0.62
15	0.46	0.60	0.67	0.52	0.50	0.61
16	0.48	0.56	0.60	0.47	0.39	0.54
17	0.54	0.81	0.70	0.65	0.65	0.76
18	0.69	0.87	-	-	-	-
19	0.56	0.82	-	-	-	-
20	0.47	0.68	-	-	-	-

Appendix E Inter-Rater Reliability

Table E.1. Speaking Grade K Inter-Rater

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
02	1	96	4	0
05	1	94	6	0
06	1	97	3	0
08	3	86	13	1
09	3	96	4	0
13	3	89	11	0
14	3	89	11	0
15	4	90	10	0

Table E.2. Form E Writing Grade K Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
73	1	100	0	0
74	1	100	0	0
78	3	97	3	0
79	1	99	1	0
80	1	99	1	0
82	3	95	5	0

Table E.3 Form E Speaking Grades 1 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
02	1	100	0	0
05	1	99	1	0
06	1	99	1	0
08	3	93	7	0
09	3	93	7	0
13	3	95	5	0
14	3	91	9	0
15	3	91	9	0
16	3	94	6	0
17	4	89	11	0

Table E.4. Form E Writing Grade 1 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
81	1	100	0	0
82	1	97	3	0
85	3	98	2	0
86	1	99	1	0
87	1	99	1	0
90	3	92	8	0
92	3	94	6	0
93	3	91	9	0
94	3	96	4	0
95	3	92	8	0

Table E.5. Form E Speaking Grades 2-3 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
02	1	98	2	0
05	1	98	2	0
06	1	97	3	0
09	3	93	7	0
10	3	93	7	0
13	3	91	9	0
14	3	89	11	0
15	3	92	8	0
16	3	89	11	0
17	3	94	6	0
18	3	92	8	0
19	4	85	15	0

Table E.6 Form E Writing Grades 2-3 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
94	3	97	3	0
95	3	93	7	0
96	3	92	8	0
97	3	95	5	0
98	3	95	5	0
99	3	94	6	0
102	4	95	5	0

Table E.7. Form E Speaking Grades 4-5 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
02	1	99	1	0
05	1	99	1	0
06	1	99	1	0
09	3	93	7	0
10	3	95	5	0
13	3	93	7	0
14	3	91	8	1
15	3	88	12	0
16	3	92	8	0
17	3	91	9	0
18	3	88	12	0
19	4	85	15	0

Table E.8. Form E Writing Grades 4-5 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
92	3	90	10	0
93	3	91	9	0
94	3	91	9	0
95	3	92	8	0
96	3	93	7	0
97	3	88	12	0
101	4	86	14	0

Table E.9. Form E Speaking Grades 6-8 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
02	1	97	3	0
05	1	94	6	0
06	1	99	1	0
09	3	84	16	0
10	3	84	16	0
13	3	91	9	0
14	3	89	11	0
15	3	90	10	0
16	3	87	13	0
17	3	91	9	0
18	3	86	14	0
19	4	87	13	0

Table E.10. Form E Writing Grades 6-8 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
95	3	94	6	0
96	3	94	6	0
97	3	95	5	0
98	3	97	3	0
99	3	96	4	0
100	3	92	8	0
104	4	90	10	0

Table E.11. Form E Speaking Grades 9-12 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
02	1	97	3	0
05	1	98	2	0
06	1	95	5	0
09	3	95	5	0
10	3	90	10	0
13	3	94	6	0
14	3	90	10	0
15	3	94	6	0
16	3	95	5	0
17	3	95	5	0
18	3	96	4	0
19	4	94	6	0

Table E.12. Form E Writing Grades 9-12 Inter-Rater Reliability

Item	Maximum Score	Percentage Absolute Difference		
		Perfect	Adjacent	Discrepant
95	3	93	7	0
96	3	94	6	0
97	3	93	7	0
98	3	93	7	0
99	3	94	6	0
100	3	90	10	0
104	4	87	13	0