2022–2023 LEAP Connect Operational Technical Report

English Language Arts, Mathematics, and Science in Grades 3 through 8 and High School

MEASUREMENT INCORPORATED

edCount LLC
because all students count

Table of Contents

List of Exhibits

Chapter I. Technical Summary

Overview

Each year, the Louisiana Department of Education (LDOE) and its assessment development vendors engage in an iterative process to create a technical report that describes evidence of the validity of the purpose and use of the scores resulting from the LEAP Connect assessment system. The technical report addresses the development processes of the LEAP Connect assessment system, the outcomes of those development processes, and the evaluation of the assessments to ensure that LEAP Connect stakeholders have ample information to support interpretation and use of student scores.

This technical report includes decisions made during development to ensure the LEAP Connect assessments are consistent with the purposes for which they were designed, including but not limited to the following: 1) documentation of the programmatic, statistical, and psychometric procedures (e.g., equating studies) used to create and analyze the LEAP Connect assessments, and 2) documentation of the technical merits of the assessments (including reliability measures, evidence of validity, and evidence that the scores are valid measures for the intended uses).

This document is meant to provide evidence that 1) the LEAP Connect assessment items and accessibility features permit all eligible students, including English Learners (ELs) with significant cognitive disabilities, to demonstrate their knowledge and skills and do not contain features that unnecessarily prevent them from accessing the content of the item or from demonstrating what they know and can do, 2) test forms yield consistent score meanings over time, forms within year, student groups, and delivery mechanisms (including multiple computer platforms), and 3) total test scores are related to external variables as expected (e.g., other measures of the construct). When relevant, the quality control processes implemented for an activity or deliverable are described.

To the extent possible, this report also includes evidence that the items are “instructionally sensitive;” that is, that item performance is related to the quality of instruction more so than to out-of-school factors such as demographic variables. It includes results of performance standards validation for all content areas, including the technical information verifying the merit of the process by an external evaluator.

Target Stakeholders and Intended Uses

This document was developed for Louisiana educators, LDOE staff, federal peer reviewers, and Louisiana’s technical advisory committee (TAC). These stakeholders may use the information in this technical report to support their understanding of the development of the assessment system and the goals for the assessment system; their interpretation and use of student scores on the LEAP Connect assessments; and their communication with parents, the public, and other stakeholders about the assessments.

The information presented here is limited to the 2022–2023 operational administration of the LEAP Connect assessments. The LEAP Connect assessments are administered over a six-week window from early February to mid-March each year. The 2022–2023 assessments were administered from February 13 to March 24, 2023.

Document Structure

This technical report for the LEAP Connect assessment contains 15 chapters (see Exhibit 1). The information presented in these chapters aligns with the expectations set forth in the *Standards for Educational and Psychological Testing* (*Standards;* AERA, APA, & NCME, 2014). Each chapter makes connections to the *Standards*, ensuring that the information included here is meaningful and appropriate for the intended stakeholders and their uses of this document and provides a validity argument for the intended uses of the scores of the LEAP Connect assessment system in ELA, mathematics, and science.

Exhibit 1. Overview of Structures

Chapter	Contents
Chapter I. Technical Summary	This chapter provides information on the purpose of the annual technical documentation, the organization of the information provided, and a description of the stakeholders for whom the technical documentation is intended.
Chapter II. Overview of the LEAP Connect Assessment System	This chapter describes the LEAP Connect assessment system. It provides an overview of the assessment system, a description of each of the content areas, the statement of core beliefs and mission, and the purpose of the LEAP Connect assessment system.
Chapter III. Validity Evaluation Framework	This chapter details the validity evaluation framework and validity argument for the LEAP Connect assessment system. It describes the Theory of Action (ToA) and process for examining validity, with clear connections to the Validity chapter in the *Standards* (AERA, APA, & NCME, 2014), and sets the foundation for the validity evaluation results summarized in Chapter XV.
Chapter IV. The Population of Students	This chapter describes the student population of Louisiana; specifically, the demographics of the population of students who are administered the LEAP Connect assessments including the results of the End-of-Test Survey.
Chapter V. Content of the Exams	This chapter provides key details around several assessment components: how the Louisiana Connectors connect to the Louisiana Student Standards, the development of the content claims, the iterative process of reviewing and adopting the claims, and finally, the claims.
Chapter VI. Instructional Context	This chapter describes the academic needs of this student population and includes a description of the instructional context. This chapter also describes the resources and professional development opportunities available to educators. Finally, it provides a description of how the LDOE supports the development of communicative competence for students taking the assessment.

Chapter	Contents
Chapter VII. Test Development	This chapter conveys information regarding the test design (in particular principled assessment design), with direct connections to the construct and the intended interpretation and uses of the assessment. This chapter explains the prioritized Louisiana Connectors for assessment. It also describes the development of test specifications, the test blueprint, the development of the assessment content (including stakeholder reviews), forms construction, and implementation of embedded field testing.
Chapter VIII. Operational Test Administration	This chapter details the administration of the operational form. It includes information about the testing window, security procedures, accommodations and administration manuals, the implementation of quality control procedures, and results from the operational test.
Chapter IX. Scoring	This chapter describes the scoring process for all item types. It provides scorer demographics, scorer training, and interrater agreement results for all item types. This chapter also describes range finding results for open-ended items.
Chapter X. Psychometrics	This chapter details the psychometric analyses for the operational form and includes details of the test-level and item-level results for the measurement model analyses. It describes linking and equating methods, as well as the process and methodology for deriving scale scores (when, and if, appropriate). It concludes with a description of the field test items and the process for including these items in future operational tests.
Chapter XI. Standard Setting	This chapter details the methodology chosen, the selection of panelists and their qualifications, the forms used for standard setting, and the rating process.
Chapter XII. Reliability	This chapter describes additional studies conducted to support the validity argument and the rationale for each of the studies. Each study is described as providing validity evidence for a specific purpose and connected to the ToA and IA, as well as the *Standards* (AERA, APA, & NCME, 2014).
Chapter XIII. Reporting, Interpretation, and Use of Scores	This chapter describes the approach to and procedures for reporting scores, and the intended interpretation and uses of scores. It describes the information found in student and district level score reports and provides a description of the audience.
Chapter XIV. Validity	This chapter provides validity evidence for the assessment including test content, response processes, internal structure, relationship to other variables, and consequences.

Chapter	Contents
Chapter XV. LEAP Connect Validity Argument	This chapter acts as an overall summary of the technical documentation and provides details of validity evidence as it relates to each of the key validity evaluation questions. It provides evidence as it relates to summative assessment design and the instructional context. It synthesizes validity evidence in citing the LEAP Connect assessment system's strengths, areas for improvement, and areas for future research as indicated by the various sources of evidence.

Chapter II. Overview of the LEAP Connect Assessment System

Historical Context and Applicable Content Areas

In December of 2016, the Louisiana State Board of Elementary and Secondary Education (BESE) approved new Louisiana Connectors (LCs) aligned to the 2016 Louisiana Student Standards (LSS) in ELA and mathematics. These connectors are designed for use in the instruction and assessment of students with significant cognitive disabilities. They are derived from the general education standards, but are reduced in depth, breadth, and complexity. The LCs in ELA and mathematics replaced what were formerly known as the Extended Standards. After the new LSS in science were approved in 2017, Louisiana began working with edCount, LLC, to develop LCs for science aligned to these new standards. The LCs for science were approved shortly after the adoption of the LSS for science.

In the 2017–2018 school year, Louisiana implemented the new LEAP Connect assessments in ELA and mathematics, which are fully aligned to the new LCs. The LEAP Connect assessments replaced the LAA1 assessment in ELA and mathematics, grades 3–8 and high school. The LEAP Connect assessments in ELA and mathematics for high school were first administered in the 2018–2019 school year.

The LAA1 science assessments were still used in 2017–2018 while the state worked with its vendor on the development of a new LEAP Connect science assessment aligned to the LCs in science. The science assessments were first administered in the 2019–2020 school year as census field tests. The first operational administration took place in spring of 2021. The LEAP Connect science assessments assess students in grades 4, 8, and high school. These are the same grades assessed by their predecessor, the LAA1 science assessments.

Due to the Covid-19 pandemic, the LDOE decided to readminister intact forms between 2021 and 2022. Therefore, in all three content areas, the same forms (both operational and field-test items) were administered to students in the 2020–2021 and the 2021–2022 school years (Balow & Miller, 2020). In the 2022-2023 year, the LDOE administered the same operational items as in 2020-2021 and 2021-2022 but different embedded field test items.

Statement of Core Beliefs and Guiding Philosophy

Louisiana believes that all students, including those with the most significant cognitive disabilities, deserve an education that prepares them to be independent and successful in life after high school. This is accomplished through high-quality instruction and assessment that is aligned to the state's academic standards. The system of standards, instruction, and assessment for this student population in Louisiana is meant to provide access to grade-level content and skills, helping students to build knowledge of the world, access meaningful texts, express ideas, and solve complex problems. Louisiana believes that teachers of students with significant cognitive disabilities should provide inclusion opportunities whenever possible and play a key role in helping students access grade-level academic content and skills. Like the standards, instruction, and assessment for the general student population, Louisiana firmly believes that the educational system for students with significant cognitive disabilities should promote high academic expectations. The LEAP Connect Assessment System is a key aspect of this. The assessments ensure that these students are provided with a combination of opportunities to demonstrate their knowledge and skills in academics.

Purpose of the LEAP Connect Assessment System

The purpose of the LEAP Connect Assessment System is to allow educators and parents to track student progress toward college, career, and community readiness, measure students' academic achievement, yield defensible scores that can be used for school accountability decisions and program evaluation, and provide reports that promote appropriate interpretation and use of data in support of enhancing practices to improve student achievement.

Federal law requires states to administer annual assessments to all students, including students with significant cognitive disabilities, to measure progress towards challenging academic content standards. The LEAP Connect assessments in ELA, mathematics, and science fulfill this requirement, in accordance with Sections 1111(b)(1)(E) and 8401 of the Elementary and Secondary Education Act of 1965. The LEAP Connect is designed for students with significant cognitive disabilities who cannot participate in the LEAP 2025 assessment, even with accommodations.

Louisiana's *Bulletin 111* §3901 states that all students, including those with disabilities, shall participate in Louisiana's testing program. It mandates that the scores of students who are eligible to take the LEAP Connect assessments shall be included in the calculation of the school performance scores (SPS), and that these students are to be included in accountability calculations at the grade level in which they are enrolled in the student information system (SIS). To be eligible to participate in the LEAP Connect assessments, an IEP team must verify that the student has a disability which significantly impacts cognitive functioning and meets the criteria outlined in *Bulletin 1530* §505.

Bulletin 111 §703 states that students who participate in the LEAP Connect shall be included in the graduation rate for the year in which they graduated, or the year in which they exited after at least four years in high school with no subsequent reenrollment by October 1 of the following academic year. According to Louisiana's Act 833, students with disabilities may follow alternative pathways for grade promotion and graduation. Louisiana students who participate in the alternate assessments may earn a Jump Start Career Diploma when the graduation requirements are met, and in the rare case that a student participating in the alternate assessments does not meet the graduation requirements for a high school diploma, the student may still pursue a Certificate of Achievement. Decisions about graduation pathways for this student population are made individually with counseling and guidance, considering the student's interests, capabilities, and ambitions.

The purposes of the LEAP Connect assessment scores are to gauge student progress in relation to grade-level academic standards, to inform school accountability decisions, and to help educators improve their teaching practices year to year to raise student achievement. These scores are *not* meant to be diagnostic in nature and are not used to alter instruction in real time. Rather, they provide an end-of-year snapshot that stakeholders at the state, district, school, and classroom levels can use to make informed decisions for the following school year. The LEAP Connect assessments are designed to yield results that support these intended interpretations and uses of the assessments.

Chapter III. Validity Evaluation Framework

This chapter reviews the validity evaluation framework for the LEAP Connect assessments which are grounded within the theory of action (ToA) and interpretive argument (IA) for Louisiana.

ELA and Mathematics

The LEAP Connect assessments in ELA and mathematics draw from the work completed by the National Center and State Collaborative (NCSC) alternate assessment consortium. NCSC's ToA and IA center around the belief that assessments for students with significant cognitive disabilities should support the same goal as general assessments: to help ensure that students leave high school ready to meaningfully participate in college, careers, and their communities (see NCSC Brief Number 9).

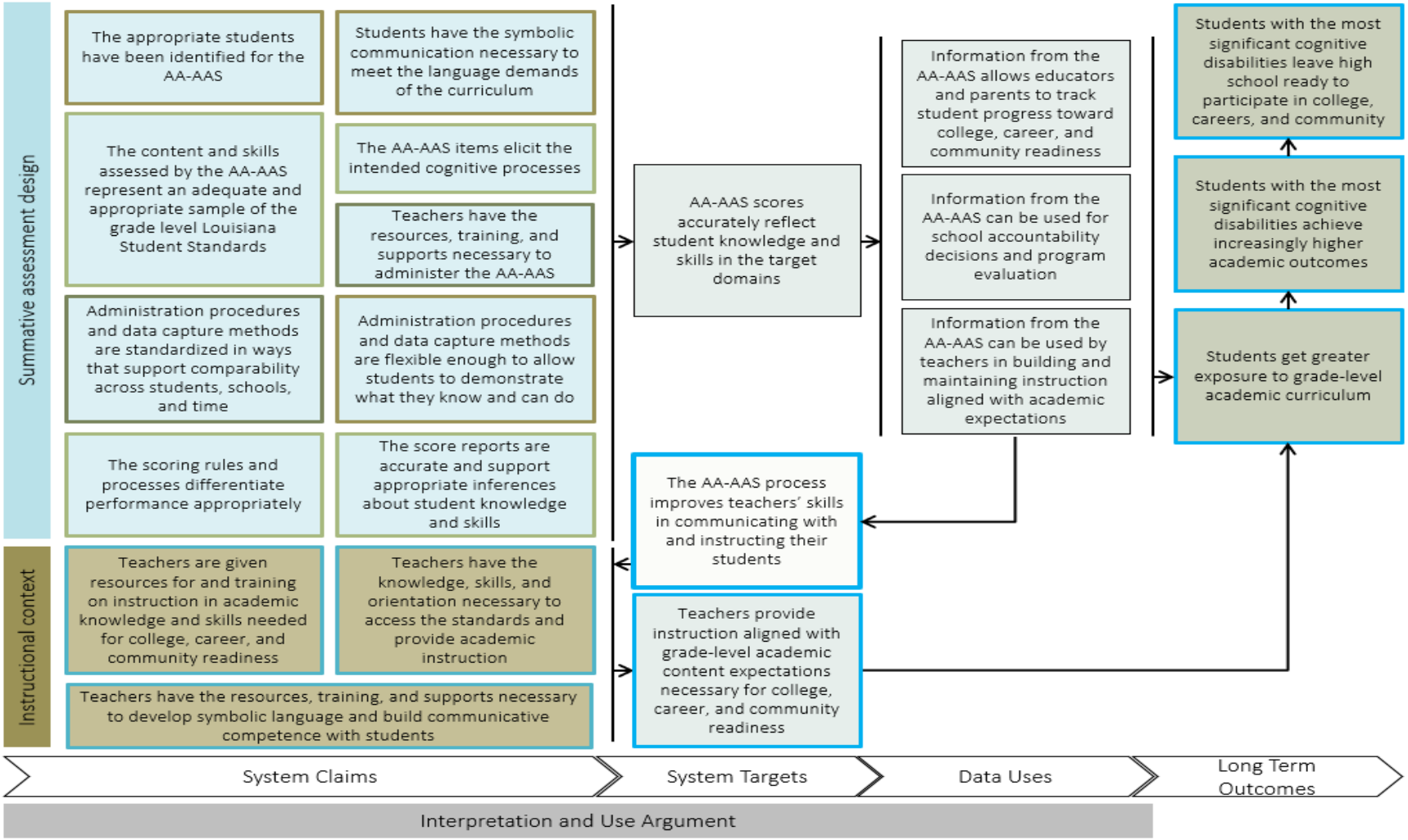
The NCSC ToA articulates and connects the goal of the alternate assessments with multiple chains of inferences that lead to that goal. The NCSC ToA was developed using the principles of backward design, meaning that the goal of the assessment system was articulated first, and the NCSC team then worked "backward" by mapping out the assumptions and inferences that lead to that goal.

The ToA for the NCSC system (and adapted for the LEAP Connect System) is displayed on the next page (see Exhibit 2). The long-term intended outcomes of the system are shown in the rightmost column and include: 1) students get greater exposure to grade-level academic curriculum, 2) students with significant cognitive disabilities achieve increasingly higher academic outcomes, and 3) students with significant cognitive disabilities leave high school ready to participate in college, careers, and community.

To support these long-term outcomes, the assessment scores must yield information that: 1) allows educators and parents to track student progress toward college, career, and community readiness, 2) can be used for school accountability decisions and program evaluation, and 3) can be used by teachers in building and maintaining instruction aligned with academic expectations. These uses of assessment data articulated through the NCSC project align with the LEAP Connect assessment system purposes outlined in Chapter II: to allow educators and parents to track student progress toward college, career, and community readiness; measure students' academic achievement; yield defensible scores that can be used for school accountability decisions and program evaluation; and provide reports that promote appropriate interpretation and use of data in support of enhancing practices to improve student achievement.

The ToA also highlights the need for system coherence. It demonstrates the assessments' role in a larger system that also includes curriculum, instruction, and professional development. The same expectations for student learning and achievement should undergird each of these components, and they should all work together toward a common set of long-term goals.

Exhibit 2. Theory of Action for the NCSC System, Adapted for the LEAP Connect System[1]



[1] Adapted with permission from Forte, E., Quenemoen, R. F., & Thurlow, M. L. (2016, January). NCSC's theory of action and validity evaluation approach (NCSC Brief #9). Minneapolis, MN: University of Minnesota, National Center and State Collaborative. The Al ternate Assessment based on Alternate Achievement Standards (AA-AAS) is the LEAP Connect system in Louisiana

The NCSC ToA includes an interpretive argument and validity argument. These both support an argument-based approach to validity evaluation. The interpretive argument articulates the claims that stakeholders make about assessment scores and the underlying assumptions and inferences that support those claims. It also clarifies the intended uses of the scores. The interpretive argument guides the evidence collection process for validity evaluation (further described below). The validity argument is built on the interpretive argument and summarizes the evidence available that supports the desired interpretations and uses of assessment scores.

Louisiana, having been one of the NCSC partner states, has adopted the ToA components described above for use with the LEAP Connect system. This ToA informs the LEAP Connect assessment system's design, development, administration, scoring, and reporting, and guides the validity evaluation of the LEAP Connect system.

Science

The NCSC assessments and resources were developed for ELA and mathematics. However, the same principles used in articulating the NCSC ToA and IA were also applied to the LEAP Connect science assessments. The same intended long-term outcomes and data uses apply. Like the ELA and mathematics assessments, the LEAP Connect science assessments are meant to support practices that improve student achievement, assist with accountability decisions, and allow tracking of student progress toward college, career, and community readiness.

However, there are features of the LEAP Connect science assessments and the Louisiana Connectors for science that are distinct from ELA and mathematics. The Louisiana Connectors for science are three-dimensional in nature and are intended to measure student progress in 1) science and engineering practices, 2) disciplinary core ideas, and 3) crosscutting concepts. These dimensions, which are articulated in the Louisiana State Science Standards, are meant to be taught and assessed in an integrated manner.

The three-dimensional cross-disciplinary nature of the Louisiana Connectors for science impacts the conceptualization of the ToA and IA. Valid uses and interpretations of the LEAP Connect science assessment scores must align with what the assessments were designed to measure. The LEAP Connect science assessments are meant to provide students opportunities to demonstrate their understanding of science and the ability to:

- Apply content knowledge to real-world phenomena and to design solutions;
- Demonstrate the practices of scientists and engineers;
- Connect scientific learning to all disciplines of science; and
- Express ideas grounded in scientific evidence.

Validity Evaluation Framework

Validity evaluation is the judgment of a body of evidence related to the interpretation and use of assessment scores (AERA, APA, & NCME, 2014). The body of evidence that is evaluated in this process can take many forms but is grounded within the ToA and IA for the assessment. It encompasses both processes and outcomes and should extend from the initial conceptualization of the assessments all the way through implementation and reporting. Validity evidence may include documentation of the conceptual design of the assessments, item and test development processes, test administration, scoring, psychometric analysis of student responses, and score reporting.

The *Standards for Educational and Psychological Testing* (*the Standards*; AERA, APA, & NCME, 2014) confirms that validity evidence should come from several different sources. Specifically, they articulate five types of evidence:

1. Content: Evidence that the assessments encompass the intended content domain.
2. Cognitive processes: Evidence that the assessment items and tasks elicit the intended cognitive processes from students.
3. Internal structure: Evidence that assessment scores relate to each other in the expected ways, corresponding to the relationships among aspects of the content domain.
4. External relationships: Evidence that the patterns of relationships between assessment scores and outside criteria correspond to the expected patterns.
5. Consequences: Evidence that decisions and actions based on scores correspond to intended decisions and actions.

There are four questions (developed through the NCSC project; see NCSC Brief #9) for evaluating these five types of evidence:

1. Content coherence: To what extent have the assessments and their operational system been designed to yield scores that reflect students' knowledge and skills in relation to the academic expectations defined in the standards?
2. Comparability: To what extent does the assessment system operate as intended (e.g., administration, scoring, analyses, reporting) so that scores may be compared across students, sites, and time?
3. Accessibility and fairness: To what extent do students take the assessments under conditions that allow them to demonstrate what they know and can do in relation to the academic expectations defined in the standards?
4. Consequences: To what extent do the processes and outcomes of the assessments contribute to improvements in teachers' capacity to provide academic instruction and to select and use appropriate communications strategies?

In using validity evidence to answer these questions, a solid rationale should emerge that links the evidence to the intended uses and interpretations of assessment scores. Further, the intended uses and interpretations of scores should be directly linked back to the assessment's purpose. An assessment's purpose is linked to its design; different types of assessments exist for different purposes. For example, summative assessments provide an end-of-year snapshot of student learning. They provide big-picture data that can help ensure that future instruction is aligned with academic expectations, support accountability, and help educators and parents track student progress. Formative assessments, on the other hand, provide ongoing feedback to inform instruction in real-time. They provide finer-grain-sized data that teachers can use to make smaller-scale instructional decisions. Valid uses and interpretations of assessment scores depend on the design of the assessment and the purpose of that design.

The LEAP Connect assessments are summative. Therefore, valid uses and interpretations should align with the purpose of summative assessments. As described above, the LEAP Connect assessment system purposes do align with the purpose of summative assessments: to allow educators and parents to track student progress toward college, career, and community readiness, measure students' academic achievement, yield defensible scores that can be used for school accountability decisions and program

evaluation, and provide reports that promote appropriate interpretation and use of data in support of enhancing practices to improve student achievement. We will revisit this chapter and the validity evaluation questions provided above in the summary of the validity evaluation results found in Chapter XIV.

Chapter IV. The Population of Students

Description of the Student Population

The LEAP Connect assessment system is designed for students with significant cognitive disabilities for whom participation in the general assessments would not be appropriate, even with accommodations. The Louisiana students who participate in the LEAP Connect must meet the following criteria:

1. The student has a disability that significantly impacts cognitive function and/or adaptive behavior.
2. The student requires extensive modified instruction aligned with the Louisiana Connectors to acquire, maintain, and generalize skills.
3. The decision to include the student in the alternate assessments is not solely based on certain factors (placement, behavior, English Learner status, etc.).

It is important to gather information about Louisiana students who meet the above criteria and participate in the LEAP Connect assessments. Understanding the characteristics of this population is a vital aspect of maintaining an effective system of instruction and assessment and ensuring the system is serving the appropriate population. For example, data about the student population participating in the LEAP Connect assessments could help inform the design and development of instruction and assessment, shape teacher professional development and training, and ensure that the alternate assessment participation criteria are being applied with fidelity. In addition, if students taking the assessment do not meet the appropriate criteria, stakeholders may question the validity of the interpretation and uses of the scores.

LEAP Connect 2023 End of Test Survey

The End of Test Survey (EOTS) helps the LDOE gather information about the students who participate in the LEAP Connect assessments. The LEAP Connect EOTS is designed to gather useful feedback from test administrators after they have finished administering the LEAP Connect assessments. LDOE developed a series of closed-ended questions for TAs following the LEAP Connect assessment at each grade in spring of 2023. The EOTS consists of questions about the student test experience, pre-assessment and test administration experiences, and student characteristics (see Appendix A for the full set of findings from the spring 2023 EOTS).

“Understanding the characteristics of students with significant cognitive disabilities provides a foundation for understanding how learning occurs for these students. Understanding how they learn, in turn, is an essential step in developing an alternate assessment based on alternate achievement standards AA-AAS” (Thurlow, Wu, Quenemoen, & Towles, 2016). Many states, including Louisiana, use the Learner Characteristics Inventory (LCI; Kearns, Kleinert, Kleinert, & Towles-Reeves, 2006) variables as one source of information to describe the learner characteristics of students participating in the LEAP Connect Assessments. These variables are also included as part of the administration of the EOTS. The findings of these LCI variables are described below in the Student Characteristics section. The remaining information summarizes the results from the 2023 EOTS administration.

Student Characteristics

Findings indicate the majority of students received services under the IDEA disability category of intellectual disability, followed by autism, and then multiple disabilities. The remaining students receive services from across the other IDEA disability categories. TAs were also asked to select any additional

(non-primary) identified disabilities for which students received school-based special education services. The most common responses included intellectual disability, other health impairment, and autism. Regarding student expressive communication, a majority of TAs reported their student used symbolic language to communicate, while a smaller percentage reported their student used intentional/emerging symbolic communication, but not at a symbolic level. Over 80% of TAs indicated their student's receptive communication reflected that the student "independently follows 1–2 step directions presented through words and does not need additional cues," or indicated their student "requires additional cues to follow 1–2 step directions." Averaged across all grades, approximately 12% of TAs reported their student used an augmentative communication system in addition to or in place of oral speech.

Student Test Experience

TAs reported the primary way that students interacted with test item text. The most common responses were listening to the TTS read, listening to the TTS read with TA repetition or redirection, and listening to the TA read. When asked to select the assistive technology options used by students, the majority reported the use of the TTS, the "click to enlarge graphic" feature, and the image files associated with the reference materials. As students progressed through the grades, Tas reported students used calculator, when allowed. When asked about barriers for students in accessing the assessment items, the majority of respondents reported that the student not having the necessary communication skills provided a barrier to access. Students' most common primary mode of response to LEAP Connect assessment items was the independent use of a keyboard or mouse or students used a touch screen, gesture, or point as their primary response mode.

Continuous Improvement: Given the findings of the EOTS around the student test experience, the LDOE intends to continue with the assessment structure as it is currently. The structure of the assessment for interacting with the test appears to work well as a large majority of students listen to the TTS or listen to the TA. In addition, per teacher report, students are using the accessibility features (calculators, click-to-enlarge graphics, and image file). While TAs indicated 73% of students experienced no barriers to accessing the test, around 17% noted communication as a concern. In Chapter VI, the section Supporting Communicative Competence outlines how the LDOE is working to support educators in developing literacy and communication competence for all students taking the LEAP Connect Assessment, in particular, those students with presymbolic communication.

Pre-Assessment and Test Administration Experiences

The majority of TAs used available LEAP Connect practice tests with their student prior to test administration. In reporting the materials used to assist them in administering the test items to their student, most of the test administrators indicated using the Test Administration Manual, the Directions for Test Administration, and the Reference Materials.

Continuous Improvement: Given the findings of the EOTS related to Pre-Assessment and Test Administration Experiences, the field reported that students are using the practice tests to engage with the online assessment and the types of items they will experience on the test. The LDOE will continue in the next year to support the development of the remaining practice tests (ELA grades 3, 5, 6, and 7). TAs did not report at 100% using the Test Administration Manual or the Directions for Test Administration and the LDOE plans to provide additional information to the field noting the importance of using both materials for administration.

Continuous Improvement: The draft *Companion Resources for the ELA Guidebooks for Students with Significant Cognitive Disabilities* were developed in the 2019–2020 school year and were piloted and refined in 2020–2021 to provide teachers with access to high-quality ELA curriculum, promote professional learning, and increase options for students with the most complex needs to participate in an inclusive, least restrictive environment. The department continues to consider development of these materials for other content areas along with all the other curricular and instructional materials to support educators in ensuring access to the content for students that participate in the LEAP Connect Assessments.

Participation in the LEAP Connect Assessments

An important part of making valid interpretations about students' scores is ensuring that the students participating in the assessments are the students for whom the assessments were designed. As described above, the LEAP Connect is intended for students who have disabilities that significantly impact cognitive function and/or adaptive behavior, require extensive modified instruction aligned with the Louisiana Connectors, and whose participation in the alternate assessments is not due solely to factors such as placement, behavior, or English Learner status.

The 2023 EOTS results (including the LCI variables) support the state to reliably describe the student population participating in the LEAP Connect assessments by gathering information about student characteristics such as primary disability category, expressive and receptive communication abilities, vision and hearing abilities, and the use of an augmentative communication system (i.e., whether students use an augmentative communication in addition to or in place of oral speech). This information provides the LDOE with more robust evidence to support the inclusion of the appropriate students in the LEAP Connect assessments and it can help the LDOE determine the extent to which participation criteria are being adhered to. For example, if many students are described as having disabilities that do not typically reflect significant cognitive disability (e.g., speech-language impairment), the LDOE can investigate and potentially intervene with professional development and training for educators on how to properly apply the participation criteria for the LEAP Connect. The EOTS data and Learner Characteristics Inventory (LCI) data are triangulated with other data such as assessment scores to help the LDOE continue to bolster and refine their alternate assessment system over time.

Gathering information about the students who participate in the LEAP Connect will also help Louisiana work toward meeting section 1111(b)(2)(D)(i)(I) of the Elementary and Secondary Education Act of 1965 (ESEA), as amended by the Every Student Succeeds Act (ESSA), which states that no more than 1% of a state's total student population may participate in the alternate assessments. Louisiana has exceeded this cap in the past few years in ELA and mathematics. The state has not exceeded the 1% cap in science. The LDOE was granted a waiver for the 2017-18 and 2018-19 school years. However, the waiver for the 2019-2020 school year was denied.

As part of the effort to meet the 1% cap requirement, the LDOE has required each local education agency (LEA) that exceeds the 1% cap to:

- Provide written justification describing the specific reason(s) the percentage of students taking the alternate assessments exceeds 1%;
- Provide written assurance that the LEA followed the state's guidelines for participation in the alternate assessments; and

- Provide written assurance that the LEA would address any disproportionality in the percentage of students in any subgroup taking an alternate assessment.

In addition, the LDOE revised the alternate assessment eligibility criteria and deployed accountability and transparency enhancements to the statewide IEP system. The LDOE has provided additional resources and support to LEAs and educators to assist with implementing these changes, including but not limited to:

- Training and support to LEAs to clarify the revised eligibility criteria;
- A new webpage dedicated to students with significant cognitive disabilities;
- A resource library for students with significant cognitive disabilities;
- Individualized support for LEAs whose student-level files indicated that IEP team decisions were not consistent with state participation criteria.

Louisiana will continue to implement the reforms outlined in their 2019 waiver application to the US Department of Education and will continue to gather data to inform additional strategies that can help LEAs meet the 1.0 percent cap requirement.

In November of 2020, the LDOE submitted a request to the Office of Elementary and Secondary Education requesting a waiver of the 1.0 percent cap as in subsequent years. The waiver was granted with the following provisions:

As part of this waiver, LDOE assured that it:

- Will meet all other requirements of section 1111 of the ESEA and implementing regulations with respect to all State-determined academic standards and assessments, including reporting student achievement and school performance, disaggregated by subgroups, to parents and the public.
- Assessed at least 95 percent of all students and 95 percent of students with disabilities who are enrolled in grades for which an assessment is required in 2018-19, the most recent year for which data are available.
- Will require that a local educational agency (LEA) submit information justifying the need of the LEA to assess more than 1.0 percent of its assessed students in any such subject with an AA-AAAS.
- Will provide appropriate oversight of an LEA that is required to submit such information to the State, and it will make such information publicly available.
- Will verify that each LEA that is required to submit such information to the State is following all State guidelines in 34 CFR § 200.6(d) (with the exception of incorporating principles of universal design) and will address any subgroup disproportionality in the percentage of students taking an AA-AAAS.
- Will implement, consistent with the plan submitted in LDOE's waiver request, system improvements and will monitor future administrations of the AA-AAAS to avoid exceeding the 1.0 percent threshold.

In November of 2021, the LDOE submitted a request to the Office of Elementary and Secondary Education requesting an extension to the waiver of the 1% cap as in subsequent years. The waiver was granted for the spring 2022 administration with the following provisions:

As part of this waiver, LDOE assured that it:

- Will continue to meet all other requirements of section 1111 of the ESEA and implement regulations with respect to all State-determined academic standards and assessments, including reporting student achievement and school performance, disaggregated by subgroups, to parents and the public.
- Had assessed in 2018-19 and 2020-21 at least 95 percent of all students and students with disabilities who are enrolled in grades for which the R/LA and mathematics assessments are required.
- Will require that a local educational agency (LEA) submit information justifying the need of the LEA to assess more than 1.0 percent of its assessed students in any such subject with an AA-AAAS.
- Will provide appropriate oversight of an LEA that is required to submit such information to the State.
- Will verify that each LEA that is required to submit such information to the State is following all State guidelines in 34 CFR § 200.6(d) excluding (d)(6) and will address any subgroup disproportionality in the percentage of students taking an AA-AAAS.
- Will implement, consistent with the plan submitted in LDOE's waiver request, system improvements and will monitor future administrations of the AA-AAAS to avoid exceeding the 1.0 percent cap.

While there is no waiver for the spring 2023 administration, the LDOE will continue to implement improvement and monitoring strategies to help LEAs meet the 1.0 percent cap requirement.

The participation rates for the 2017–2018, 2018–2019, 2019–2020, 2020–2021, 2021–2022, and 2022-2023 school years are outlined below (see Exhibit 3). The first column (labeled column 1) in each year represents the percentage of students with significant cognitive disabilities participating in the LEAP Connect out of all students eligible to participate in this assessment. The second column (labeled column 2) in each year represents the percentage of students with significant cognitive disabilities assessed via the LEAP Connect out of the entire Louisiana student population.

Exhibit 3. Alternate Assessment Participation Rates

Content Area	2017–2018		2018–2019		2019–2020		2020-2021		2021-2022		2022-2023	
	1	2	1	2	1	2	1	2	1	2	1	2
ELA	99.0	1.3	98.8	1.6	98.4	1.5	92.7	1.5	94.5	1.6	96.1	1.7
Math	98.8	1.3	98.7	1.6	98.3	1.5	92.5	1.4	94.3	1.6	96.1	1.7
Science[1]	98.9	0.7	97.8	0.7	100	0.7	90.1	0.7	92.4	0.7	95.0	0.8

Chapter V. Content of the Exams

The LEAP Connect assessments measure student proficiency and achievement in ELA and mathematics in grades 3–8 and high school, and in science in grades 4, 8, and high school. This chapter provides an

[1] Reflects LAA1 Science participation in 2017-2018 and 2018-2019, the LEAP Connect census field test participation in 2019-2020, and the LEAP Connect Assessment in Science in 2020-2021, 2021-2022, and 2022-2023.

overview of the claims that guide the LEAP Connect system, the Louisiana Connectors and their connection to the Louisiana Student Standards, the development of the content claims, the iterative process of reviewing and adopting the claims, and finally, the claims themselves.

Claims Guiding the System

One of the first steps in a principled approach to assessment development is defining the assessment claims for the system. The claims identify what constitutes student proficiency and they describe what educators and other stakeholders want to know and say about what students know and can do in a particular content domain.

Claims subsume standards and define the specific performances that represent the knowledge and skills within the standards that test scores are meant to reflect. While the standards define what students are expected to know and achieve, the claims indicate what would constitute observable evidence that students have acquired that knowledge and skills. The difference between claims and the body of standards is that claim statements are intended to:

- Identify grade-level proficiency;
- Show how knowledge and skills are built over time; and
- Indicate the kinds of situations–the items–that would give students the optimal opportunity to produce the desired evidence.

When developing claims, it is important to consider the critical aspects of the discipline, as well as the nature of the scores that will be produced by the assessment that, in turn, provide evidence to support the claims made about student performance. In addition, claims should be articulated with the student population in mind. They should consider the learner characteristics of students who participate in the LEAP Connect assessments and reflect the high academic expectations that Louisiana has established for these students.

These content-specific claims connect to the LEAP Connect Theory of Action (ToA) and interpretive argument (IA). As described in Chapter III, the ToA and IA define the broad claims that stakeholders make about assessment scores and the underlying assumptions and inferences that support those claims. Thus, the assessment claims are a critical component underpinning the entire assessment system. They guide the selection of prioritized Louisiana Connectors (LCs) to be assessed and the development of measurement targets, which in turn guide the development of items. The articulation of the assessment claims, along with the prioritized LCs and measurement targets, help to ensure that the assessment supports instruction of grade-specific skills and concepts and higher expectations for students with significant cognitive disabilities.

Connection to Grade-level Academic Content Standards

The LEAP Connect system assesses student proficiency in terms of the LCs, which are fully aligned to the LSS for ELA, mathematics, and science. Each assessment provides age and grade appropriate content for all grades and courses while maintaining high expectations for all students, capturing the “big ideas” found in the LSS.

The LCs can be utilized for assessment purposes in that they reflect the necessary knowledge and skills that students with the most significant cognitive disabilities need to reach critical learning targets or big

ideas within the standards from grade band to grade band, leading to knowledge of ELA, mathematics, and science for college, career, and community readiness by the end of high school.

The LCs are designed to provide fully aligned pathways for students with significant disabilities to work toward the LSS. The LCs identify the:

- Most salient grade-level, core academic content found in the LSS;
- Necessary knowledge and skills needed to reach grade-level expectations of the LSS;
- Core content, knowledge, and skills needed at each grade to promote success at the next; and
- Priorities in each content area to guide the instruction for students in this population.

ELA and Mathematics LCs

The LCs for ELA and mathematics are aligned to the *Louisiana Student Standards for ELA* and the *Louisiana Student Standards for Mathematics*, adopted in spring of 2016. The LCs break each ELA and mathematics standard down into key concepts and skills to be taught and assessed. They are arranged by grade levels for kindergarten through grade 8 and by content areas for high school. Examples from mathematics and ELA are shown in Exhibit 4.

Exhibit 4. Example Grade 8 Mathematics and Grade 3 English Language Arts LCs

Grade 8 Math	
Louisiana Student Standards (LSS)	**Louisiana Connectors (LC)**
8.NS.A.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers, show that the decimal expansion repeats eventually. Convert a decimal expansion that repeats eventually into a rational number by analyzing repeating patterns.	**LC.8.NS.A.1a** Identify π as an irrational number. **LC.8.NS.A.1b** Round irrational numbers to the hundredths place.
Grade 3 English Language Arts	
Louisiana Student Standards (LSS)	**Louisiana Connectors (LC)**
RL.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	**LC.RL.3.1a** Answer questions related to the relationship between characters, setting, events, or conflicts (e.g., characters and events, characters and conflicts, setting and conflicts). **LC.RL.3.1b** Answer questions (literal and inferential) and refer to text to support your answer. **LC.RL.3.1c** Support inferences, opinions, and conclusions using evidence from the text including illustrations.

Science LCs

The LCs for science are aligned to the *Louisiana Student Standards for Science*, adopted in spring of 2017. The LCs for science clarify concepts in the standards by deconstructing the structure of individual Performance Expectations (PEs) (i.e., standards) into teachable and assessable segments of content. The LCs for science are arranged by grade levels for kindergarten through grade 8 and by content areas for high school. The LCs include:

- **Performance Expectations (PE)** which are descriptions of what students should be able to do by the end of a year of instruction.
- **Science and Engineering Practices (SEP)** which are the practices that scientists and engineers use when investigating real world phenomena and designing solutions to problems. There are eight science and engineering practices that apply to all grade levels and content areas.
- **Disciplinary Core Ideas (DCI)** which describe the most essential ideas (content) in the major science disciplines that students will learn. Disciplinary Core Ideas are grouped into five science domains.
- **Crosscutting Concepts (CCC)** which are common themes that have application across all disciplines of science and allow students to connect learning within and across grade levels or content areas. The seven crosscutting concepts apply to all grade levels and content areas.

A grade 8 example from the science LCs is shown in Exhibit 5.

Exhibit 5. Example Grade 8 Science LCs

Grade 8 Science MATTER AND ITS INTERACTIONS	
Louisiana Student Standards	**Louisiana Connectors (LC)**
8-MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures.	**LC-8-MS-PS1-1a** Using a model(s), identify that an atom's nucleus is made of protons and neutrons and is surrounded by electrons.
	LC-8-MS-PS1-1b Using a model(s), identify individual atoms of the same or different type that repeat to form extended structures (e.g., sodium chloride).

Development of Content Claims

ELA and Mathematics Development

The ELA and mathematics claims were developed in 2011 through the NCSC project. They were collaboratively developed by the partner states and organizations as part of the first phase of an iterative five-phase principled approach to assessment development. Once developed, the content claims guided the prioritization of content for assessment and the development of design patterns, task templates, curriculum, performance level descriptors (PLDs), items, and professional development resources.

NCSC engaged content experts, assessment experts, special educators, and state leaders in the development of content claims and the prioritization of content for ELA and mathematics. NCSC sought to answer the following questions through this process (see NCSC Brief #7):

1. What is grade-level content?
2. How does learning change from grade to grade?
3. How can students with significant cognitive disabilities learn grade-level content while also building basic numeracy and literacy?
4. How can an alternate assessment based on alternate achievement standards (AA-AAS) be built on the NCSC content model?

Although no longer a member of NCSC (now the Multi-state Alternate Assessment consortium), Louisiana continues to draw from the ELA and mathematics content claims and prioritization for its LEAP Connect assessments given Louisiana licensed the NCSC content from the spring 2015 operational administration. Louisiana implements NCSC's definitions of graduated understandings of depth, breadth, or complexity of grade-level content to define alternate achievement at multiple levels, ensuring that the LEAP Connect alternate assessment content aligns with grade-level academic expectations in ELA and mathematics.

The ELA and mathematics claims and prioritized content used for the LEAP Connect assessments were adopted in 2011 as part of Louisiana's participation in NCSC. This was a highly collaborative and iterative process involving content experts, assessment experts, special educators, and state leaders. Additional information about this process can be found in the NCSC 2015 Technical Manual.

The claims for ELA and mathematics are described below. The primary claim is that the LEAP Connect scores provide information that reflects what students know and can do in relation to the academic expectations defined in state academic content and achievement standards.

ELA Claims

There are two content specific claims guiding the LEAP Connect for ELA: one for reading, and one for writing. These claims were developed through NCSC and are proprietary. Therefore, they cannot be shared in this document.

Mathematics Claims

There are four content specific claims guiding the LEAP Connect for mathematics. These claims were developed through NCSC and are proprietary. Therefore, they cannot be shared in this document.

Science Development

The science content claims were newly developed for the LEAP Connect science assessments in 2019. The development of content claims and the prioritization of content for the LEAP Connect for science involved collaboration and iterative reviews among the LDOE staff, Louisiana educators, and Louisiana's assessment vendor.

After considering several different options, the LDOE chose to prioritize science content (as described in the LCs) based on relative distribution of domain coverage in the LSS for science. This decision was based on reviews of: the Louisiana Student Standards (LSS) for science, the Grades 4 and 8 LEAP 2025 Assessment Guides, the LEAP 2025 Assessment Guide for Biology, the LEAP 2025 Science assessment

blueprints for grades 4 and 8 included in the *2018–2019 and 2019–2020 LEAP Framework and Test Construction Documentation: Grades 3–8 Science*, and the LEAP Connectors for Science. In addition, the number of prioritized LCs (i.e., ten) matches the number of prioritized Connectors for the NCSC ELA and mathematics assessments, which promotes coherence across content areas.

The LDOE held a virtual stakeholder review of the proposed prioritized LCs for science in March 2019. This meeting gave Louisiana educators an opportunity to evaluate the prioritized LCs for science using guiding questions as criteria, and to recommend either keeping the proposed LCs or replacing with different LCs. The guiding questions included:

- Is there continuity of knowledge, skills, and abilities of the LCs across the grade pairs?
- What is the same across grade pairs?
- Do the skills represent new content and/or skills across grade pairs?
- Do the LCs reflect a deeper understanding of science content, knowledge, and skills between grades 4 and 8, and grade 8 and high school?

The LDOE recruited 24 panelists based upon their familiarity with students with significant cognitive disabilities, their familiarity with the LCs for science, and their grade-level and content expertise. In addition, the LDOE strove for panels that were demographically representative of the students in the state. Panelists were recruited from Ascension Parish, Caddo Parish, Calcasieu Parish, Central Community, Collegiate Academies, Jefferson Davis Parish, Lafayette Parish, Lincoln Parish, Livingston Parish, and St. Tammany Parish. Panelists had an average of 12.6 years of teaching experience.

Overall, the panelists agreed with the proposed prioritized LCs. They recommended that two of the grade 4 LCs be replaced but agreed with the other 28 prioritized LCs across grades 4, 8, and high school. In addition, panelists agreed overall with the vertical progression of LCs.

Science Claims

There are three claims guiding the LEAP Connect for science.

Claim #1: Physical Science: Students demonstrate increasingly complex understanding of physical science.

Knowledge and skills:

- Demonstrate understanding of composition of matter and its interactions and how matter is changed by chemical reactions;
- Demonstrate understanding of forces, motion, and interactions in physical systems;
- Demonstrate understanding of energy types, transformations, energy transfer, and relationship between energy and forces; and
- Demonstrate understanding of wave properties and that waves can make objects move.

Claim #2: Life Science: Students demonstrate increasingly complex understanding of life science.

Knowledge and skills:

- Demonstrate understanding of structures and processes in organisms that allow for growth, survival, behavior and reproduction;
- Demonstrate understanding of heredity concepts, such as inheritance and variation of traits;
- Demonstrate understanding of biological evolution as it relates to natural selection, adaptation and biodiversity; and
- Demonstrate an understanding of how humans depend upon and are responsible for Earth's resources.

Claim #3: Earth and Space Sciences: Students demonstrate increasingly complex understanding of Earth and space science.

Knowledge and skills:

- Demonstrate an understanding of the interrelationships among Earth's systems, such as changes to Earth's features over time due to physical and biological factors and how Earth's features can be used to order events that have occurred over long periods of time;
- Demonstrate an understanding of the cycling of Earth's materials and the flow of energy that drives this process;
- Demonstrate an understanding of using maps to show where things are located and the distribution of Earth's resources; and
- Demonstrate an understanding that humans cannot eliminate hazards but can reduce their impacts.

The claims for science were adopted in 2019. The review and approval process involved several meetings in 2019 between Louisiana's assessment vendor and LDOE staff and stakeholders. After the claims and prioritized content were reviewed by Louisiana educators in a virtual meeting in March 2019, the LDOE reviewed and gave final approval on the claims and prioritized content during an in-person meeting in Baton Rouge, Louisiana in April 2019.

In the Spring of 2021, in tandem with standards validation for ELA and mathematics, standard setting for science, and performance level descriptor (PLD) evaluation, edCount reviewed the assessment claims for ELA, mathematics, and science along with the PLDs for the assessments. The LDOE made no changes to the ELA, mathematics, or science claims after this review.

Chapter VI. Instructional Context

The LDOE has set high expectations for students with significant cognitive disabilities to acquire grade-level academic knowledge and skills. The LEAP Connect assessment system is designed to measure the extent to which students have met these expectations and support instruction of grade-specific skills and concepts. This chapter will describe the instructional context surrounding the LEAP Connect, including how the assessments are designed to support the larger system of instruction, curriculum, and assessment.

This chapter will also describe the resources and professional development opportunities available to educators for both assessment and instruction. Finally, the section provides a description of how the LDOE supports systems, schools, and parents in improving the communicative competence for students taking the LEAP Connect assessments.

Instructional and Curricular Needs

As described above in Chapter IV, students who participate in alternate assessments based on alternate achievement standards (AA-AAS) require modified instruction aligned with the Louisiana Connectors to acquire, maintain, and generalize academic skills. These students should receive grade-level academic instruction, but at a level of depth, breadth, and complexity commensurate with their academic needs. In other words, students should be taught using the same grade-level standards with aligned levels of achievement and with additional supports and scaffolds. While these students require adapted curricular materials, the curriculum should still align to grade-level content. Students with significant cognitive disabilities are capable of and benefit from learning the "big ideas" in grade-level curriculum (see NCSC Brief #1).

The academic content standards for students with significant cognitive disabilities should define what is most important for students to learn in the grade-level content. The Louisiana Connectors (LCs) in ELA, mathematics, and science, which are derived from the Louisiana Student Standards (LSS), define these key ideas and help guide instruction.

In addition to providing grade-level academic instruction to students with significant cognitive disabilities, educators also need to help students advance to higher grade levels. There should be a clear pathway for students to progress through grades which reflects high academic expectations and does not restrict students from moving beyond introductory knowledge and skills (see NCSC Brief #2).

The LCs, along with other instructional and curricular resources (described below), help educators provide instruction that reflects high expectations, gives students access to grade-level academic content, and sets students on a pathway to increasingly rigorous instruction in higher grades.

Instructional and Curricular Resources

The LDOE has developed several instructional and curricular resources for educators of students with significant cognitive disabilities. These can be found on the Students with Significant Cognitive Disabilities webpage on the LDOE's website. These include:

- **Louisiana Connectors in ELA, mathematics, and science** (ELA and mathematics adopted in 2016, science adopted in 2017) – Described above in Chapter V.
- **Essential Elements Cards (EECs) in ELA and mathematics** – The EECs are designed to help teachers develop lessons that promote access to grade-level content and understand how students move

toward the Louisiana Student Standards. Each EEC contains one or more LC and provides instructional strategies and suggested supports for students to demonstrate what they know and can do.

- **Science Component Cards** – These documents break down the performance expectations (PEs), science and engineering practices (SEPs), disciplinary core ideas (DCIs), and crosscutting concepts (CCCs) outlined in the LCs for science and provide "clarification statements" that describe what types of activities could be implemented in the classroom to address these elements.
- **Case Studies** – These documents are based on accounts from educators across the US and have been tailored to Louisiana standards and curricula. The case studies are meant to provide examples of how the resources available to Louisiana educators may be used with students to promote high academic expectations and outcomes.
- **Adapting Lesson Plans** – These documents are designed to guide educators through adapting grade-level content for students with significant disabilities. They offer matrices and exemplars that show how grade-level content can be scaffolded and prioritized so as not to lose the key concepts of the content.
- **Student Response Modes** – This resource describes possible ways for students to show what they know and can do in the classroom. This is meant to help educators identify the best way for students to communicate. The potential student response modes listed for consideration include: "point to the correct response when given an array," "pull off the correct response," "eye gaze," "say or type," "show through demonstration," "write or type on a computer," or "use materials from the lesson."
- **LEAP Connect Sample Items** – These items were approved in 2017 and help educators gain a better sense of the content and format of items on the LEAP Connect assessments. These items could help educators develop lessons and activities that align to the LCs.
- **Draft *Companion Resources for the ELA Guidebooks for Students with Significant Cognitive Disabilities*** – As described above in Chapter III, these resources were developed in the 2019–2020 school year and were piloted and refined in 2020–2021 to provide teachers with access to high-quality ELA curriculum, promote professional learning, and increase options for students with the most complex needs to participate in an inclusive, least restrictive environment.

All the materials were developed and reviewed iteratively and in collaboration with multiple LDOE stakeholders and content/severe disabilities experts. All curricular and instructional resources are reviewed and revised as needed on a continual basis. Each year, the LDOE will determine whether new materials need to be developed, which materials need to be revised, and which materials (if any) should be removed or replaced.

Supporting Communicative Competence

Communicative competence is a vital consideration for the instruction and assessment of students with significant cognitive disabilities. To access grade-level academic content and to progress through grades, students must be able to communicate what they know and can do. In addition, teachers must understand the best way to communicate with each individual student. A student's primary mode of communication may be verbal or non-verbal and may include strategies such as: gestures (e.g., pointing), signs, pictures, eye-gaze, or augmentative and alternative communication methods. Teachers may provide instruction verbally, through sign language, printed text, gestures, pictures, objects, or demonstrations. For students who do not use verbal communication, the primary mode(s) of

communication should be documented in the student's IEP and should be closely monitored and supported throughout the student's instruction (see NCSC Brief #4).

The LDOE supports educators and students in establishing consistent modes of communication through resources such as the Student Response Modes documents (described above), which outline the various types of communication students may use to show what they know and can do. In addition, the LDOE developed a Literacy Folder for Students with Significant Disabilities which allows educators to chart students' growth in literacy and communication skills across grades. As part of this document, educators complete a "communication profile" which provides information about a student's needs/status related to both expressive and receptive communication.

As described in Chapter IV, the LDOE gathered information via the LCI in the 2023 assessment cycle to, in part, gather more robust information about students' modes of communication. Findings from the LCI indicate the majority of students received services via IDEA disability category of intellectual disability, autism, and multiple disabilities. TAs were also asked to select any additional (non-primary) identified disabilities for which students received school-based special education services. The most common responses included intellectual disability, autism, and other health impairment. Regarding student expressive communication, a majority of TAs reported their student used symbolic language to communicate, while a smaller percentage reported their student used intentional communication, but not at a symbolic level. Over half of the TAs indicated their student's receptive communication reflected that the student "independently follows 1–2 step directions presented through words and does not need additional cues," and another 20-30% indicated their student "requires additional cues to follow 1–2 step directions." Approximately 12% of TAs reported their student used an augmentative communication system in addition to or in place of oral speech. These efforts illustrate the intentional effort of the LDOE to better serve all students taking alternate assessments, and in particular, those students who are presymbolic or emerging in their use of expressive communication.

Chapter VII. Test Development

Approach to Test Design

The LEAP Connect assessments in ELA, mathematics, and science are designed around pre-defined measurement constructs. Articulating these constructs is a critical step in test design and development, as the constructs define the critical academic content that students should master in each grade and content area. Defining these constructs early in the design process helps ensure that assessment items and tasks are being developed to measure only construct-relevant knowledge and skills. This is an important aspect of accessibility; it guides developers in minimizing construct-irrelevant barriers to items and tasks.

ELA and Mathematics Constructs

The constructs for the LEAP Connect assessments in ELA and mathematics are taken from the NCSC assessments. These constructs were designed to reflect appropriate academic expectations for students across grades and to be flexible in considering the ways students with significant cognitive disabilities demonstrate their knowledge and skills. To do this, NCSC partners reviewed grade-level content using the following criteria (see the 2015 NCSC Technical Manual):

- The importance of the content to be assessed with respect to what the assessment is intended to measure (described above in Chapter V);
- The distribution of and alignment to the mathematics domains and ELA strands in college- and career-ready standards consistent with general assessments; and
- The degree of flexibility the content would provide in developing items at varying complexity levels.

In addition, the NCSC partners considered the following questions as they reviewed content:

- Why is this learning important?
- How can the knowledge and skills (that have been prioritized/emphasized) collectively inform interpretations about what a student knows and can do?
- What evidence do we need to collect to enable us to make the intended claims?
- How will we obtain that evidence from students in this population?

The final set of measurement targets for mathematics are listed in Exhibit 6.

Exhibit 6. Mathematics Measurement Targets

Mathematics Measurement Targets
• The ability to carry out mathematical procedures; • An understanding of mathematical concepts; • The ability to model quantitative relationships; and • The ability to solve problems based on real-world situations.

The final set of measurement targets for reading and writing are listed in Exhibit 7.

Exhibit 7. Reading and Writing Measurement Targets

Reading Measurement Targets
• The use of key details to describe the central idea or theme from literary texts; • The use of evidence to summarize or make inferences from literary texts; • The use of key details and evidence to summarize or support the main idea from informational texts; • The location of relevant information using text features to answer questions from informational texts; • The determination of comparability of key ideas when making connections across informational texts (grades 5 through high school); • The use of context to determine the meaning of general academic words or phrases or domain-specific vocabulary; and • The identification of words (grades 3 and 4).
Writing Measurement Targets
• The ability to generate a permanent product to represent and/or organize ideas or thoughts so that messages can be interpreted by someone else when the writer is not present—that is, when responding to a writing prompt, the ability to produce a Literary/Narrative, Informational/Explanatory, or Persuasive/Argument permanent product; • The ability to include grade-specific writing skills related to organization, language and vocabulary, idea development, and conventions that are specific to a text type in a written product; and • The ability to apply writing skills to develop a narrative, informative/explanatory, or argument text.

Science Constructs

The measurement constructs for the LEAP Connect science assessments were articulated using a similar approach to the one employed by NCSC for ELA and mathematics. Science content and assessment experts reviewed grade-level science knowledge and skills, as defined in the LCs and LSS for science, and identified the most critical content for assessment in relation to the assessment and content-specific claims.

The final set of measurement targets for science are organized by grade and domain. They are listed in Exhibit 8.

Exhibit 8. Science Measurement Targets

Science Measurement Targets
Grade 4
• Physical Science – Students demonstrate an understanding of position and motion of objects and transfer of energy to explain the physical world and describe that waves move in ways that can be observed, described, predicted, and measured. • Life Science – Students demonstrate an understanding of the characteristics and structures of living organisms and how organisms respond to a continually changing environment. • Earth and Space Science – Students demonstrate an understanding of the impact of natural Earth processes and the continual changes in land and water features of Earth.
Grade 8
• Physical Science – Students demonstrate an understanding of chemical and physical changes, interactions involving thermal energy, and the design of materials and applications of technology that improve the quality of life for humans. • Life Science – Students demonstrate an understanding of how living things interact with one another and with the non-living elements of their environment, mechanisms by which living things reproduce and transmit information between parents and offspring, and the patterns of relationships among species. • Earth and Space Science – Students demonstrate an understanding of the Earth's System in terms of its structure, cycling of energy flows and matter, and distribution of renewable and nonrenewable resources.
High School Biology I
• From Molecules to Organisms – Students demonstrate an understanding of how complex organisms respond to their environment, how internal conditions remain stable and relatively constant, and ways humans protect against diseases and infection. • Ecosystems – Students demonstrate an understanding of the interaction between living organisms and their environment, and the role of humans in protecting Earth's biodiversity. • Heredity – Students demonstrate an understanding of the molecular basis of heredity. • Biological Evolution – Students demonstrate an understanding of the principles that explain the diversity of life and biological evolution.

Principled Design and Universal Design

The LEAP Connect assessment system was designed using principled assessment design (PAD) and Universal Design (UD).

According to AERA et al. (2014, pp. 6-7), tests should be designed to minimize construct-irrelevant barriers for all test takers in the target population. UD seeks to make educational materials and assessments as accessible as possible to the widest variety of people while minimizing separate-but-equal situations. Thus, an understanding about student characteristics and the application of UD principles informs the design of each item and any necessary additional adaptations and accommodations that do not interfere with the measured construct.

Using principled design, assessment developers incorporated UD principles into the assessment item design including operational items, field test items, and test bank items. The principled design approach focuses the development of items for all students on construct-relevant content (i.e., the knowledge, skills, and abilities intended to be measured), minimizing the impact of construct-irrelevant skills (e.g., print size, lack of assistive technology device, inability to engage with the items), and considering appropriate accessibility options.

The definition and implementation of accessibility features for all aspects of the assessment development process to provide universal access (beyond what is currently achieved through accommodations and Universal Design) is necessary to support improved performance for English Learners (ELs), students with disabilities, students with 504 plans, and students with disabilities who are ELs (Almond et al., 2010).

To this end, the LEAP Connect assessment developers incorporated the guidelines of UD as described by the National Center on Universal Design for Learning (http://www.udlcenter.org/). Developers addressed the vast majority of student access needs (e.g., cognitive, processing, sensory, physical, language) up front in the design of the assessment items. This was done by embedding specific accessibility features (e.g., magnification, audio representation of graphic elements, linguistic simplification) into the structure and delivery of the assessment items and formats.

Test Features

The LEAP Connect assessments are fixed-form, computer-based tests administered online through the DRC INSIGHT platform (see below for more information). They are administered in a one-to-one setting and include both selected-response and constructed-response items. For additional information, please see Chapter III and Chapter VIII.

Assessment Frameworks

The LDOE and its vendor have developed assessment framework documents for ELA, mathematics, and science. The assessment frameworks summarize key aspects of the assessments and their development, including field test design, blueprints, item selection, and operational administration. In addition, they inform the continued development of test, item, and scoring specifications for the LEAP Connect assessments.

Each year, the assessment frameworks are reviewed, revised, and updated as needed in a collaborative process between LDOE staff and LDOE's vendor. This process includes annual reviews of the existing item pool counts and distributions, student performances across item types and content areas, testing times, and item performance.

Test Specifications included in the Assessment Frameworks

The LEAP Connect assessment items are written based on common item and test specifications, which establish performance levels with achievement level descriptors for ELA, mathematics, and science. The test specifications for the LEAP Connect assessments for ELA, mathematics, and science provide general guidelines for the development of all test items and forms construction for each content area and grade level. Each specification document includes:

- **Introduction**: This section provides an explanation of the ELA, mathematics, or science concepts assessed by the LEAP Connect assessments.

- **Operational Test Design and Assessment Blueprints**: This section provides an overview of the principled design approach to assessment development and the blueprints for each grade and content area.
- **Universal Design**: This section is devoted to the application of Universal Design principles to ensure the development of assessments that are accessible to the greatest number of test takers.
- **Passage Guidelines**: Specific to ELA, passage development guidelines across Tiers 1 through 4 are included as an appendix to the ELA specifications documents.
- **Item Descriptions**: This section contains specific information about each identified LC relevant to the specific LEAP Connect assessments. This section includes, but is not limited to, clarification statements, content limits, stimulus attributes, response attributes, and sample items for additional guidance and clarification. Information related to specific item characteristics at varying tiers and the percent distribution on the test form is also represented.
- **Item Selection Process and Test Construction Process**: This section addresses cognitive complexity levels (i.e., tiers) as well as the review processes used to ensure the quality of the stimuli and test items (e.g., scenarios, use of graphics, item style and format, etc.). This section also includes the general guidelines for selection and development of selected-response and constructed-response items. This section also includes information related to data review (for operationalization of items) and statistical properties of the test.

Blueprints

The assessment blueprints, as part of the overall test specifications, provide valid information about students' knowledge and skills in ELA, mathematics, and science in relation to the LCs. The blueprints also define what is centrally important, represent a balance of emphasis, and are vertically sequenced.

The LEAP Connect assessment blueprints in each content area include the content category, weight (as a percentage), LC, item type (selected-response or constructed-response), and number of score points for each assessed grade.

To develop the 2020–2021 blueprints for ELA, mathematics, and science, the LDOE and its vendor used the LEAP Connect Directory of Test Specifications (DOTS) for each grade and content area, Field Testing Plan, and Assessment Frameworks. This was an iterative and collaborative process between the LDOE and content and assessment experts. The 2020–2021 blueprints in ELA, mathematics, and science were approved in late spring of 2020 and the intact forms were readministered in the spring of 2022 with the same operational items administered in spring of 2023. The test blueprints can be found in Appendix B.

Item Bank Review

Each year, the LDOE's vendor consults the item bank review, items operationalized for assessment after field testing, and uses the findings to inform new item development. In summer of 2022, the LDOE's vendor conducted an item bank review to support the LDOE in understanding the organization and content of their current item bank and the numbers of items by subject area, grade level, item type, item tier, and their status regarding use, field testing, or operationalization. These reviews assist the LDOE in maintaining the item bank, developing item specifications, planning for future field testing, identifying new item writing requirements, and ensuring that the item bank aligns with overall test specifications (the item bank reports for ELA, mathematics, and science are included in Appendix C, Appendix D, and Appendix E).

Passage and Item Development

Passage and item development for the LEAP Connect assessments in ELA, mathematics, and science is guided by the passage and item development plans, item specifications, and a style guide. Item specifications include, but are not limited to, the following information:

- Alignment across the LCs for students with significant disabilities: Details how they were developed to align with the LSS in ELA, mathematics, and science;
- Rationale regarding item formats;
- Allowable adaptations;
- Administrator instructions;
- Scoring rules;
- Item contexts;
- Variable features;
- Cognitive task levels;
- Use of graphics;
- Item style and format;
- General content limits by academic grade-level content target;
- For ELA item specifications, a delineation of the appropriate text structure for each of the four tiers;
- For mathematics item specifications, a delineation of numbers and equation types for each of the four tiers; and
- For science item specifications, a delineation of the Science and Engineering Practices (SEP), Disciplinary Core Ideas (DCI), and Crosscutting Concepts (CCC) for each of the four tiers.

The development process begins with an item/passage development plan. This plan uses information from the test blueprint and includes specific targets (e.g., by item type, content area, standard, etc.) that account for important considerations including item attrition due to loss during the review process; item inventory of the Louisiana bank of current items; replacing released items, as necessary; and ensuring optimal coverage of content during the development process. Item level specifications are also reviewed/updated to support the ongoing alignment of content. In addition, the LDOE and vendor used results of the alignment evaluation completed in spring of 2021 on the LEAP Connect assessment to guide item development for subsequent years. Prior to passage review and any item development activity, all passages are presented to the LDOE for review and approval. Only those passages that are accepted are brought to the content and bias review meeting with accompanying items.

Items are written by content and severe disabilities experts who use pre-approved criteria and checklists to ensure that LEAP Connect items and passages are not only aligned to the LCs but are also free from bias and sensitivity issues. As item writers develop items and passages, they consider whether any content or terminology could provide an unfair advantage to, or be offensive to, any subgroup of students who participate in the LEAP Connect assessments. Adherence to bias and sensitivity criteria early in the design and development process—well before items go through stakeholder reviews—helps to minimize the risk of needing to correct bias/sensitivity issues retroactively. Item writers rely on these

criteria and other resources to ensure that LEAP Connect items are accessible to Louisiana students and do not interfere with their ability to demonstrate their knowledge or understanding.

Passage and item review checklists can be found in Appendix F. These include the *LEAP Connect Bias and Sensitivity Checklist*, which outlines criteria that ensure items do not provide an unfair advantage to or offend any subgroup of students, the *LEAP Connect Quality Item Writing Checklist*, which provides criteria for high-quality item stimuli, visuals, and response options, and the *LEAP Connect Universal Design for Assessment and Learning and Item Accessibility Checklist*, which includes Universal Design criteria and accessibility criteria for item stimuli, stems, visuals, and response options.

LEAP Connect passages and items are developed within an online item authoring system. This system is suitable for authoring a range of item types including selected-response and constructed-response. The item authoring system is also the central repository for item administration information including scripts, accessibility information, scoring rubrics, and associated stimuli.

Item Reviews

Once created by the content development vendor, passage and item reviews are conducted by LDOE content, assessment, and severe disabilities experts. When ready, these passages and items are then taken to content, bias, and sensitivity reviews before being field tested on the assessments. Passages and items undergo several rounds of review and revision during the passage and item development process. Each staff member reviews for set criteria based on the purpose of their review.

Passage Reviews

All passages used on the LEAP Connect ELA assessments are evaluated based on criteria outlined in the test specifications and style guide. Passages should represent a balance of literature and nonfiction to meet the grade-level expectations specified in the test blueprint, and should address a variety of genres, topics/themes, and text types as required by the LCs. Texts and other stimuli (e.g., audio, visual, graphic) should be content-rich, exhibit exceptional craft and thought, and provide useful information. Texts should also represent the full range of difficulty and complexity levels. The most complex passages should be written at a grade-level to approximate the qualitative and quantitative expectations for complexity for that grade-level. Conversely, passages designed as the least complex should allow students who are just beginning to interact with the academic content presented in the text to show what they know with simplified text that is linked to the assessed reading concepts and skills.

Content and severe disabilities experts review passages to ensure that they avoid providing an unfair disadvantage for any sub-group of students through the use of unfamiliar contexts or examples, unusual names of people or places, or references to local events or issues, and to ensure that texts do not include content that creates unease, provokes negative feelings, or challenges beliefs or values. Texts should address topics and main ideas consistent with the expectations defined by the LCs for each grade. Passages do not focus on religious themes, violence, or culturally bound topics that disadvantage large segments of the population.

Once passages are developed and refined to meet all content and accessibility specifications, assessment editors complete an editorial and style review to ensure the passages meet the expectations in the style guide. The passages are then prepared for the LDOE's review and approval in the secure online item authoring and banking system.

Once passages are created and approved, the content development vendor creates the items aligned to those ELA passages as well as the mathematics and science items outlined in the individual item development plans for each content area and grade. Upon review and approval by the LDOE content, assessment, and severe disabilities experts and to ensure that ELA, mathematics, and science items are appropriate and aligned to the prioritized content for assessment (and thus, are designed to gather sufficient information to support the content claims), the LDOE and its vendor facilitated virtual content, bias, and sensitivity reviews and data reviews of the LEAP Connect assessment items. These reviews help maintain clear links between the content claims, the prioritized LCs, and the items. These reviews are described next.

Content, Bias, and Sensitivity Review

The LDOE recruited Louisiana educators to participate in reviews of items for content, bias, and sensitivity in January and March of 2022 (see Appendix G for report).

English Language Arts Panels

The LDOE recruited 34 prospective panelists to serve on two English Language Arts (ELA) grade panels (3-5, 6-8 and high school). The LDOE selected panelists based upon familiarity with students with significant cognitive disabilities, familiarity with the content across the grade spans, expertise with students with visual and hearing impairments, and demographic representation of the students in the state.

Upon finalization of the participant lists, LDOE provided MI with prospective panelists' names, contact information, and grade-level experience/expertise. MI sent an email to each panelist requesting confirmation of participation and return of a signed nondisclosure agreement. edCount sent an email to each participant that provided meeting logistics information.

A total of 18 panelists across the two ELA committees participated in the review. The panelists completed a demographic questionnaire prior to the meetings. The information included areas of teaching experience (e.g., special education teacher, special education supervisor, ELA content teacher), gender and race/ethnicity. The following provides a summary of the demographic information received from each of the panelists.

The Grades 3-5 panel consisted of three special education teachers, one vocational and transition curriculum specialist, three special education supervisors, and one ELA content teacher. The panel was represented by seven female, one male, and four Black or African Americans, one Latinx, and three White panelists.

The Grades 6-8 and HS panel consisted of five special education teachers, one special education teacher of the Deaf, one special education supervisor, one vocational and transition Curriculum Specialist, one ELA content teacher, and one science content teacher. The panel was represented by nine female, one male, and six Black or African American, and four White panelists.

Mathematics and Science Panels

The LDOE recruited 30 prospective panelists to serve on three mathematics and science grade panels (3-5, 6-8, high school). The LDOE selected panelists based upon familiarity with students with significant

cognitive disabilities, familiarity with the content across the grade spans, expertise with students with visual and hearing impairments, and demographic representation of the students in the state.

Upon finalization of the participant lists, LDOE provided MI with prospective panelists' names, contact information, and grade-level experience/expertise. MI sent an email to each panelist requesting confirmation of participation and return of a signed nondisclosure agreement. edCount sent an email to each participant that provided meeting logistics information.

A total of 28 panelists across all three mathematics and science committees participated in the review. The panelists completed a demographic questionnaire prior to the meetings. The information included areas of teaching experience (e.g., special education teacher, special education supervisor, math content teacher), gender and race/ethnicity. Provided below is a summary of the demographic information received from each of the panelists.

The Grades 3-5 panel consisted of six special education teachers, one vocational and transition curriculum specialist, one special education supervisor, one math content teacher, and one science content teacher. The panel was represented by seven female, three male, and three Black or African Americans, one Latinx, and six White panelists.

The Grades 6-8 panel consisted of three special education teachers, one special education teacher of the Deaf, one special education supervisor, one vocational and transition Curriculum Specialist, one math content teacher, and one science content teacher. The panel was represented by six female, two male, and four Black or African American, and three White panelists

The High School Panel consisted of five special education teachers, one special education teacher of the Deaf, one special education supervisor, one vocational and transitional curriculum specialist, one math content teacher, and one science content teacher. The panel was represented by eight female, two male, five Black or African American, and five White panelists. Prior to conducting reviews for alignment, content, complexity, and bias issues, educators receive training from test development experts. This training includes information about the background of the LEAP Connect assessment program, the purpose and logistics of the reviews, and the content, bias, sensitivity, and accessibility considerations outlined in the item specifications.

Educators also participate in item security training and sign NDAs. The protocol emphasizes the security of all testing materials being used by panelists. Given the restrictions to in-person meetings due to the pandemic, all educator stakeholder review meetings were hosted virtually. To increase security in this environment, the test items were made available on a secure site requiring specified logins that expired at the conclusion of the meeting. The items were view only and could not be printed. In addition, the NDA required that educators agree not to take screenshots of the items. Educators were also required to keep their cameras on for the entirety of the virtual meeting. While educators were encouraged to share their experience and the general process with their colleagues, they were instructed not to share any secure information with others.

Panelists' feedback was used to inform item-level revisions to finalize items for field testing on the spring 2023 assessment.

General Review Criteria: For ELA, mathematics, and science, educators reviewed items using the following criteria.

- Does this item measure the stated Standard/LC (items at tiers 2-4) or Essential Understanding (items at tier 1)?
- Is this item appropriate for the stated grade level?
- Are the item directives written clearly?
- Is this item free from bias and sensitivity issues?
- Does the language of the stimulus/context, the question, and graphics clearly communicate the task?
- Are the graphics context accurate and sufficient for the item context and do graphic descriptions accurately describe the graphics in the items?
- Is the alternative text accurate and sufficient for the item context?

Criteria for selected-response items:

- Are the response options clearly written?
- Does the item have a correct answer?
- Is there a clear, single correct answer to the item?
- Are all incorrect choices clearly incorrect?

Criteria for mathematics and science constructed-response items:

- Does the item have a correct answer?
- Does the item appropriately measure the stated score point value?

Complexity Review Criteria: For science, educators also reviewed items for complexity using the following criteria.

- All items and response options are required to be read aloud to the student.
- All tiers identify what the item or question is about.
- All items include an appropriate amount and level of information to respond correctly.
- A similar scenario or context may be used for items assessing the same skill at varying degrees of complexity.
- May include a real-world scenario.
- May include charts, tables, maps, graphs, or other visual representations of information given the assessed LC.
- Graphics may be used based on the assessed skill and the answer options.
- Number of words and length of sentences is reduced at lower tiers.
- Vocabulary is at or below grade level.
- Definitions or examples may be provided.
- Values and data points are reduced in magnitude and number at lower tiers.

- Use of pronouns is clear and limited.
- Response options are clear, not wordy, and do not contain multiple meaning words.
- Tiers 4, 3, and 2 include three response options.
- Tier 1 includes two response options.
- Response options:
    - include only one correct response
    - vary order of placement of correct response across options A, B, and C
    - do not use words with multiple meanings
    - limit use of pronouns
    - are comparable in length
    - are stacked *short to long* or *long to short* or if needed for key variation can be a little staggered

Tiers 1 and 2:

- Tier 1 and Tier 2 questions reflect a higher-level support and use of scaffolds.
- May include a "listen for" statement.
- Item context and sentences are limited in length.
- Provides some detail about a topic, context, or phenomena.
- Use simplified vocabulary.
- May provide definitions of domain-specific vocabulary and explanations.
- May include a demonstration or a step-by-step model using a parallel problem or situation to guide the student through the steps of a similar problem.
- Number of steps is limited.
- Values and data points are reduced in magnitude and number.

Tiers 3 and 4:

- Tier 3 and Tier 4 questions reflect a lower level of support and fewer scaffolds.
- Item context is expanded, and sentences are more varied in length.
- Provides more detail about a topic, context, or phenomena.
- Uses grade appropriate vocabulary.
- May provide definitions of domain-specific vocabulary and explanations.
- May include a demonstration or example.
- Values and data points are increased in magnitude and number.

Bias and Sensitivity Review Criteria: In addition, for bias and sensitivity, educators reviewed each item using the following criteria.

The item:

- Uses appropriate terms of high frequency, familiarity, interest, age, and grade.
- Avoids content that may be considered offensive based on race, gender, sexual orientation, age, religion, ethnicity, socioeconomic status, or regional location.
- Avoids stereotyping any group.
- Is sensitive to students who are not native English speakers.
- Does not use vocabulary that may be considerably more familiar to some groups than others.
- Avoids language that might be offensive to any group.
- Shows awareness to students' physicality (i.e., weight, disability).
- Is accessible for students from Louisiana and will NOT interfere with the student's ability to demonstrate knowledge or understanding.

Results of these reviews indicated that the ELA, mathematics, and science items were appropriate, accurate, accessible, and fair and ready to be placed onto operational assessments for field testing. Assessment developers flagged any items with content, bias, or sensitivity issues, as indicated by panelists. These items then underwent additional reviews and revisions by assessment developers and the LDOE. The full Content and Bias Review Report for the field test items appearing on the spring 2023 administration for the LEAP Connect is included in Appendix G.

Quality Control of LEAP Connect Item Development: As described above, items undergo multiple reviews by stakeholders in the state of Louisiana. In addition, the content experts and item writers who develop the items are vetted and approved by the state. The item writers are content experts with over 10 years of item writing experience for alternate assessments based on alternate achievement standards. The item writers adhere not only to the LEAP Connect Editorial and Graphics Style Guide but also to the content, bias, sensitivity, and accessibility checklists for creation of items that are accessible to all students participating in the LEAP Connect tests (see Appendix F for the various item development and review checklists).

Upon acceptance by the LDOE, items are then reviewed at a content, bias, and sensitivity meeting by a panel of Louisiana educators who know the content and the students taking the LEAP Connect assessments, have experience with English learners, and are vision and hearing impairment specialists. These reviews were described earlier in this chapter. Upon administration of the assessment and once scoring data are available, the LDOE along with the content and psychometrics vendors complete item analysis and key checks in preparation for data review. Any items flagged (as described earlier in this chapter) are then reviewed by Louisiana educators to determine if the items are appropriate to move forward for operational administration. As a testament to the strength of the items developed for the LEAP Connect assessment, the content vendor (and the LDOE) combining both content and bias review as well as data review has an item attrition rate of less than 5% across all grades and content areas.

Embedded Field-Testing Plan for the 2022-2023 Year

Each year, the LDOE administers embedded field tests in ELA, mathematics, and science. The purposes of the LEAP Connect field tests are to determine the statistical characteristics of the items and to provide a basis for revising or eliminating items that do not function properly and impact the overall functioning of the form.

The embedded field test policies and test administration procedures for the LEAP Connect assessment system adhere to best practices set forth in such documents as the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014), Operational Best Practices for Statewide Large-Scale Assessment Programs (CCSSO, 2013), Testing and Data Integrity in the Administration of Statewide Student Assessment Programs (NCME, 2012), Comprehensive Statewide Assessment Systems (CCSSO, 2014), Code for Fair Practices in Education (Joint Committee on Testing Practices, 2004), and CCSSO High-Quality Assessment Principles (2015). Adherence to industry standard best practices ensures that items developed for the LEAP Connect assessments provide fair opportunities for all students to demonstrate their knowledge and skills.

In all grades and content areas, for the 2022-2023 LEAP Connect assessments, the test composition was based on one core form and one set of field test positions.

For the 2022 – 2023 LEAP Connect **ELA** assessments, the LDOE field tested one passage set, one Literature set or one Informational set with five items at grades 4 and 7, six items at grades 3, 6, and 8, and eight items at grades 5 and high school.

For the 2022 – 2023 LEAP Connect **mathematics** assessments, the LDOE field tested six test items on one version of the test.

For the 2022 – 2023 LEAP Connect **science** assessments, the LDOE field tested six test items on one version of the test.

Item Analysis in Preparation for Data Review

Upon completion of scoring, edCount reviewed the data file provided by MI to conduct item analyses (key adjudication/keychecks for each field test item across grades and content areas and to prepare for data review). For key adjudication, edCount reviewed the data for any items where the item total correlation was less than zero and the proportion of students choosing a distractor was higher than the proportion of students choosing the key. For those items reviewed in 2023, the designated key was determined to be correct.

Data Review in 2023

Upon completion of the 2023 administration, the LDOE recruited prospective panelists to serve on a single panel that reviewed all ELA, mathematics, and science items. The LDOE selected panelists based upon familiarity with students with significant cognitive disabilities, familiarity with the content across the grade spans, expertise with students with visual and hearing impairments, and demographic representation of the students in the state.

A total of four panelists participated in the review. Three panelists identified as female and one as male. Three were Black or African American and one was white. All panelists have experience working as special education teachers teaching students with significant cognitive disabilities and one was a LEAD teacher. All had experience as professional educators. One panelist indicated experience teaching across grades K through high school, another panelist had teaching experience in grades 6 through high school, and another had high school experience only. One of the panelists indicated experience teaching students who are both deaf and blind. All panelists had at least eleven years of teaching experience.

The following item flagging criteria based on item statistics was applied to the 2022-2023 LEAP Connect ELA, mathematics, and science assessments to identify items to be reviewed by the committee.

1) Difficult item: Low p-value < 0.50, Tier 1 (two answer choice options)
    a. For items at the lowest complexity level, there are only two answer choices. If the p-value is less than 0.50 for this type of item, the item is flagged.
        i. This also includes constructed response (CR) items within math and science (and ELA Foundational Reading items) because they are scored by the test administrator (TA) who selects A or B on the online test platform after the student completes the item and the item is scored by the TA using the provided rubric.
2) Difficult item: Low p-value < 0.33, Tiers 2–4 (three answer choice options)
    a. For items at complexity levels 2–4, there are three answer choices. The value of 0.33 is the chance level and corresponds to the 0.25 criterion the LDOE uses when flagging 4 option items.
3) Easy item: High p-value > 0.90
4) Low point-biserial correlation (item to total) < 0.10 (A low point-biserial correlation means there is little to no relationship between student performance on the item and student performance on the total test score with the item excluded from the total score.)
5) Distractor analysis: Any distractor-total correlation > 0.10 and any distractor-total correlation > key-total correlation.
6) Complexity reversal: Items harder at the lowest level of complexity (Tier 1) than at the highest level of complexity (Tier 4) or items easier at the highest level of complexity (Tier 4) than at the lowest level of complexity (Tier 1).
7) Infit and outfit statistics of Rash parameters are included for review of items. The criterion is if MSQIN ≥ 2, the item is flagged for mis-infit. Similarly, if MSQOUT ≥ 2, the item is flagged for mis-outfit.
8) Differential Item Functioning (DIF) analyses: Gender (F/M), race (African American/White), and economic disadvantage using the Mantel-Haenszel method and conducted when the sample has a sufficient number of students in each group (e.g., at least 100 African American or White students). Items flag at B and C level DIF.

During the item evaluation process the panelists decided whether to “Accept,” “Revise,” or “Reject” the test items. Accepting the item meant no changes to the item were necessary and the item would be operationalized and available to appear on the 2024 test form. If panelists selected “Revise” they had to describe the changes requested within the item, whether that included graphic changes, content changes, or other changes within the item. If the item was to be revised, it required field testing again before operationalizing the item. If panelists selected “Reject” they were required to describe why the item could not be accepted or revised. The facilitator led a discussion for items for which the panelists selected “Revise” or “Reject.” The discussion led the panelists to a consensus which was recorded for all panelists to review. If consensus could not be reached, the facilitator took all comments and then presented results to LDOE for a final decision during reconciliation. Outcomes of the data review for field test items on the 2022-23 operational assessment can be found in the data review report in Appendix H.

Forms Assembly and Embedded Field Testing

For science, the LDOE engaged content experts, assessment experts, and Louisiana educators in an iterative and collaborative process of identifying which content (i.e., LCs) should be prioritized for

assessment. The LDOE chose to prioritize science content based on relative distribution of domain coverage in the LSS for science. This decision was based on reviews of several key documents, and the number of prioritized LCs (10) matches the number of prioritized LCs in ELA and mathematics, promoting consistency across content areas. The proposed prioritized LCs were then reviewed by educators, who made suggestions about which LCs may need to be replaced. This work was conducted in spring of 2019. The science items were field tested via a census field test in 2020 and forms created for the first operational administration in 2021. As with ELA and mathematics, the intact operational core forms were readministered in 2022-2023.

As mentioned above, the LEAP Connect field test items are embedded into the operational assessment administration. Embedded field test items do not affect students' scores. Field test forms are developed with the same length and same item types (selected-response or constructed-response) in the same relative positions across versions. Field test items are designed to be indistinguishable from operational items on the forms so that students' motivation in responding to them is at the same level as their motivation in responding to operational items. This helps researchers gather more reliable item performance data.

Quality Control of Forms Assembly: edCount and LDOE completed multiple quality control checks on each LEAP Connect Assessment form. While the 2023 core form administration was intact from 2021, we still completed the following review in the test maps:

- All items were keyed correctly,
- No more than three items in a row had the same key,
- All items had the appropriate metadata to match the item bank (standards, tier, key, etc)

edCount and LDOE also completed multiple quality control checks on the print materials (Directions for Test Administration, print forms, and reference materials) to ensure these were free from error, grammar mistakes, typos, and the print materials matched the online environment as expected. Additional quality control checks on forms can be found in Chapter X.

Alignment Evaluation

As noted in Chapter III, in spring of 2021, the LDOE conducted an alignment evaluation of the LEAP Connect ELA, mathematics, and science assessment items and the LCs in each of these content areas. The results of this alignment evaluation for the LEAP Connect assessments have been used to inform future item and development activities for subsequent assessments. The Executive Summary of this evaluation report is included as Appendix I and LDOE's response to the findings is included in Appendix J.

Chapter VIII. Operational Test Administration

Overview

This chapter describes the protocols and procedures for test administration, security, and accommodations for the LEAP Connect assessments in ELA and mathematics in grades 3–8 and high school, and science in grades 4, 8, and high school. It also describes the results of the spring 2023 administration.

As described in the sections below, the procedures for administration of the LEAP Connect assessments are designed to support the purposes of the assessment system: to allow educators and parents to track student progress toward college, career, and community readiness; to measure students' academic achievement; to yield defensible scores that can be used for school accountability decisions and program evaluation; and to provide reports that promote appropriate interpretation and use of data in support of enhancing practices to improve student achievement. These procedures are well-documented, disseminated, and monitored by the LDOE to ensure that the LEAP Connect assessments are being administered appropriately and are fulfilling the intended purposes and uses of the assessments.

Administration Procedures and Guidelines

The LEAP Connect assessments are administered as computer-based tests in a one-to-one setting. The assessments are administered through the DRC INSIGHT assessment platform. All items, passages, and response options are read to students by the test administrator or through the testing platform. Selected-response (SR) items require the selection of a response option using the pointer tool, while constructed-response (CR) items for ELA require text to be entered into response boxes, and CR items in mathematics and science require test administrators to score student responses and enter "A" for correct or "B" for incorrect into the test administration platform.

Test administrators are instructed to allow students to respond to items based on their preferred mode of communication (e.g., eye gaze, assistive technology, pointing, etc.). The assessment system is designed to support this through the Student Response Check (SRC), which allows test administrators and students to practice answering three non-scored, content-neutral items to ensure that students can indicate their responses through their preferred mode of communication, and that the test administrator can clearly identify students' responses to each item. The SRC, among other resources developed by the LDOE, helps educators establish consistent modes of communication with students (see Chapters III and VI for more information).

The LEAP Connect assessments are untimed and allow for breaks between questions or sessions (see below for more information about testing session structure). Test administrators are permitted to pause testing as needed to best accommodate the student.

LEAP Connect test administrators have access to several resources meant to guide them through the testing process. In addition to the online platform itself, test administrators use the Test Administration Manual (TAM), Directions for Test Administration (DTA), Procedures for Assessing Students Who Are Visually Impaired, Deaf, or Deaf-Blind, and reference materials for grade-specific item presentation and response collection. These materials are designed to help test administrators prepare for and administer the assessments. In addition, the LDOE has outlined accessibility decisions for students who are visually impaired in Appendix K.

As further described below, test administrators and coordinators are trained on LEAP Connect administration procedures and guidelines prior to testing.

Test Calendar and Session Structure

The LEAP Connect assessments are administered over a six-week window from early February to mid-March each year. Schools determine testing days during this window based on a student's needs. The 2023 assessments were administered from February 13 to March 24, 2023.

The LEAP Connect assessments are administered over the course of multiple sessions. Breaking the assessments down into sessions allows for increased flexibility for teachers and students. Each session is untimed, allowing students to move at their own pace and allowing test administrators to pause testing for breaks as needed. Depending on the needs of the student, test administrators may pause testing for longer periods of time; for example, testing can be resumed the next day or the next week.

The LEAP Connect ELA assessments are administered in four sessions. The first two sessions consist of selected-response reading items, the third session consists of selected- and open-response writing items, and the fourth session consists of a constructed-response writing task. The mathematics and science assessments are administered in two sessions. Both sessions for the mathematics and science assessments are a combination of selected-response and constructed-response items except for grades 6, 7, and high school (math), which do not contain constructed-response items.

Test Security

The Louisiana State Board of Elementary and Secondary Education adopted their Test Security Policy in 1998 and have periodically revised it over the years. As outlined in the policy, the State Superintendent of Education may disallow test results that may have been achieved in a manner that is in violation of test security. If test results are not accepted because of a breach of test security or action by the LDOE, any programmatic, evaluative, or graduation criteria dependent upon the data shall be deemed not to have been met. Educators or administrators who violate the test security policy or allow breaches in test security are disciplined in accordance with the provisions of R.S. 17:441 et seq., R.S. 17:81.6 et seq., policy and regulations adopted by the State Board of Elementary and Secondary Education, and any and all laws of the Louisiana Legislature.

The security procedures for the LEAP Connect assessments follow the Test Security Policy set forth by the Louisiana State Board of Elementary and Secondary Education. As described in the Spring 2023 Test Administration Manual, all LEAP Connect items, passages, and response options are secure. In addition, the Directions for Test Administration, Procedures for Assessing Students Who Are Visually Impaired, Deaf, or Deaf-Blind, ELA Reference Materials and Writing Stimuli, Mathematics Reference Materials, Science Reference Materials, and all associated test administration materials are secure. Speech-to-text or word-prediction devices or programs can be used during assessment, but any printed materials associated with them must be treated as secure, and these devices or programs must be cleared before and after each session. These devices must not have access to other programs or features. In addition, any scratch paper used during testing must be securely destroyed.

All test administrators and test coordinators are trained on test security prior to administering the assessments. This is included in the administration training, described below.

Administration Procedures

The LEAP Connect administration procedures are outlined in the Spring 2023 LEAP Connect TAM for ELA, mathematics, and science. The TAM includes the following sections:

- Spring 2023 Notes and Reminders
- Test Administrator Pre-Administration Oath of Security and Confidentiality Statement
- Test Administrator Post-Administration Oath of Security and Confidentiality Statement
- General Information
- Participation Criteria for LEAP Connect
- Overview (LEAP Connect Assessment Guides and a list of LEAP Connect assessment features)
- Test Security
- Test Administration Checklists
- Test Administrators' Frequently Asked Questions
- Testing Guidelines
- Accommodations
- Assessment Materials
- Student Response Check
- Student Tutorials
- Online Tools Training
- Protocols for Scribing
- Augmentative and Alternative Communication Guidelines for Constructed-Response Writing
- LEAP Connect Vocabulary for Grades 3–8 and High School

Quality Control of Administration Procedures and Materials: The content development and administration vendors work closely with the LDOE to review the Directions for Test Administration, Print Forms, and Reference Materials. Each team uses content and copy-editing expertise to ensure the materials are appropriate and accurate for the administration of the individual test items but are also free from errors in grammar and spelling, while also adhering to the LEAP Connect Editorial and Graphics Style Guide. All documents are reviewed multiple times by the LDOE before posting for the administration vendor. Once the administration vendor has all print materials, these are processed through a pre-flight screening, printed, and shipped to local schools/districts for administration.

Accommodations Procedures

The LEAP Connect accommodations procedures are outlined in the Spring 2023 LEAP Connect TAM for ELA, mathematics, and science. The *Accommodations* section of the TAM describes the assistive technology available through the testing platform, including the requirements for using such technology (e.g., the use of assistive technology during testing must be consistent with the specifications described

in the student's IEP). The TAM also describes braille, which is only available to grades 3 and 4 students[1], and calculators, which can be handheld or online through the testing platform.

The TAM also specifies that other approved accommodations may be used at the discretion of the IEP team. In addition, the TAM describes special considerations for students who are blind, deaf, deaf-blind, and hard-of-hearing.

More information about the accommodations available through DRC's INSIGHT online assessment platform can be found in the Accommodations and Accessibility Features User Guide.

Administration Training

Each year, test administrators and coordinators undergo training to orient them to the LEAP Connect assessment system, administration procedures, and test security policy. The training provides educators with information about built-in supports and accommodations, administrative documents, the Student Response Check (SRC) and Online Tools Training (OTT), test administration, scoring and reporting, and resources available for support. In addition, educators receive information about key dates and updates for the upcoming year of testing. Only educators who have completed the training and passed a quiz may administer the LEAP Connect assessments.

Use of Accommodations and Accessibility

The LEAP Connect assessment accessibility and accommodations features are described above. As described in Chapter IV, according to the results of the 2023 End of Test Survey (EOTS), the majority of test administrators (90%) surveyed indicated that students needed the test supports provided through the LEAP Connect assessment system.

Across grades, a large portion of administrators reported that they used the TTS to read items aloud for students to access the items. Large percentages of administrators also indicated students used calculators, a "click-to-enlarge graphic" feature within the assessment platform, and image files associated with the reference materials. A small portion of TAs reported that they did not need to use assistive technology for students to access the items.

Results from Operational Test

The LEAP Connect assessments in ELA, mathematics, and science were administered to 5989 total students in spring of 2023. Participation numbers for the LEAP Connect by content area and grade may be found below in Exhibit 9 (these numbers reflect valid tests completed by Louisiana students).

[1] Braille is available for grades 3 and 4 students only to assess student performance on the foundational reading items at these grades. See also Appendix J for additional information for accessibility for students who are visually impaired.

Exhibit 9. LEAP Connect Participation Counts

Content Area	Grade	Student Count
ELA	Grade 3	≥ 640
	Grade 4	≥ 670
	Grade 5	≥ 650
	Grade 6	≥ 880
	Grade 7	≥ 950
	Grade 8	≥ 1050
	High School	≥ 990
Mathematics	Grade 3	≥ 640
	Grade 4	≥ 670
	Grade 5	≥ 650
	Grade 6	≥ 870
	Grade 7	≥ 940
	Grade 8	≥ 1050
	High School	≥ 1000
Science	Grade 4	≥ 670
	Grade 8	≥ 1040
	High School	≥ 970

Chapter IX: Scoring

Scoring of Constructed-Response and Technology-Enhanced Items

In this chapter, the scoring process used for the 2023 LEAP Connect assessments is described. Also documented below is the handscoring of ELA writing constructed-response tasks for previous administrations.

Constructed-Response Item Scoring Process

ELA Constructed-Response Tasks

Constructed-response field test tasks for LEAP Connect ELA writing were consensus scored during rangefinding by committees of Louisiana educators in 2018 and 2019 (as indicated below) and by readers who were trained by DRC. Second reads of 10% of these responses were completed by DRC readers (see Exhibit 10). (Note that since the responses for all grades and tasks in 2018 were consensus scored by rangefinding committees, the 10% read-behind process was not initiated until 2019.)

Exhibit 10. Constructed-Response Field Test Scoring

	2018 Item IDs	2019 Item IDs	2020 Item IDs	2021 Item IDs	2022 Item IDs
ELA writing grade 3	956531*, 956996*	956531, 956996	956996	956996	956996
ELA writing grade 4	956064*, 957006*	956064, 957006	957006	957006	957006
ELA writing grade 5	955836*, 955846*	955836, 955846	955836	955836	955836
ELA writing grade 6	955592*, 955617*	955592, 955617	955592	955592	955592
ELA writing grade 7	954190*, 957013*	954190, 957013	957013	957013	957013
ELA writing grade 8	950395*, 957024*	950395, 957024	950395	950395	950395
ELA writing high school	N/A	984898*, 996555*	996555	996555	996555

*Responses consensus scored by rangefinding committees

Mathematics and Science Constructed-Response Items

Constructed-response field test items for the LEAP Connect mathematics and science assessments were scored by test administrators. Constructed-response items in these content areas require test administrators to enter “A” for a correct student response, or “B” for an incorrect student response.

Selection of Scoring Evaluators

The following sections explain how readers were selected and trained for the LEAP Connect ELA writing handscoring process. The Monitoring the Scoring Process section describes how the readers were monitored throughout the handscoring process.

Reader Recruitment and Interview Process

DRC strives to develop a highly qualified, experienced core of evaluators to appropriately maintain the integrity of all projects.

All readers hired by DRC to score LEAP Connect ELA writing test responses had at least a four-year college degree. DRC has a human resources director dedicated solely to recruiting and retaining the handscoring staff. Applications for reader positions are screened by the handscoring project manager, the human resources director, or recruiting staff to create a large pool of potential readers. In the screening process, preference is given to candidates with previous experience scoring large-scale assessments and with ELA degrees. At the personal interview, reader candidates are asked to demonstrate their proficiency in writing by responding to a DRC writing topic and their proficiency in mathematics by solving word problems with correct work shown. These steps result in a highly qualified and diverse workforce. DRC personnel files for readers and team leaders include evaluations for each project completed. DRC uses these evaluations to place individuals on projects that best fit their professional backgrounds, their college degrees, and their performances on similar projects at DRC. Once placed, all readers go through rigorous training and qualifying procedures specific to the project on which they are placed. Any reader who does not complete this training and demonstrate the ability to apply the scoring criteria by qualifying at the end of the process is not allowed to score live student responses.

Security

Whether training and scoring are conducted within a DRC facility or done remotely, security is essential to their handscoring process. When users log into DRC's secure, web-based scoring application, ScoreBoard, they are required to read and accept their security policy before they are allowed to access any project. For each project, scorers are also required to read and sign non-disclosure agreements, and during training emphasis is always given to what security means, the importance of maintaining security, and how this is accomplished.

Readers only have access to student responses they are qualified to score. Each scorer is assigned a unique username and password to access DRC's imaging system and must qualify before viewing any live student responses. DRC maintains full control of who may access the system and which item each scorer may score. No demographic data is available to scorers at any time.

Each DRC scoring center is a secure facility. Access to scoring centers is limited to badge-wearing staff and to visitors accompanied by authorized staff. All readers are made aware that no scoring materials may leave the scoring center. To prevent the unauthorized duplication of secured materials, cell phone/camera use within the scoring rooms is strictly forbidden. Readers only have access to student responses they are qualified to score.

In a remote environment, security reminders are given on a daily basis. Similar to the work that occurs within DRC scoring sites, in a remote environment, education about security expectations is the best way to maintain security of any project materials. DRC requires scorers working remotely to work in a private environment away from other people (including family members). Restrictions are in place that

define the hours during the day scorers are able to log into the system. If any type of security breach were to occur, immediate action would be taken to secure materials, and the employee would be terminated. DRC has the same policy within their scoring sites.

Handscoring Training Process

Training Material Development

Reader training for LEAP Connect ELA writing task was conducted using item-specific Anchor Sets, Training Sets, and Qualifying Sets that were developed by DRC using committee scored field test responses from rangefinding meetings conducted in 2018 (grades 3–8) and 2019 (high school).

Each Anchor Set contained three annotated anchor responses per score point for each of the three writing traits. Anchor Set responses were selected to illustrate particular scoring concepts and student response patterns. These responses helped ensure that readers were able to make accurate and consistent scoring decisions for the response types they were likely to encounter. All Anchor Set responses were annotated to explain precisely how they exemplify each score point and to clarify the lines between the score points. The Anchor Set utilized the notes generated during rangefinding to ensure that readers reached scoring decisions in a manner consistent with the decision-making process employed during rangefinding. The rationales used by the rangefinding committees to explain scores were given to the readers, thus creating a direct link between the rangefinding committees and the readers. This ensured that the training materials reflected the input of educators from across the state of Louisiana.

DRC also developed three Training Sets and three Qualifying Sets for each item. These sets consisted of 10 student responses each. The training and qualifying materials helped further readers' understanding of how the rangefinding and field test responses were scored to ensure accurate and consistent scoring. When reviewing training and qualifying papers with their group of readers, each Scoring Director utilized annotations generated from the notes compiled during committee discussions at rangefinding.

Training and Qualifying Procedures

Handscoring involves training and qualifying readers, monitoring scoring accuracy and production, and ensuring security of both the test materials and the scoring facilities. An explanation of the training and qualification procedures follows.

Reader training began with a group-wide presentation and discussion of the Anchor Set by the Scoring Director. Next, the readers practiced by scoring the responses in the Training Sets. Afterward, the Scoring Director led a thorough discussion of each set. After the Anchor Set and all three training sets were discussed, readers were then required to demonstrate their ability to apply the scoring criteria by qualifying (i.e., scoring with acceptable agreement with true scores on Qualifying Sets). After each qualifying set was scored, the Scoring Director responsible for training the item guided the readers in a discussion of the set.

Readers were required to qualify with 70% exact agreement or higher in all three traits (Organization, Idea Development, and Conventions) on one or more of the qualifying sets to score actual student responses. Since readers completed three sets during the qualification process, it was possible that they could qualify on one trait per set to satisfy the qualification requirements. Any reader who did not qualify for all three traits for an item by the end of the qualifying process was not allowed to score actual student work for that item.

The Anchor Set includes three annotated examples for each score point per trait (total of 12 anchor responses per trait). Training Sets 1-3 include 10 unique annotated responses (all three traits are represented in each response). Qualifying Sets 1-3 also include 10 unique annotated responses with all three traits represented in each response. Note that the full range of score points is represented for each trait across the Training and Qualifying Sets. However, not all score points may be represented for each trait in every Training Set and every Qualifying Set. Annotations for Training and Qualification Sets were provided to readers only after they had scored those sets.

Monitoring the Scoring Process

This section explains the monitoring procedures that DRC uses to ensure that handscoring evaluators follow established scoring criteria while items are being scored. Detailed scoring rubrics, which specify the criteria for scoring, are available for handscoring evaluators for all constructed-response items.

Reader Monitoring Procedures

Throughout the handscoring process, the DRC Scoring Directors reviewed scoring reports that were generated daily. If scoring concerns were apparent among individual readers, Scoring Directors dealt with those issues on an individual basis. DRC Scoring Directors typically monitored one out of ten of each scorer's readings. If a reader appeared to need clarification of the scoring rules, the monitoring rate was increased to one out of five. Further adjustments to that ratio were made as needed. If a supervisor disagreed with a reader's scores during monitoring, they provided retraining in the form of direct feedback to the reader using rubric language and applicable training responses.

Validity Sets and Inter-Rater Reliability

In addition to the feedback that Scoring Directors provided to readers during regular read-behinds and the continuous monitoring of inter-rater reliability and score point distributions, DRC also conducted validity scoring. Validity responses were inserted among the live student responses.

The validity responses were added to DRC's image handscoring system prior to the beginning of scoring. Validity reports compared readers' scores to pre-determined scores and were used to help detect potential room drift and individual reader drift. These data were used to make decisions regarding the retraining and/or release of readers, as well as the rescoring of responses.

Approximately 10% of all live student responses were scored by two readers to establish inter-rater reliability statistics for all constructed-response items. DRC monitored inter-rater reliability based on the responses that were scored by two readers. If a reader fell below the expected rate of agreement, the Scoring Director retrained the reader. If a reader were to fail to improve after retraining and feedback, DRC would have removed the reader from the project and rescored any responses previously scored by that reader.

To monitor inter-rater reliability, DRC produced daily scoring summary reports. DRC's scoring summary reports display exact, adjacent, and nonadjacent agreement rates for each reader. These rates are calculated based on responses that are scored by two readers, and their definitions are included below.

- Percentage Exact (%EX)—total number of responses by reader where scores are the same, divided by the number of responses that were scored twice.
- Percentage Adjacent (%AD)—total number of responses by reader where scores are one point apart, divided by the number of responses that were scored twice.

- Percentage Nonadjacent (%NA)—total number of responses by reader where scores are more than one score point apart, divided by the number of responses that were scored twice.

Each reader was required to maintain a level of exact agreement of at least 70% on validity responses and on inter-rater reliability. Additionally, readers were required to maintain an acceptably low rate of nonadjacent agreement below 4%.

Recalibration Sets

DRC used recalibration sets on an as-needed basis to perform calibration across the entire reader population for an item if trends were detected (e.g., low agreement between certain score points or if a certain type of response was missing from or under-represented in initial training). These recalibrations were designed to help refocus readers on how to properly use the scoring guidelines. They were selected to help illustrate particular points and familiarize readers with the types of responses commonly seen during scoring. After readers scored a recalibration set, the Scoring Director reviewed it with the group, using rubric language and scoring concepts exemplified by the anchor responses to explain the reasoning behind each response's score.

Inter-Rater Reliability

A minimum of 10% of the constructed responses were scored independently by a second reader. These statistics for inter-rater reliability were calculated for all items at all grades starting in 2019. (The 2018 field test responses for grades 3–8 were consensus scored by the rangefinding committees; therefore, automated 10% read behinds were not initiated and inter-rater statistics were not generated until scoring of the 2019 field test administration.) To determine the reliability of scoring, the percentage of perfect agreement and adjacent agreement between the first and second scores was examined.

Rangefinding Background

The spring 2018 administration of grades 3–8 was the first year of field testing for LEAP Connect ELA writing task. As such, there were no examples of previously scored student work available to help inform decision-making in advance of the initial 2018 rangefinding and field test scoring process. Given this lack of earlier scoring precedent, along with the newness of the project to both DRC and LDOE and a low number of anticipated testers (600-1000 testers per grade), DRC proposed convening a modified rangefinding meeting in Baton Rouge, LA in June of 2018. This meeting included multiple committees made up of Louisiana educators and LDOE staff, and the proceedings in each committee room were facilitated by DRC scoring staff. The goal was that this meeting would serve as a combined venue for both the rangefinding and the actual scoring of live student responses from the 2018 LEAP Connect ELA writing task field test for grades 3–8.

Pre-Rangefinding/Scoring

Prior to the rangefinding/scoring committee meetings in Louisiana in June of 2018, DRC had preliminary phone meetings with LDOE to anticipate and discuss questions and possible challenges that might arise during rangefinding and scoring. These phone meetings between DRC and LDOE happened in early spring of 2018, once initial student field test responses were available for DRC to review, enabling DRC to formulate preliminary scoring and policy questions for LDOE's consideration. These discussions were meant to establish "big picture" guidelines and anticipate policy decisions to help guide DRC and ensure a more streamlined and efficient rangefinding/scoring meeting process.

Rangefinding/Scoring Meetings

Rangefinding/Scoring meetings took place in Baton Rouge, LA in 2018 and 2019. The same rangefinding/ scoring meeting process established in 2018 for the grades 3–8 ELA writing field test was used again in 2019 for the high school ELA writing field test:

1. Meetings for grades 3–8 took place June 11-15, 2018.
2. The meeting for high school took place June 10-13, 2019.

These dual function rangefinding/scoring meetings enabled DRC to collect:

1. Consensus committee scores for LEAP Connect ELA writing field test responses for grades 3–8 in 2018 and for high school in 2019.
2. Committee recommendations for specific exemplar responses that could be included in the reader training materials (Anchor Sets, Training Sets, and Qualifying Sets) to be developed by DRC and used to train readers prior to additional rounds of field testing in 2019 and 2020, as well as future operational administrations of these items.
3. Committee notes and score rationale used to annotate the reader training materials and impart Louisiana's scoring decisions and philosophies to readers during training.

Rangefinding/Scoring Process

Each rangefinding committee was composed of five Louisiana educators, LDOE staff, and two DRC scoring staff. The DRC staff consisted of one facilitator per committee to guide the activities of each committee as well as one person assigned to each committee who was responsible for documenting committee consensus scores and notes. Each committee was responsible for rangefinding and scoring field test responses for four open-ended LEAP Connect ELA writing items across two grades (except for the high school committee which was responsible for only one grade and two items). The items were rangefound/scored one item at a time in ascending grade order.

In 2018, three simultaneous grade-band committees met for grades 3–8. The committees met concurrently over the course of five days, rangefinding and scoring responses as follows:

- Grade 3-4 committee – approximately 750 total student responses
- Grade 5-6 committee – approximately 1500 total student responses
- Grade 7-8 committee – approximately 1700 total student responses

In 2019, a single committee for high school met for four days. This committee rangefound and scored approximately 950 total student field test responses.

Committee members were provided with hardcopies of grade- and item-specific scoring materials including rubrics, passages, prompts, additional associated stimuli, and packets of the student field test responses to be discussed and scored.

The grade-band committees worked on one grade at a time, one item at a time, starting with a comprehensive examination and discussion of the rubric, passage(s), prompt, and any other associated stimuli for that item. After completion of this initial review, discussion and scoring of student responses could begin. Each committee member was given an identical set of student responses to score and discuss. There were multiple such sets per item. DRC staff, with LDOE input and assistance, guided the

committees through each set of responses, one response at a time, facilitating discussion as needed to procure and document final consensus committee scores and committee rationale for each student response. This process was repeated for all subsequent sets and throughout the week for the remaining items until all field test responses were scored. (Due to time constraints, a small percentage of responses for some items were not committee scored but were later consensus scored by DRC scoring experts who facilitated the committee meetings and were well-versed with committee scoring ideology.)

Time was built into the meeting schedule to allow for a brief first day, large group orientation session that included all meeting participants. Additional time throughout the meeting process was also used for daily debriefs to check each committee's progress and for discussion intended to ensure grade-level scoring consistency across committees as well as consistent rubric interpretation/application across committees.

A total of 14 field test items were scored across all grades for ELA writing. The total numbers of reads for the 2018 field test are shown in Exhibit 11, while the inter-rater reliability rates and the total numbers of reads for the 2019 and 2023 field test items are shown in Exhibit 12 and Exhibit 13. As shown in Exhibit 13, raters demonstrated at least 99% exact and adjacent agreement for ELA writing constructed-response items in 2023.

Exhibit 11. Total Reads, 2018 English Language Arts Writing Field Test Items

Grade	Item	Trait	Total Reads*	Read 2x*	Inter-Rater Reliability %*		
					Ex	Adj	Ex + Adj
3	956531	Organization	160	n/a	n/a	n/a	n/a
		Idea Development	160	n/a	n/a	n/a	n/a
		Conventions	160	n/a	n/a	n/a	n/a
	956996	Organization	146	n/a	n/a	n/a	n/a
		Idea Development	146	n/a	n/a	n/a	n/a
		Conventions	146	n/a	n/a	n/a	n/a
4	956064	Organization	217	n/a	n/a	n/a	n/a
		Idea Development	217	n/a	n/a	n/a	n/a
		Conventions	217	n/a	n/a	n/a	n/a
	957006	Organization	223	n/a	n/a	n/a	n/a
		Idea Development	223	n/a	n/a	n/a	n/a
		Conventions	223	n/a	n/a	n/a	n/a
5	955836	Organization	296	n/a	n/a	n/a	n/a
		Idea Development	296	n/a	n/a	n/a	n/a
		Conventions	296	n/a	n/a	n/a	n/a
	955846	Organization	314	n/a	n/a	n/a	n/a
		Idea Development	314	n/a	n/a	n/a	n/a
		Conventions	314	n/a	n/a	n/a	n/a
6	955592	Organization	428	n/a	n/a	n/a	n/a
		Idea Development	428	n/a	n/a	n/a	n/a
		Conventions	428	n/a	n/a	n/a	n/a
	955617	Organization	425	n/a	n/a	n/a	n/a
		Idea Development	425	n/a	n/a	n/a	n/a
		Conventions	425	n/a	n/a	n/a	n/a

7	954190	Organization	413	n/a	n/a	n/a	n/a
		Idea Development	413	n/a	n/a	n/a	n/a
		Conventions	413	n/a	n/a	n/a	n/a
	957013	Organization	393	n/a	n/a	n/a	n/a
		Idea Development	393	n/a	n/a	n/a	n/a
		Conventions	393	n/a	n/a	n/a	n/a
8	950395	Organization	428	n/a	n/a	n/a	n/a
		Idea Development	428	n/a	n/a	n/a	n/a
		Conventions	428	n/a	n/a	n/a	n/a
	957024	Organization	428	n/a	n/a	n/a	n/a
		Idea Development	428	n/a	n/a	n/a	n/a
		Conventions	428	n/a	n/a	n/a	n/a

*Since the responses for all grades and items in 2018 were consensus scored by rangefinding committees, the 10% read-behind process was not initiated until 2019.

Exhibit 12. Total Reads and Inter-Rater Agreement, 2019 English Language Arts Writing Field Test Items

Grade	Item	Trait	Total Reads	Read 2x	Inter-Rater Reliability %		
					Ex	Adj	Ex + Adj
3	956531	Organization	299	114	89	11	100
		Idea Development	299	114	91	9	100
		Conventions	299	114	93	7	100
	956996	Organization	288	114	98	2	100
		Idea Development	288	114	96	4	100
		Conventions	288	114	95	5	100
4	956064	Organization	360	130	91	8	99
		Idea Development	360	130	83	17	100
		Conventions	360	130	95	5	100
	957006	Organization	350	112	100	0	100
		Idea Development	350	112	100	0	100
		Conventions	350	112	100	0	100
5	955836	Organization	418	152	99	1	100
		Idea Development	418	152	96	4	100
		Conventions	418	152	99	1	100
	955846	Organization	383	112	96	4	100
		Idea Development	383	112	91	9	100
		Conventions	383	112	100	0	100
6	955592	Organization	496	144	93	7	100
		Idea Development	496	144	92	7	99
		Conventions	496	144	96	4	100
	955617	Organization	502	142	94	6	100
		Idea Development	502	142	99	1	100
		Conventions	502	142	100	0	100
7	954190	Organization	560	156	100	0	100
		Idea Development	560	156	100	0	100
		Conventions	560	156	100	0	100
	957013	Organization	544	136	100	0	100
		Idea Development	544	136	100	0	100
		Conventions	544	136	100	0	100
8	950395	Organization	557	152	100	0	100
		Idea Development	557	152	100	0	100
		Conventions	557	152	100	0	100
	957024	Organization	546	146	100	0	100
		Idea Development	546	146	100	0	100
		Conventions	546	146	100	0	100
HS	984898	Organization	449	70	100	0	100
		Idea Development	449	70	97	3	100
		Conventions	449	70	100	0	100
	996555	Organization	484	78	100	0	100
		Idea Development	484	78	100	0	100
		Conventions	484	78	100	0	100

Exhibit 13. Total Reads and Inter-Rater Agreement, 2023 English Language Arts Writing

Grade	Item	Trait	Total Reads	Read 2x	Inter-Rater Reliability %		
					Ex	Adj	Ex + Adj
3	956996	Organization	740	298	100	0	100
		Idea Development	740	298	100	0	100
		Conventions	740	298	100	0	100
4	957006	Organization	769	268	100	0	100
		Idea Development	769	268	100	0	100
		Conventions	769	268	100	0	100
5	955836	Organization	752	256	100	0	100
		Idea Development	752	256	100	0	100
		Conventions	752	256	100	0	100
6	955592	Organization	1,007	272	99	1	100
		Idea Development	1,007	272	97	3	100
		Conventions	1,007	272	99	1	100
7	957013	Organization	1,076	290	94	6	100
		Idea Development	1,076	290	94	6	100
		Conventions	1,076	290	97	3	100
8	950395	Organization	1,178	294	98	2	100
		Idea Development	1,178	294	94	5	99
		Conventions	1,178	294	100	0	100
HS	996555	Organization	1,167	430	100	0	100
		Idea Development	1,167	430	100	0	100
		Conventions	1,167	430	100	0	100

Summary

The information presented in this chapter summarizes the scoring procedures for different types of items and the steps taken by DRC to ensure accuracy in the scoring processes. The inter-rater reliability statistics presented in Section 5.4 demonstrate that the items were scored reliably. These efforts by DRC address multiple best practices of the testing industry but are particularly related to AERA, APA, & NCME (2014) Standards 4.18, 4.20, 6.8, and 6.9:

Standard 4.18–Procedures for scoring and, if relevant, scoring criteria, should be presented by the test developer with sufficient detail and clarity to maximize the accuracy of scoring. Instructions for using rating scales or for deriving scores obtained by coding, scaling, or classifying constructed responses

should be clear. This is especially critical for extended-response items such as performance tasks, portfolios, and essays (91).

Standard 4.20–The process for selecting, training, qualifying, and monitoring readers should be specified by the test developer. The training materials, such as the scoring rubrics and examples of test takers' responses that illustrate the levels on the rubric score scale, and the procedures for training readers should result in a degree of accuracy and agreement among readers that allows the scores to be interpreted as originally intended by the test developer. Specifications should also describe processes for assessing reader consistency and potential drift over time in raters' scoring (92).

Standard 6.8–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 (118).

Standard 6.9–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 (118).

Chapter X. Psychometrics

This chapter provides an overview of the psychometric analyses for the LEAP Connect Assessments and resulting statistics based on the 2023 test data. The first section shows classical test theory (CTT) item analyses for the 2023 LEAP Connect operational items. The second section discusses scaling and equating based on item response theory (IRT). The third section presents the analyses of the 2023 LEAP Connect field test items. The last section describes the quality control of psychometric processes presented in Chapters X, XII, and XIV. For details about test security, refer to Chapter VIII. Unless otherwise specified, the following data management quality control tasks (i.e., data cleaning rules) were conducted to generate datasets used for psychometric analyses (e.g., item calibrations).

Data Cleaning Rules

Student test records satisfying all the following conditions were included in the analyses.

1. Raw scores must be valid (i.e., a raw score greater than or equal to 0, cannot be blank).
2. Response string (i.e., all responses combined) cannot be empty.
3. Students' scores cannot be voided (i.e., Void flag must be blank).
4. Keep only students who attempted the test (i.e., Test taken flag = "Y").
5. Keep students whose scores are included in summarizing the State totals (i.e., Rollup to State = "Y").
6. Remove duplicate LASIDs.
7. Remove students with accountabilities (i.e., "E_AccCode", "M_AccCode", and "S_AccCode" must be blank).
8. For ELA only: hand scoring for the student must be completed.
9. Grades 11 and above should be recoded as "HS" (indicating high school).

Classical Item Statistics for 2023 Operational Items

Item statistics were calculated for the 2023 operational items using CTT to assess the psychometric characteristics of the items. These statistics are as follows:

Item difficulty index

- For a dichotomously scored item, the *p*-value represents the percentage of examinees within a sample answering the item correctly. Desired *p*-values typically fall between .20 and .90. For a polytomously scored item, the item's mean score is divided by the item's highest attainable score to yield an adjusted *p*-value ranging from 0 to 1. The higher the *p*-value, the easier the item.

Item discrimination index

- The calculation of CTT item discrimination indices involved using the Pearson product-moment correlation coefficient between student item scores and total test raw scores, with the exception of the item being examined. The item-total correlation (aka, point-biserial correlation) ranges from -1.0 to 1.0. A large positive value indicates the item effectively discriminates examinees' abilities and performs well. Conversely, a small positive value suggests poor discrimination and performance of the item. A negative value indicates the item is performing adversely and introducing measurement error.

Option analysis

- For multiple-choice (MC) items, an option analysis provides percentages of examinees who select each of the response options, including instances of omission.
- For technology-enhanced (TE) items and constructed-response (CR) items, an option analysis provides the distribution of item scores.

The item difficulty and discrimination indices for each test form used in the 2023 LEAP Connect administration, at each grade level, are summarized in Exhibit 14. Detailed data on these indices for individual items, along with the results of option analysis, are reported in Appendix L.

Exhibit 14. Summary Statistics of Item Difficulty and Discrimination for Operational Items

Content area	Grade	Form	N of items	Item difficulty		Item discrimination	
				Mean	SD	Mean	SD
ELA	3	3	31	.64	.17	.37	.16
	3	3NV	31	.48	.16	.40	.12
	4	3	32	.65	.14	.36	.13
	4	3NV	32	.46	.14	.37	.15
	5	3	32	.60	.14	.37	.14
	6	3	32	.68	.12	.44	.14
	7	3	32	.68	.12	.41	.15
	8	3	32	.68	.15	.42	.15
	HS	3	31	.71	.19	.43	.18
Math	3	3	35	.55	.11	.38	.08
	4	3	35	.52	.12	.34	.11
	5	3	35	.51	.13	.29	.09
	6	3	35	.63	.11	.39	.09
	7	3	35	.59	.16	.36	.10
	8	3	35	.59	.11	.40	.10
	HS	3	35	.59	.13	.38	.10
Science	4	3	30	.55	.13	.30	.09
	8	3	30	.63	.16	.33	.10
	HS	3	30	.61	.16	.33	.11

Note. SD = standard deviation; HS = high school.

Scaling, Equating, and Item Calibration

Scaling encompasses a sequence of psychometric analyses to create a measurement scale that produces robust, effective, and replicable testing outcomes. Prior to 2021, the IRT analyses for LEAP Connect

assessments were based on the two-parameter logistic (2PL) model for dichotomously scored items and the generalized partial credit (GPC) model for polytomously scored items. To conduct the IRT analyses, combined student datasets with adequate sample sizes were generated from the original NCSC assessment administered across a consortium of states. In addition, the same ELA and math forms were administered each year from 2018 to 2020 across all grades, except for grade-7 and high-school math tests in 2020. While the pre-equated raw-to-scale score conversion tables were provided before the test administration for most forms, post-equating was conducted to create the raw-to-scale score conversion tables for grade-7 and high-school math tests in 2020. For the years before 2021, the scale scores were created through linear transformations from the IRT ability estimates (theta) that correspond to possible raw scores, and the raw-to-scale score conversion tables were used for score reporting.

Beginning with the 2021 LEAP Connect administration, new test forms were administered for all content areas (ELA, math, and science). Since then, the IRT models used for the LEAP Connect assessments have been changed to the Rasch model for dichotomously scored items and the partial credit model for polytomously scored items, due to the relatively small number of students taking the test (as few as 500 for a given grade). Accordingly, the new scales under the Rasch and partial credit models were developed in 2021.

Item Calibrations Using the Combined Data from 2018-2020 for Scaling

The first step in the scale development process for LEAP Connect assessments was to conduct item calibrations using the Rasch and partial credit models. In consideration of the small sample size for an individual form in a given year, data from the 2018-2020 administrations (hereafter referred to as the combined data) were combined for a concurrent item calibration. Exhibit 15 presents the maximum score points and total numbers of items by content area, grade, and year.

Exhibit 15. Number of Items and Maximum Score Points for ELA and Math by Grade

Content area	Grade	Year(s)	Maximum score points	Total number of scored items
ELA	3	2018/2019/2020	30	29
	4	2018/2019/2020	31	30
	5	2018/2019/2020	30	29
	6	2018/2019/2020	30	29
	7	2018/2019/2020	29	28
	8	2018/2019/2020	31	30
	HS	2018/2019/2020	28	27
Math	3	2018/2019/2020	35	35
	4	2018/2019/2020	33	33
	5	2018/2019/2020	35	35
	6	2018/2019/2020	35	35
	7	2018/2019/2020	34	34

Content area	Grade	Year(s)	Maximum score points	Total number of scored items
	8	2018/2019/2020	35	35
	HS	2018/2019	34	34
		2020	35	35

Note. HS = high school.

Exhibit 16 provides sample sizes by grade, content area, and year. The number of students taking LEAP Connect assessments in 2020 was relatively small, especially at the lower grades, which had a total sample size of around 500 per grade. Therefore, to achieve more precise item calibration results, whenever possible, all three years of data were combined into a single dataset (i.e., N>1,500 per grade level).

Exhibit 16. Sample Sizes by Year and Grade for ELA and Math

Content area	Year	Grade						
		3	4	5	6	7	8	HS
ELA	2018	≥ 520	≥ 650	≥ 650	≥ 900	≥ 860	≥ 920	< 10
	2019	≥ 530	≥ 630	≥ 710	≥ 890	≥ 990	≥ 1000	≥ 930
	2020	≥ 490	≥ 560	≥ 630	≥ 880	≥ 920	≥ 1010	≥ 940
	Total	≥ 1550	≥ 1850	≥ 2000	≥2680	≥ 2780	≥ 2930	≥1870
Math	2018	≥ 500	≥ 640	≥ 640	≥ 900	≥ 850	≥ 910	< 10
	2019	≥ 510	≥ 620	≥ 700	≥ 870	≥ 980	≥ 990	≥ 930
	2020	≥ 480	≥ 550	≥ 620	≥ 860	≥ 910	≥ 1000	≥ 950
	Total	≥ 1500	≥ 1820	≥ 1970	≥ 2640	≥ 2750	≥ 2910	≥ 1880

Note. HS = high school.

The concurrent calibrations on the three-year combined data were conducted for each content area and grade using Winsteps (Linacre, 2012). The item parameter estimates obtained from the concurrent calibration were used to create raw-to-theta conversion tables for each combination of grade level and content area. The obtained estimates of item parameters and thetas for a particular content area and grade were on the same scale, which served as the base scale for the calibrated item pool. The results were used for the 2021 standard setting, standards validation, and other related psychometric analyses.

Model Fit Evaluation Using the Combined Data

With the new implementation of the Rasch and partial credit models starting in 2021, it was necessary to evaluate the model fit based on these new models. The item infit and outfit statistics generated from Winsteps were used to evaluate the fit of models. The infit and outfit statistics range from 0 to infinity, with 1 representing the ideal model fit. Items are considered misfit if their infit or outfit statistics are outside of the range from 0.7 to 1.3 (Wright and Linacre, 1994). Specifically, if an item's fit statistics are greater than 1.3, the item is considered "Underfit. If the fit statistics are less than 0.7, the item is considered "Overfit." Infit statistics are influenced by unexpected responses from students to items that

are measuring near their ability level (Wright and Masters, 1982). Outfit statistics are heavily influenced by unexpected student responses to items that are either relatively easy or relatively hard.

Exhibit 17 and Exhibit 18 summarize the item difficulty of operational items and their infit and outfit statistics, respectively, by content area, grade, and form. Note that the average item difficulty values cannot be compared across content areas and grade levels because they are not on the same scale. The average fit values are around 1, which indicates a good fit of the model to the data. For science, the item statistics were based on all items field tested in 2020 because it was the first year of science test administration.

The number of misfit items varied across different content areas and grade levels. The infit statistics presented in Exhibit 17 show that the number of overfit items (infit value < 0.7) was relatively small. The outfit statistics are presented in Exhibit 18 and the number of overfit items (outfit value < 0.7) was relatively large. Yen and Fitzpatrick (2006) described various factors that can lead to item misfit, including small sample sizes, poorly estimated item parameters, item stem quality, incorrect item keys, and the quality of item distractor. Each of these potential causes was carefully investigated and rectified through data review processes. Therefore, we are confident that none of these elements have influenced the fit statistics discussed above.

Given that other possible sources of item misfit have been carefully addressed and Rasch and partial credit models have been validated for application in assessments with relatively small sample sizes, the adoption of the designated Rasch and partial credit models for LEAP Connect assessments going forward is the best possible choice available.

Exhibit 17. Item Difficulty Parameter and Item Infit Statistics Based on the Combined Data

Content area	Grade	N of items [a]	Mean item difficulty	Mean fit	Min fit	Max fit	N of overfit items	N of underfit items
ELA	3	57	.18	.98	.78	1.38	0	2
	4	56	.15	.99	.78	1.34	0	2
	5	33	.18	1.02	.73	1.44	0	1
	6	34	.32	1.02	.83	1.43	0	1
	7	34	.19	1.01	.83	1.35	0	1
	8	36	.08	.99	.76	1.27	0	0
	HS	33	-.24	.97	.81	1.38	0	1
Math	3	35	-.06	1.00	.82	1.22	0	0
	4	33	-.20	.99	.87	1.11	0	0
	5	35	-.05	1.00	.91	1.13	0	0
	6	35	.04	1.00	.82	1.28	0	0
	7	34	.04	1.01	.88	1.44	0	1
	8	35	.03	1.01	.87	1.24	0	0
	HS	35	-.08	.99	.81	1.37	0	1

Content area	Grade	N of items [a]	Mean item difficulty	Mean fit	Min fit	Max fit	N of overfit items	N of underfit items
Science	4	42	0.00	1.01	.81	1.24	0	0
	8	42	0.00	1.00	.85	1.18	0	0
	HS	42	0.00	1.00	.81	1.24	0	0

[a] Note that the column of "N of Items" contains sub-items of the compound items. The sub-items do not contribute to score individually.
Note. HS = high school.

Exhibit 18. Item Difficulty Parameter and Item Outfit Statistics Based on the Combined Data

Content area	Grade	N of items [a]	Mean item difficulty	Mean fit	Min fit	Max fit	N of overfit items	N of underfit items
ELA	3	57	.18	.95	.58	1.55	5	6
	4	56	.15	.96	.68	1.47	1	3
	5	33	.18	1.00	.62	1.62	2	2
	6	34	.32	.97	.48	1.68	5	2
	7	34	.19	.95	.54	1.54	6	2
	8	36	.08	.93	.41	1.41	6	1
	HS	33	-.24	.87	.45	1.71	11	3
Math	3	35	-.06	.99	.76	1.27	0	0
	4	33	-.20	.97	.82	1.14	0	0
	5	35	-.05	.99	.82	1.18	0	0
	6	35	.04	.98	.69	1.35	1	1
	7	34	.04	1.00	.70	1.69	0	4
	8	35	.03	.98	.74	1.36	0	3
	HS	35	-.08	.96	.75	1.49	0	1
Science	4	42	.00	1.00	.75	1.35	0	1
	8	42	.00	.98	.64	1.28	3	0
	HS	42	.00	.98	.61	1.35	3	2

[a] Note that the column of "N of Items" contains sub-items of the compound items. The sub-items do not contribute to score individually.
Note. HS = high school.

Standard Setting and Scaling

The LEAP Connect assessments use achievement levels to demonstrate proficiency on the Louisiana Connectors for Students with Significant Cognitive Disabilities: Below Goal, Near Goal, At Goal, and Above Goal. Students' scores are classified into one of the four achievement levels using three cut scores on the theta metric: Level 2 Cut, Level 3 Cut, and Level 4 Cut. LDOE conducted standards validation, standard setting, and vertical articulation for all LEAP Connect assessments in 2021 (see Chapter XI for details). Based on the standard setting results, LDOE decided the approach to establish a new scale system, with scale scores ranging from 1200 to 1290, for LEAP Connect assessments. For all grades and content areas, the development of the new scale utilized a two-point method (i.e., setting the level 2 cut scale score at 1232 and the level 3 cut scale score at 1240) as discussed in the *Scaling Method* subsection below.

Raw to Theta Conversion for Each Form

The pre-equated item parameter estimates for the 2021 LEAP Connect assessments were used to create the test characteristic curves (TCCs) and generate the raw-to-theta conversion tables for each test form through the aforementioned analyses using Rasch and partial credit models and the IRT true score method. The conversion tables were analyzed during the standard setting to produce cut scores on the theta metric for achievement levels.

Cut Scores on Theta Metric

Exhibit 19 includes the cut scores on the theta metric from the final vertical articulation meeting in the standard setting and validation process (see Chapter XI for details about this process). The theta cut scores for Levels 2 and 3 were used to develop the theta-to-scale score linear transformations for LEAP Connect assessments.

Exhibit 19. Cut Scores on Theta Metric by Content Areas and Grade

Content area	Grade	Level 2 cut	Level 3 cut	Level 4 cut
ELA	3	.0073	.5570	1.7601
	4	.0512	.6037	1.4868
	5	.0760	.7027	1.7026
	6	.5580	1.3759	2.4230
	7	.5090	1.0964	1.7205
	8	.1285	1.1801	1.7307
	HS	-.0556	.5975	2.1424
Math	3	-.4112	-.1712	.9024
	4	-.6829	-.2344	.4425
	5	-.5687	-.1853	.6136
	6	-.3635	.2508	.8779
	7	-.5706	-.1058	.8589
	8	-.4326	-.0995	.5132
	HS	-.5387	-.0300	.5107
Science	4	-.5683	.1019	.4646
	8	-.6615	.0238	.3876
	HS	-.4074	.2132	.5824

Note. HS = high school.

Scaling Method

The two-point method for scaling used two response probability (RP) cut values ($\hat{\theta}_1$ and $\hat{\theta}_2$) from the standard setting and their corresponding scale scores (SS_1 and SS_2) to establish the score scale. The linear transformation was calculated by

$$SS = \alpha * \hat{\theta} + \beta,$$

where

$$\alpha = \frac{SS_2 - SS_1}{\hat{\theta}_2 - \hat{\theta}_1}$$

and

$$\beta = SS_1 - \alpha * \hat{\theta}_1.$$

For all content areas and grade levels, the designated Levels 2 and 3 scale score cuts were fixed at 1232 and 1240, respectively.

The intercepts and slopes were calculated and then applied to the raw-to-theta conversions to compute unrounded scale scores. For reporting purpose, the unrounded scale scores were rounded to the nearest integer numbers with the minimum of 1200 and the maximum of 1290.

The conditional standard error of measurement (CSEM) for the scale score was obtained by

$$CSEM = \frac{\alpha}{\sqrt{I_F(\theta)}},$$

where $I_F(\theta)$ is the test information function under the Rasch and partial credit models.

Results of Scaling

The intercepts and slopes of the theta-to-scale score linear transformations are listed in Exhibit 20 by content area and grade. Exhibit 21 presents scale score cuts by content area and grade. The raw-to-scale score conversions are illustrated graphically in Exhibit 22. Appendix M presents the scale score and percentage of students at each achievement level by student subgroups.

Exhibit 20. Intercepts and Slopes by Content Area and Grade

Content area	Grade	Slope	Intercept
ELA	3	14.553	1231.894
	4	14.480	1231.259
	5	12.765	1231.030
	6	9.781	1226.542
	7	13.619	1225.068
	8	7.607	1231.022
	HS	12.249	1232.681
Math	3	33.333	1245.707
	4	17.837	1244.181
	5	20.866	1243.866
	6	13.023	1236.734
	7	17.212	1241.821
	8	24.017	1242.390
	HS	15.726	1240.472
Science	4	11.937	1238.784
	8	11.674	1239.722
	HS	12.891	1237.252

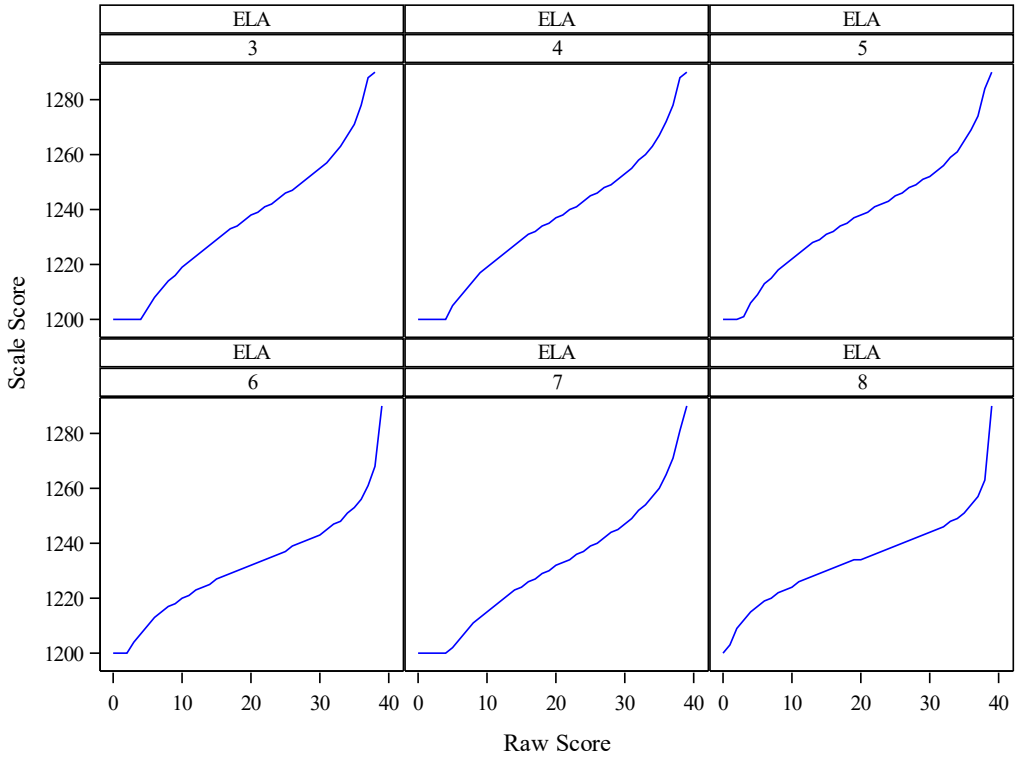
Note. HS = high school

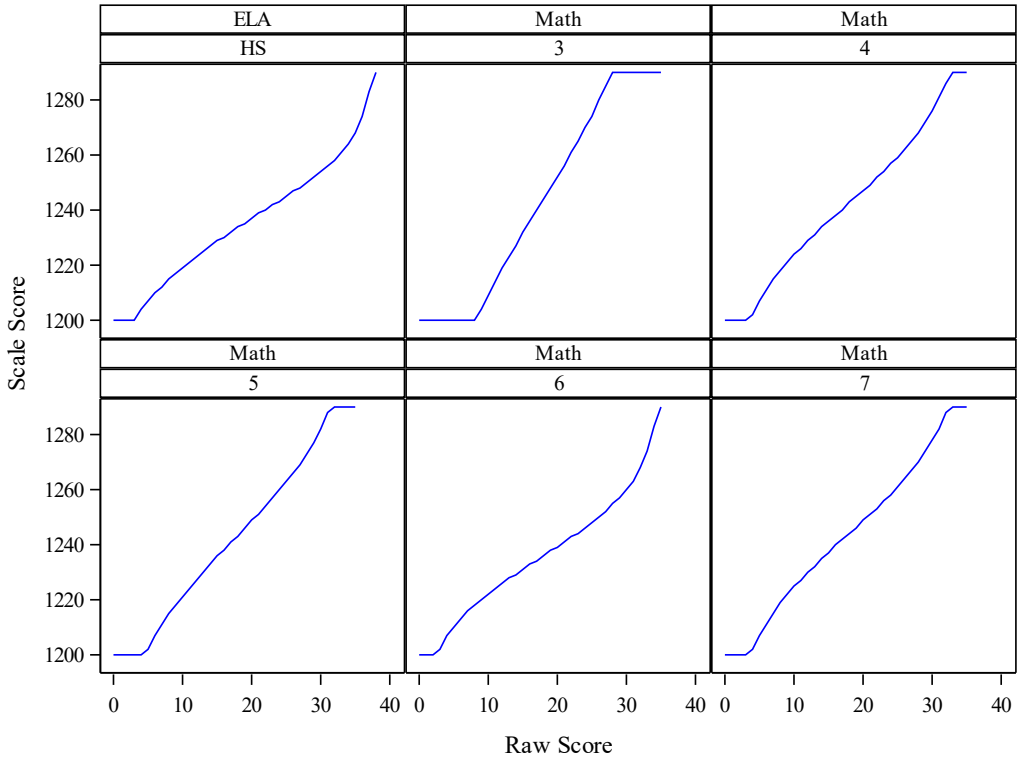
Exhibit 21. Cut Scores on Reporting Scale by Content Area and Grade

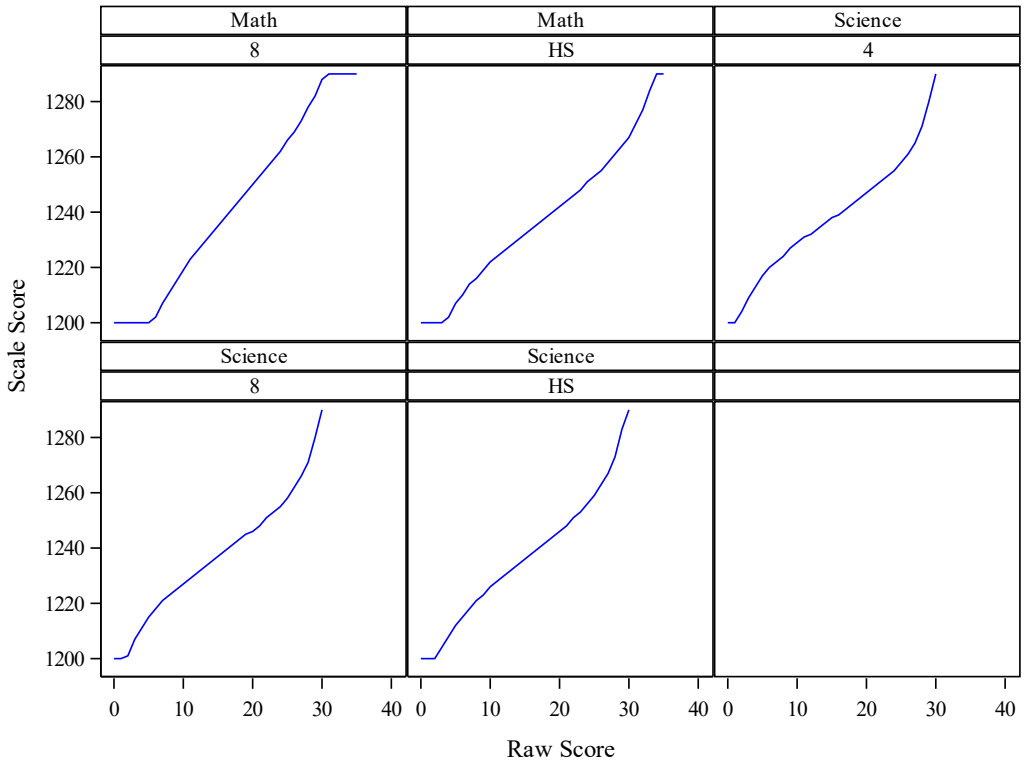
Content area	Grade	Level 2 cut	Level 3 cut	Level 4 cut
ELA	3	1232	1240	1258
	4	1232	1240	1253
	5	1232	1240	1253
	6	1232	1240	1250
	7	1232	1240	1248
	8	1232	1240	1244
	HS	1232	1240	1259
Math	3	1232	1240	1276
	4	1232	1240	1252
	5	1232	1240	1257
	6	1232	1240	1248
	7	1232	1240	1257
	8	1232	1240	1255
	HS	1232	1240	1249
Science	4	1232	1240	1244
	8	1232	1240	1244
	HS	1232	1240	1245

Note. HS = high school.

Exhibit 22. Raw-to-Scale Score Conversions







Equating for the 2023 LEAP Connect Assessments

In educational assessments, equating is a process of placing test scores from two or more parallel test forms onto a common score scale. The LEAP Connect Assessments employed the pre-equating approach within the framework of IRT to align and establish raw-to-scale score conversion tables. Among the various equating procedures commonly used, pre-equating, as the term suggests, occurs prior to an operational administration in a testing cycle. In pre-equating, statistical procedures are typically applied to field test data. The purpose of pre-equating is to generate a test that is psychometrically equivalent to those administered previously and place test scores onto a common scale. When implementing pre-equating in practice to facilitate score reporting by producing raw-to-scale score conversion tables prior to test administration (Kolen & Brennan, 2004), several psychometric issues (e.g., item position) need to be considered to ensure the development of well-constructed test forms that conform to content and statistical specifications provided by LDOE.

In the construction operational test forms using pre-equating, a collaborative effort between content specialists and psychometricians takes place to select items available in the item pool that meet both content specification requirements and target psychometric properties, such as test difficulty, reliability, and precision. From a psychometric perspective, within the framework of IRT, the item difficulty parameter estimates are calibrated onto a common scale (i.e., the base scale) of the calibrated item pool. Having all the items on the same scale allows psychometricians to compute and evaluate test characteristics and test information functions to determine whether test forms are of similar test difficulty. Once these review and analysis processes are completed for a newly constructed test form, psychometricians can create raw-to-scale score conversion tables for scoring purposes prior to operational administration. The pre-equating design helps ensure that each test attains the highest possible quality while maintaining the base scale across different years.

For the 2023 LEAP Connect administration, the same forms as those administered in 2021 were used, and accordingly existing raw-to-scale score conversion tables were applied to the 2023 operational test scoring.

Summary of Scale Scores for the 2023 LEAP Connect Tests

The obtained raw-to-scale score conversion tables were applied to scoring the cleaned data by content area, grade, and form. Exhibit 23 contains the descriptive statistics of the scale scores for the 2023 test data.

Exhibit 23. Descriptive Statistics of Scale Scores for 2023 Test Data

Content area	Grade	N	Mean	SD	Median
ELA	3	≥ 640	1240.85	16.62	1240
	4	≥ 670	1241.13	15.65	1241
	5	≥ 650	1243.20	13.60	1243
	6	≥ 880	1240.88	12.97	1241
	7	≥ 950	1243.32	15.18	1244
	8	≥ 1050	1241.23	9.63	1242
	HS	≥ 990	1247.98	14.54	1248
Math	3	≥ 640	1249.24	27.98	1248
	4	≥ 670	1243.99	17.67	1243
	5	≥ 650	1243.81	17.62	1243
	6	≥ 870	1244.81	16.06	1243
	7	≥ 940	1251.71	18.61	1249
	8	≥ 1050	1253.49	23.71	1253
	HS	≥ 1000	1245.36	18.08	1242
Science	4	≥ 670	1240.45	11.61	1239
	8	≥ 1040	1245.32	12.33	1245
	HS	≥ 970	1243.86	13.13	1244

Note. HS = high school; SD = standard deviation.

Exhibit 24 shows the percentage of students at each achievement level, by content area and grade, in 2023 administration.

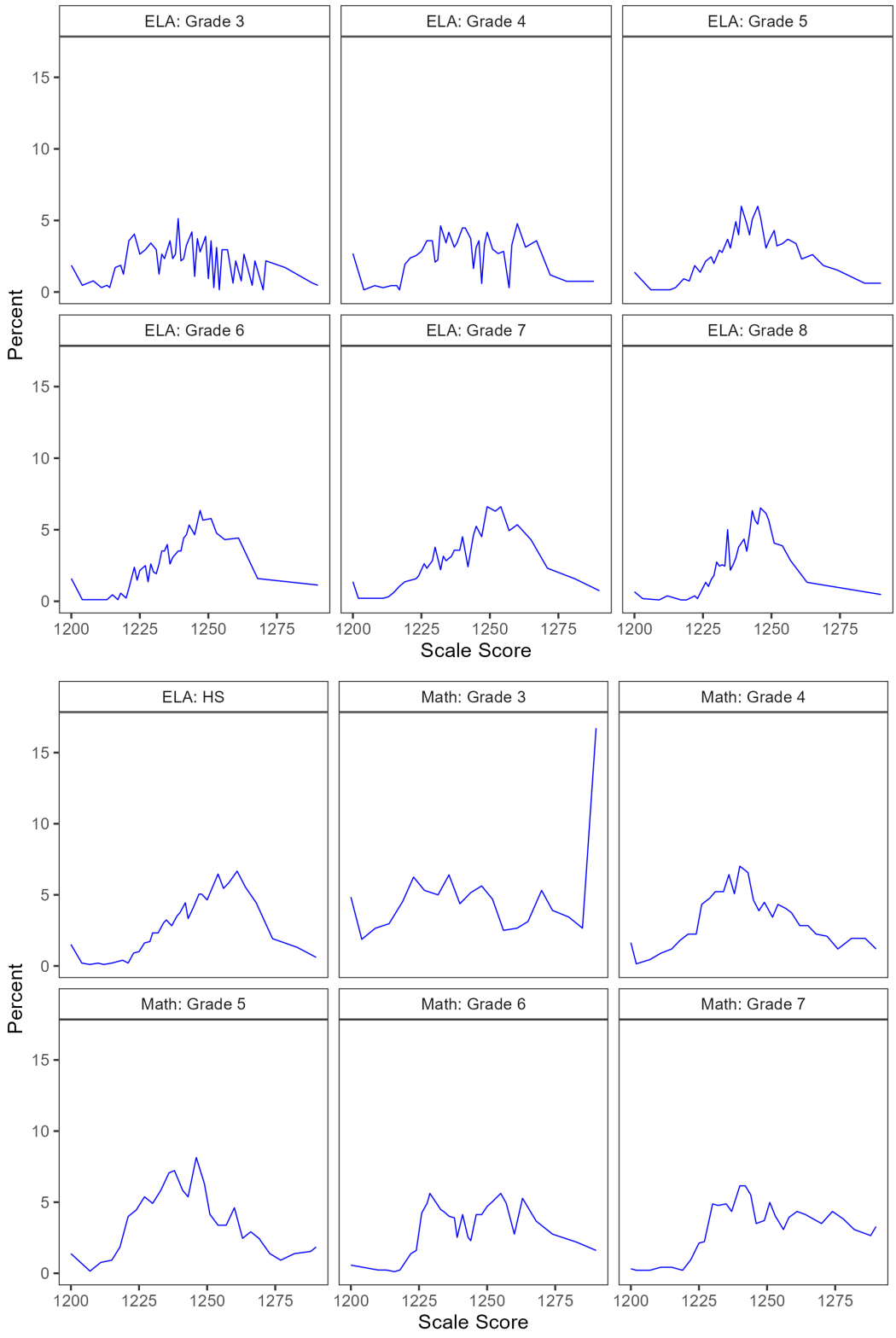
Exhibit 24. Percentage of Students by Achievement level for 2023 Test Data by Content Area and Grade

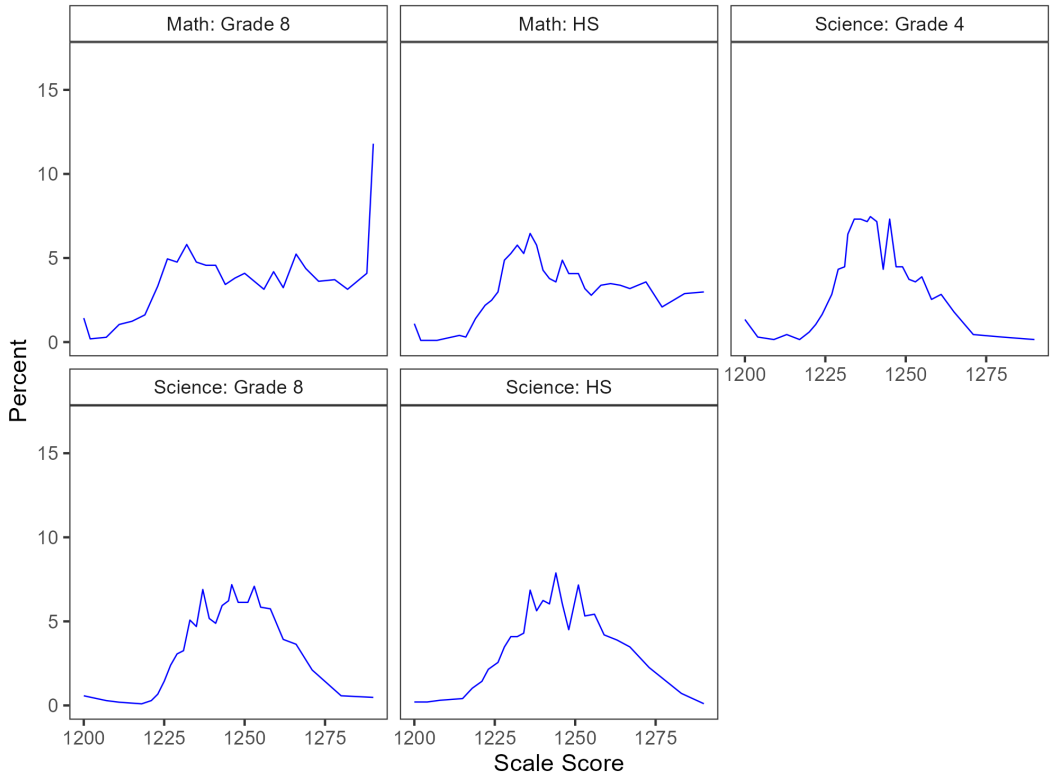
Content area	Grade	Below Goal (%)	Near Goal (%)	At Goal (%)	Above Goal (%)
ELA	3	28.62	19.91	37.48	14.00
	4	25.82	18.81	32.09	23.28
	5	16.44	24.42	39.17	19.97
	6	20.63	22.79	34.58	22.00
	7	21.51	18.47	21.30	38.72
	8	13.52	25.61	18.90	41.97
	HS	10.81	14.95	53.74	20.51
Math	3	28.44	11.41	37.34	22.81
	4	24.93	16.72	26.57	31.79
	5	23.81	20.12	33.18	22.89
	6	25.00	19.27	13.07	42.66
	7	11.98	14.00	37.12	36.90
	8	18.84	15.13	19.51	46.53
	HS	21.17	23.26	20.58	34.99
Science	4	17.31	35.67	11.49	35.52
	8	12.26	21.84	10.82	55.08
	HS	15.86	20.88	20.16	43.09

Note. HS = high school.

Exhibit 25 displays graphs depicting the percentage distribution of 2023 scale scores by content area and grade.

Exhibit 25. Percentage distribution of 2023 Scale Scores by Content Area and Grade





Analyses of Field Test Items

CTT item analyses were conducted for items field-tested during the 2023 LEAP Connect administration. Items are categorized into four tiers of complexity. Items belonging to Tier 1 exhibit the lowest complexity and present students with a choice between two options. Tiers 2-4 items have three options for students to choose from. Appendix N summarizes field test item performance by form. Below are the flagging criteria that were used to determine if an item requires additional review.

1. Item difficulty index:
    - *P*-value < .50 for Tier 1 items. If the *p*-value is smaller than .50 for an item of this tier, the item is flagged.
    - *P*-value < .33 for Tiers 2–4 items. An item belonging to these tiers is flagged if its *p*-value is smaller than .33.
    - *P*-value > .90 for any item, regardless of the tier.
2. Item discrimination index:
    - Items with point-biserial item-total correlations smaller than .10 are flagged.
3. Complexity reversal:
    - Complexity reversal occurs if a Tier 1 item has a smaller *p*-value than a Tier 4 item in the same form, or a Tier 4 item has a larger *p*-value than a Tier 1 item.

4. Distractor analysis:
    - An item is flagged if the percentage of test-takers selecting a distractor (i.e., a response option other than the correct response) is greater than that of selecting the key (i.e., the correct response) and the item-total correlation of any distractor is greater than .10. The flagged items are reviewed to scrutinize why students are drawn to a distractor more often than to the correct response. In addition, items are flagged for two possible correct responses when the proportion of test-takers selecting a distractor is similar or higher than that of selecting the correct response. This could indicate a mis-key (correct response not correctly noted or applied), a second possible correct response, or a distractor with elements of a correct response.

5. Differential item functioning (DIF)[4] analysis:
    - DIF analysis on gender, race (Black vs. White), and economic status (economically disadvantaged vs. economically not disadvantaged) to identify items exhibiting DIF. An item is flagged if it presents intermediate (category B) or large (category C) DIF. For more information about DIF categories, refer to the "Differential Item Functioning" section in Chapter XIV of this technical report.

6. Item fit statistics:
    - An item is considered misfit and flagged if its infit or outfit statistic is greater than or equal to 2.

Psychometric Quality Control Checks

This section describes the quality control procedures applied to psychometric analyses performed for LEAP Connect assessments.

Planning of Psychometric Analysis Practices

MI's psychometric team developed a plan for psychometric analysis practices performed for LEAP Connect Assessments prior to receiving the test data. The specifications include detailed descriptions of data management, analysis methods and steps, output reviews, and special case handling.

Quality Control of Psychometric Analyses

Following the best psychometric practices, MI's psychometric team implemented a sequence of quality control checks at every stage of the performed psychometric analyses. Using the provided test data files, psychometricians conducted key validation for multiple-choice items through option analyses to ascertain accuracy of item scoring.

Using both CTT and IRT, MI's psychometricians conducted comprehensive psychometric analyses including item analyses, DIF, test analyses, equating, linking, and scaling. Each planned psychometric analysis was independently conducted by two psychometricians in parallel, with results then compared to ensure accuracy. Any discrepancies that emerged were thoroughly investigated and resolved.

[4] DIF occurs when students with the same latent ability but from different groups demonstrate varying probabilities of answering an item correctly.

Chapter XI. Standard Setting

The standard setting report can be found in the 2021-2022 LEAP Connect Operational Technical Documentation.

Chapter XII. Reliability

Total test reliability measures indicate the consistency of performance over repeated administrations. Statistically, the reliability coefficient is a ratio of the variance of true test scores to the variance of observed total test scores (i.e., raw scores), with values ranging from 0 to 1, where 1 refers to a perfectly consistent test. The closer the value of the reliability coefficient is to 1, the more consistent the scores. In general, reliability coefficients that are equal to or greater than .8 are considered acceptable for tests of moderate length. For LEAP Connect assessments, the reliability of raw test scores by test form was evaluated using Cronbach's alpha coefficient (Cronbach, 1951), which is a lower-bound estimate of test reliability. Cronbach's alpha was computed using the formula as follows:

$$\alpha = \frac{n}{n-1}\left[1 - \frac{\sum_{i=1}^{n} \sigma_i^2}{\sigma_X^2}\right],$$

where *n* is the number of items on the test, σ_i^2 is the item score variance of item *i*, and σ_X^2 is the variance of the total test score. As shown in the formula above, the number of items in the test influences these statistics. A test with a greater length can be expected to possess higher reliability compared to a shorter one.

Reliability Coefficients for LEAP Connect Assessments

The reliability coefficients of 2023 LEAP Connect assessments are reported in Exhibit 26. The reliability statistics ranged from .84 to .88 for all ELA forms across grades. For mathematics, the reliability coefficients ranged from .81 to .88 across grades and forms. Except for science in grade 4 (α = .79), the reliability coefficient estimates for all content areas across all grades were either equal to or greater than .80, indicating the performance on the LEAP Connect assessments remains consistent across repeated administrations. In addition to the estimates of Cronbach's alpha coefficient, Exhibit 26 also presents average raw scores, standard deviations of raw scores, and values for the standard error of measurement (SEM) for LEAP Connect 2023 administration by content area, grade, and form.

Exhibit 26. Reliability Estimates and SEM of 2023 LEAP Connect Assessments

Content area	Grade	Form	N of items	N of score points	N of students	Cronbach's Alpha	Mean raw score	Raw score SD	SEM
ELA	3	3	31	38	≥ 410	.85	24.25	7.42	2.87
		3NV	31	38	≥ 230	.86	17.13	7.77	2.91
	4	3	32	39	≥ 440	.84	25.09	7.27	2.91
		3NV	32	39	≥ 220	.85	17.15	7.59	2.94
	5	3	32	39	≥ 650	.85	23.25	7.77	3.01
	6	3	32	39	≥ 880	.88	26.38	8.32	2.88
	7	3	32	39	≥ 950	.87	26.40	7.87	2.84
	8	3	32	39	≥ 1050	.88	26.35	7.78	2.70
	HS	3	31	38	≥ 990	.86	25.93	7.36	2.75
Math	3	3	35	35	≥ 640	.87	19.32	7.35	2.65
	4	3	35	35	≥ 670	.85	18.33	6.81	2.64
	5	3	35	35	≥ 650	.81	17.97	6.13	2.67
	6	3	35	35	≥ 870	.88	21.97	7.34	2.54
	7	3	35	35	≥ 940	.86	20.68	6.89	2.58
	8	3	35	35	≥ 1050	.88	20.82	7.52	2.61
	HS	3	35	35	≥ 1000	.87	20.66	7.17	2.59
Science	4	3	30	30	≥ 670	.79	16.39	5.49	2.52
	8	3	30	30	≥ 1040	.81	18.90	5.38	2.35
	HS	3	30	30	≥ 970	.81	18.39	5.46	2.38

Note. HS = high school; SD = standard deviation; SEM = standard error of measurement.

Reliability for Subgroups

Reliability estimates for demographic groups, categorized by gender, ethnicity/race, economic status, English learner status, and migrant status, were calculated and are presented in Appendix O for groups comprising 10 or more students. The results show notably robust reliability estimates (i.e., mostly from .70 to .95) for all subgroups with 10 or more students. This underscores the LEAP Connect assessments' reliability not only for the overall population but also for the various demographic groups of test takers.

Classification Accuracy and Consistency

Classification accuracy is defined as the extent to which the actual classifications of test takers at various achievement levels agree with the classifications made based on their true scores (Livingston & Lewis, 1995). Classification consistency is defined as the extent to which the classifications of students at an achievement level agree based on two independent test administrations or one administration of two parallel test forms.

For LEAP Connect assessments, the Livingston-Lewis procedure based on a beta-binomial model and Cohen's kappa coefficient (Cohen, 1960) were used to estimate classification accuracy and consistency.

The Livingston-Lewis procedure involves two analysis steps: (1) fitting proportion-correct true scores to a four-parameter beta distribution and (2) using the binomial distribution to estimate classification accuracy and consistency. Cohen's kappa coefficient assesses the proportion of consistent classifications after removing the proportion of consistent classifications that would be expected by chance.

Classification consistency and accuracy estimates are presented in Exhibit 27 by content area, grade, and form. The estimates under the Two-Level header were computed based on classifications into the two classes of *Below Goal* and *At or Above Goal*, and those under the Four-Level header were based on classifications into four levels of *Below Goal*, *Near Goal*, *At Goal, and Above Goal*. The measures of classification consistency and accuracy could potentially be impacted by various aspects of the test design and test results. These include factors such as the quantity of items, the placement and count of cut scores, the score distribution, the reliability of the test, and the associated SEM. For the 2023 LEAP Connect administration, test results show that classification accuracy had indices ranging from .85 to .91 for the two-level cuts and from .62 to .74 for the four-level cuts; and classification consistency indices ranged from .79 to .87 for the two-level cuts and from .53 to .67 for the four-level cuts. The lowest two-level classification accuracy estimate was observed in grade-5 math test and grade-4 science test. The lowest two-level consistency estimate was observed in grade-4 science test. The lowest four-level classification accuracy estimate was observed in high school math test and the lowest four-level consistency estimate was observed in grade-5 math test. Overall, the classification accuracy and consistency indices for the two-level cuts were higher than those for the four-level cuts across content areas and grades.

Exhibit 27. Classification Accuracy and Consistency

Content Area	Grade	Form	Two-Level			Four-Level		
			Accuracy	Consistency	Kappa	Accuracy	Consistency	Kappa
ELA	3	3	.87	.82	.61	.69	.59	.41
		3NV	.89	.85	.64	.73	.67	.48
	4	3	.87	.82	.60	.68	.58	.42
		3NV	.86	.81	.55	.71	.63	.44
	5	3	.88	.84	.66	.69	.59	.43
	6	3	.89	.85	.69	.71	.61	.47
	7	3	.88	.83	.64	.68	.59	.44
	8	3	.88	.84	.66	.70	.62	.46
	HS	3	.91	.87	.67	.74	.64	.44
Math	3	3	.87	.81	.61	.68	.59	.42
	4	3	.88	.83	.65	.67	.58	.44
	5	3	.85	.80	.59	.63	.53	.37
	6	3	.87	.82	.63	.68	.60	.43
	7	3	.87	.82	.54	.67	.59	.42
	8	3	.87	.81	.59	.67	.60	.41
	HS	3	.87	.81	.61	.62	.54	.37
Science	4	3	.85	.79	.58	.63	.54	.36

Content Area	Grade	Form	Two-Level			Four-Level		
			Accuracy	Consistency	Kappa	Accuracy	Consistency	Kappa
	8	3	.86	.81	.57	.69	.62	.39
	HS	3	.86	.81	.59	.64	.56	.37

Note. HS = high school.

Test Information

IRT models were used to estimate students' latent ability (theta), which was transformed into a scale score. Using IRT models, the test information function (TIF), computed as the sum of item information functions of all operational items for each grade-level test, can be estimated at each theta value across the whole ability continuum. Like the reliability coefficient in CTT, a TIF estimates the amount of information the test provides at each theta value. Typically, TIF curves are bell-shaped because TIF values are generally high at the center of the theta distribution and gradually decrease toward the two ends of the theta scale, where theta values are very low or very high. Exhibit 28, Exhibit 29, and Exhibit 30 present the TIFs for theta values ranging from -6 to 6 for each grade in ELA, math, and science. Results show that ELA had TIFs reaching the maximum value at theta values around 0.5, and math and science had TIFs reaching the maximum value at theta values around 0.

Exhibit 28. Test Information Function for ELA

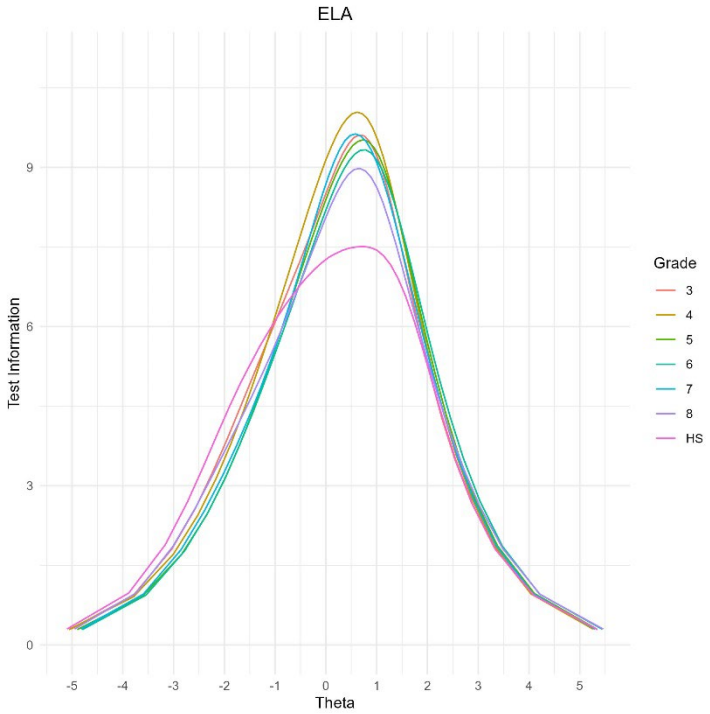


Exhibit 29. Test Information Function for Math

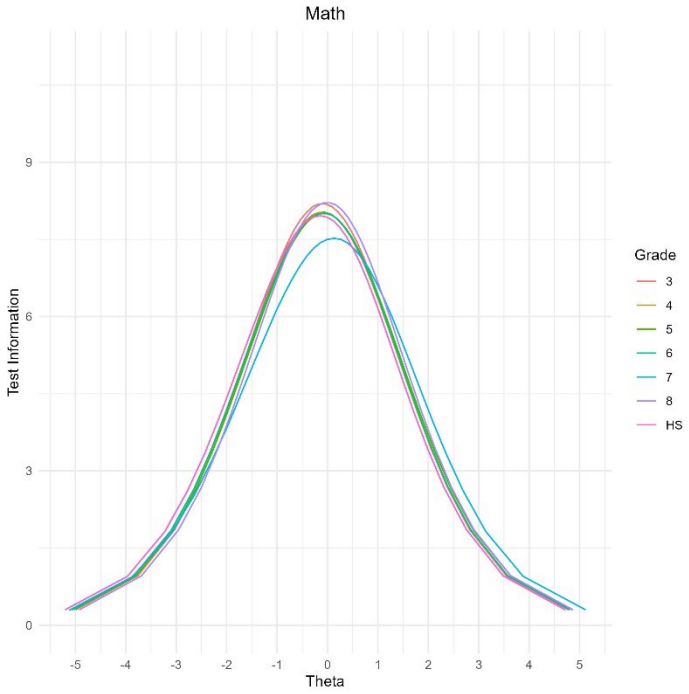
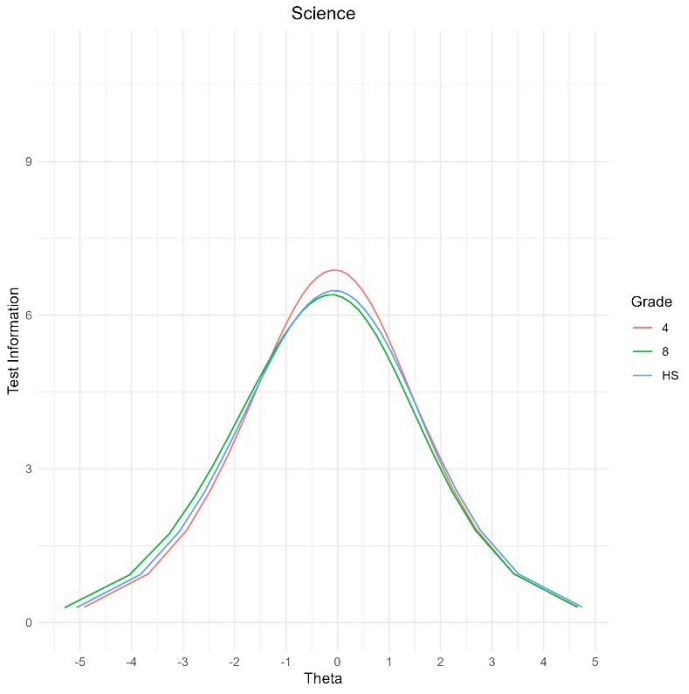


Exhibit 30. Test Information Function for Science



Conditional Standard Error of Measurement

In IRT, a standard error (i.e., CSEM) is also estimated for scale scores that correspond to theta values. CSEMs are computed through their inverse relationship with TIFs. Exhibit 31 presents CSEMs at the three cut scores set for different achievement levels by content area and grade. Exhibit 32, Exhibit 33, and Exhibit 34 provide graphical representations of CSEM curves for scale scores ranging from 1200 to 1290 for each grade in ELA, math, and science, respectively. Contrary to TIF curves, CSEM curves are U-shaped because CSEM values are generally low at the center of the theta (or scale score) distribution and gradually increase toward the two ends of the scale, where scale scores are very low or very high. For all content areas, CSEMs reached the minimum value around the scale score of 1240, which is the Level 3 cut score.

Exhibit 31. Conditional Standard Errors of Measurement Corresponding to Cut Scores for Achievement Levels

Content area	Grade	Near Goal		At Goal		Above Goal	
		Cut score	CSEM	Cut score	CSEM	Cut score	CSEM
ELA	3	1232	5	1240	5	1258	6
	4	1232	5	1240	5	1253	5
	5	1232	4	1240	4	1253	5
	6	1232	3	1240	3	1250	5
	7	1232	4	1240	5	1248	5
	8	1232	3	1240	3	1244	3
	HS	1232	5	1240	4	1259	5
Math	3	1232	12	1240	12	1276	13
	4	1232	7	1240	6	1252	6
	5	1232	8	1240	7	1257	8
	6	1232	5	1240	5	1248	5
	7	1232	7	1240	6	1257	7
	8	1232	9	1240	8	1255	9
	HS	1232	6	1240	6	1249	6
Science	4	1232	5	1240	5	1244	5
	8	1232	5	1240	5	1244	5
	HS	1232	5	1240	5	1245	5

Note. HS = high school; CSEM = conditional standard error of measurement.

Exhibit 32. Conditional Standard Error of Measurement for ELA

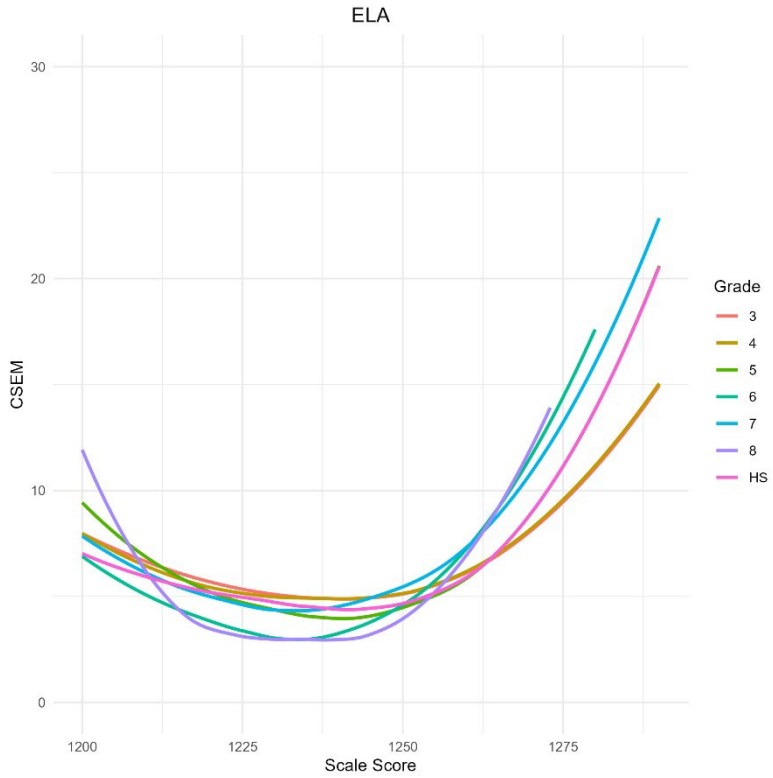


Exhibit 33. Conditional Standard Error of Measurement for Math

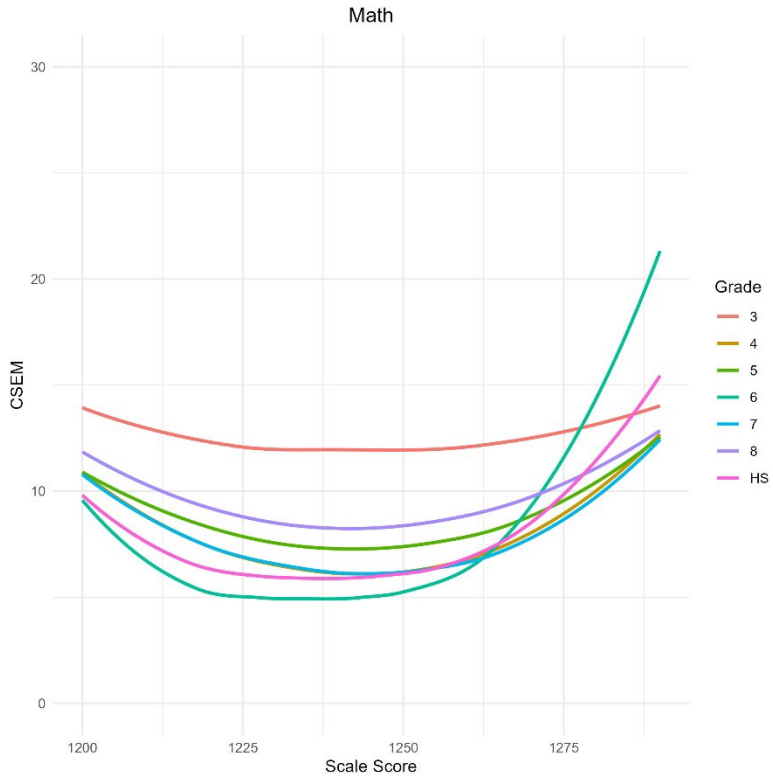
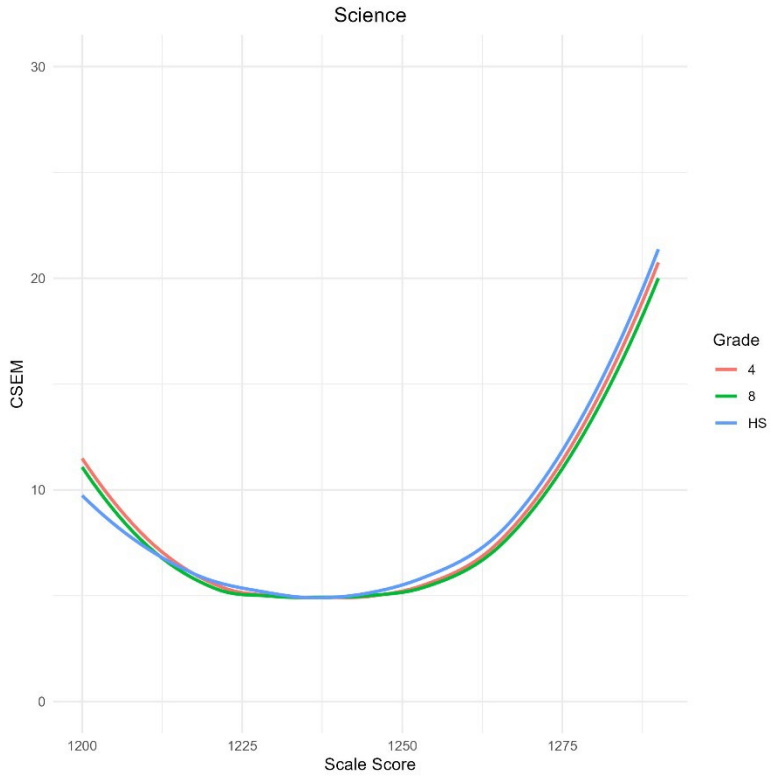


Exhibit 34. Conditional Standard Error of Measurement for Science



Full Performance Continuum

The LEAP Connect assessments are linked to grade-level academic content standards (see Chapter V for details) and were designed for students to demonstrate a range of depth of knowledge (DOK) (see Chapter III for details). Both the item writing process and the internal and external item reviews ensured that the LEAP Connect items reflect the expected DOK level as implied by the content to be measured. As a result, items that meet the blueprints also satisfy the DOK requirements. The item statistics suggest that each assessment had an appropriate range of item difficulties represented, from easy to difficult.

The LEAP Connect assessments were developed to provide a precise estimate of student proficiency across the full performance continuum (i.e., performance from low- to high-achieving students) for each content area and at each grade level. This was achieved by using items that cover different cognitive complexity levels and a wide range of difficulties (see Chapter VII for more information) in a test. Exhibit 35 provides summary statistics of person ability (i.e., theta estimates) by content area and grade. For most grades across content areas, the ability distribution ranged from -5 (with rounding) to 5 (with rounding), except for grade-5 math (with a maximum theta value around 4).

Exhibit 35. Person Ability Distribution by Content Area and Grade

Content area	Grade	Student ability estimate			
		Min	Mean	SD	Max
ELA	3	-5.01	.51	1.36	5.16
	4	-5.04	.59	1.27	5.17
	5	-4.90	.92	1.19	5.33
	6	-4.79	1.39	1.33	5.43
	7	-4.83	1.27	1.25	5.30
	8	-4.95	1.28	1.23	5.46
	HS	-5.10	1.22	1.28	5.35
Math	3	-4.99	.06	1.34	4.78
	4	-5.08	-.04	1.11	4.81
	5	-5.03	-.02	.97	3.64
	6	-5.07	.54	1.23	4.81
	7	-5.09	.56	1.19	5.10
	8	-4.92	.48	1.30	4.86
	HS	-5.20	.28	1.27	4.72
Science	4	-4.88	.09	1.01	4.62
	8	-5.30	.44	1.08	4.66
	HS	-5.07	.46	1.09	4.75

Note. HS = high school; SD = standard deviation.

Accessibility and Fairness

Reasonable and appropriate steps have been taken to ensure that LEAP Connect assessments were accessible to students with significant cognitive disabilities and fair across student groups, from item development to test administration. During item development as well as internal and external reviews, numerous checks were conducted to ensure the items were accessible and fair. The bias and sensitivity checklist and accessibility criteria are presented in Appendix F (i.e., Guidelines for Evaluating, Bias, Sensitivity, and Accessibility) of this manual. Refer to Chapter VII for more information about content, bias, and sensitivity review.

In addition to steps taken to ensure accessibility and fairness, the LEAP Connect assessment developers integrated the UD principles to ensure that the assessments are accessible to the greatest number of test takers. Several accommodations were provided during the test administration to increase the fairness and accessibility of the test content, such as click-to-enlarge graphics, ASL, hand-held magnification, and so on. Appendix F in this manual provides both LEAP Connect UD for assessment and learning and the item accessibility checklist. Chapter VIII details the use of accommodations and accessibility in LEAP Connect assessments. For a summary of accessibility and fairness evidence, refer to Chapter III.

Chapter XIII. Reporting, Interpretation, and Use of Scores

The LEAP Connect ELA, mathematics, and science assessments are aligned to the Louisiana Student Standards and the Louisiana Connectors. LEAP Connect is an online assessment made up mostly of selected-response items written at four levels of complexity. To access the age- and grade appropriate general curriculum content and to build skills and knowledge in ELA, mathematics, and science, students with significant cognitive disabilities often need adaptations, scaffolds, and supports. For students to accurately demonstrate what they know and can do, these age- and grade-appropriate adaptations, scaffolds, and supports also need to be present within the assessment process. The assessment items incorporate important aspects of item design related to both varying levels of cognitive complexity and the degree and type of scaffolds and supports. The assessment is designed to be administered one-on-one online. The passages, items, and response options are read to the student by the online testing platform or test administrator. The LEAP Connect tests permit student specific accommodations that are consistent with the student's Individualized Education Program (IEP), such as assistive technology for student response modes. The ELA, mathematics, and science assessments contain items that are being field tested. The number of field test items varies by grade and content area. Only a student's performance on the operational items will count toward a student's final score. The field test questions do not count toward a student's final score on the test; they provide information that will be used to help develop future test forms.

ELA Item Types and Scoring

The LEAP Connect ELA assessments include four types of items, as described below.

- Selected Response (SR)—The student can earn 1 point by choosing the correct response from three options (two options for Tier 1 questions).
- Multiple Part Selected Response (MPSR)—The student answers 2–3 SR items grouped together and assessing the same Louisiana Connector (LC). The correct response for each SR is worth 1 point and the overall MPSR is worth 2–3 points.
- Open Response (OR)—Each cluster of 5 OR Foundational Reading items are worth 1 point; students are presented with a word and must read it aloud (verbal students) or point to an image of it (nonverbal students).
- Constructed Response (CR)—The student responds to a writing prompt through a structured process led by their test administrator. Professionally trained personnel score each CR using a 3-dimensional rubric.

Mathematics Item Types and Scoring

The LEAP Connect mathematics assessments include two item types.

- Selected Response (SR)—The student can earn 1 point by choosing the correct response from three options (two options for Tier 1 questions).
- Constructed Response (CR)—The student responds to a mathematics problem that does not provide options for selection. The test administrator scores the student's responses with a 1-point rubric after students provide a response.

Science Item Types and Scoring

The LEAP Connect science assessments include three item types.

- Selected Response (SR)—The student can earn 1 point by choosing the correct response from three options (two options for Tier 1 questions).
- Multiple Part Selected Response (MPSR)—The student answers 2–3 SR items grouped together and assessing the same Louisiana Connector (LC). The correct response for each SR is worth 1 point and the overall MPSR is worth 2–3 points.
- Constructed Response (CR)—The student will complete tasks. The test administrator scores the student's responses according to the provided rubrics.

Interpreting Scores and Achievement Levels

This section explains some key terms used in the LEAP Connect ELA, mathematics, and science reports, along with explanations about how to best use the information in the reports. Please refer to this section as needed when reading other sections of this guide or when using LEAP Connect assessment reports to understand student performance or the performance of a school, a school system, or the state.

Scale Score

Scale scores are derived from raw scores (the sum of points for all items on the test) using methods that take into account differences in difficulty among forms within a content area or grade. The use of scale scores avoids a misunderstanding associated with scores such as raw scores or percentage correct, in which the percentage of items answered may be interpreted as absolute judgment about percentage of mastery of the subject matter. Since test items represent only a sample of questions that could be asked, it is false to assume that a percentage of those items represents some actual percentage of information learned in that content area. For LEAP Connect ELA, mathematics, and science assessments, scale scores range from 1200 to 1290 for all grades. Refer to Table 4 on page 6 to see the scale-score ranges by achievement level for each content area.

Uses

Scale scores are used to represent student performance on LEAP Connect tests. A higher scale score represents more knowledge, skill, and ability than a lower scale score. Scale scores for the same test can be compared regardless of when students were tested, or which form was taken. For example, the scale-score range for the Below Goal achievement level on the LEAP Connect grade 4 mathematics assessment is 1200–1231. Because the range does not change from year to year, a student who receives a scale score within this range on the LEAP Connect grade 4 mathematics assessment in any year will score at the Below Goal achievement level. Scale scores are also averaged together to represent the overall performance of a school, a school system, and the state (see the Average Scale Score section on page 5 for more information).

Comparability

Scale scores are comparable for results within the same grade and the same content area across years.

Average Scale Score

The average scale score is obtained by adding the scale scores of all the students in a school, school system, or state and dividing the sum by the number of students tested. Higher average scale scores represent better performance. The average scale score is comparable regardless of when students were tested, or which test form was taken.

Uses

Average scale scores, provided in school and school system reports, summarize the overall group performance. The best use of average scale scores is to compare one group's (school or school system) performance to another's and to monitor the performance of a school or school system over time. For example, a school may compare the 2022 and 2023 average scale scores for the grade 6 mathematics assessment to help analyze patterns in performance, which may help determine future instructional choices.

Comparability

Like scale scores, average scale scores are comparable for results within the same grade and the same content area across years.

Achievement Level

Achievement levels describe how students perform based on Louisiana's expectations and how prepared they are for the next level of study. Table 4 (on the following page) lists the range of scale scores for each achievement level. The final ALDs can be referenced in the 2021-2022 LEAP Connect Technical Documentation.

Uses

The number and percent in achievement levels are reported at the school, school system, and state levels. Since this information is based on scale scores, it is comparable across groups for the same test regardless of when the test was taken, or which form was taken. Unlike scale scores, it may be used to monitor group performance over time. For example, if 15 percent of grade 4 students taking the ELA assessment had scores in the At Goal achievement level range in 2022, but 12 percent of those same students have scores in the At Goal achievement level for the Spring 2022 grade 5 test, then there has been a decrease in the number of students with scores in the At Goal achievement level for that group. This could mean that a greater percentage of students scored at a higher achievement level, a lower achievement level, or some students scored at a higher level while others scored at a lower level.

Table 4: LEAP Connect Assessments Scale-Score Ranges					
Subject	**Grade**	**Below Goal**	**Near Goal**	**At Goal**	**Above Goal**
ELA	**3**	1200–1231	1232–1239	1240–1257	1258–1290
	4	1200–1231	1232–1239	1240–1252	1253–1290
	5	1200–1231	1232–1239	1240–1252	1253–1290
	6	1200–1231	1232–1239	1240–1249	1250–1290
	7	1200–1231	1232–1239	1240–1247	1248–1290
	8	1200–1231	1232–1239	1240–1243	1244–1290
	HS	1200–1231	1232–1239	1240–1258	1259–1290
Math	**3**	1200–1231	1232–1239	1240–1275	1276–1290
	4	1200–1231	1232–1239	1240–1251	1252–1290
	5	1200–1231	1232–1239	1240–1256	1257–1290
	6	1200–1231	1232–1239	1240–1247	1248–1290
	7	1200–1231	1232–1239	1240–1256	1257–1290
	8	1200–1231	1232–1239	1240–1254	1255–1290
	HS	1200–1231	1232–1239	1240–1248	1249–1290
Science	**4**	1200–1231	1232–1239	1240–1243	1244–1290
	8	1200–1231	1232–1239	1240–1243	1244–1290
	HS	1200–1231	1232–1239	1240–1244	1245–1290

STUDENT-LEVEL REPORTS

Sample Student Report: Explanation of Results and Terms

Online Student Reports for each school are posted by grade and may be downloaded and printed from DRC INSIGHT Portal (eDIRECT) (https://la.drcedirect.com) by school systems and by schools. Schools should print two copies for each student. One copy should be sent home and the second copy filed in the student's cumulative folder.

The Student Report summarizes the student's performance in ELA, mathematics, and science. The following sample student reports are provided in this guide.

- **Sample Student Report A**—grade 3 LEAP Connect ELA and mathematics
- **Sample Student Report B**—grade 4 LEAP Connect science

The sample student reports present realistic data for a fictitious student and includes circled numbers that identify important parts of the reports. The information that follows explains what each circled number represents and how that information may be used when analyzing the reports. It may be helpful to refer to the explanations found in the earlier section, Interpreting Scores and Achievement Levels (see page 4), when reading through this section.

❶ OVERVIEW

This section provides a brief explanation of the purpose of testing and scope of the report. It also includes information about where to find additional resources regarding testing, interpreting results, and instructional resources.

❷ OVERALL STUDENT PERFORMANCE

Results are reported according to four achievement levels: Above Goal, At Goal, Near Goal, Below Goal. Scale scores range from 1200–1290 (refer to Table 4 on page 6 of this guide to see the ranges of scores for each achievement level by content area).

On Sample Student Report A, John's scale score for the ELA assessment was 1260. This corresponds to the Above Goal achievement level.

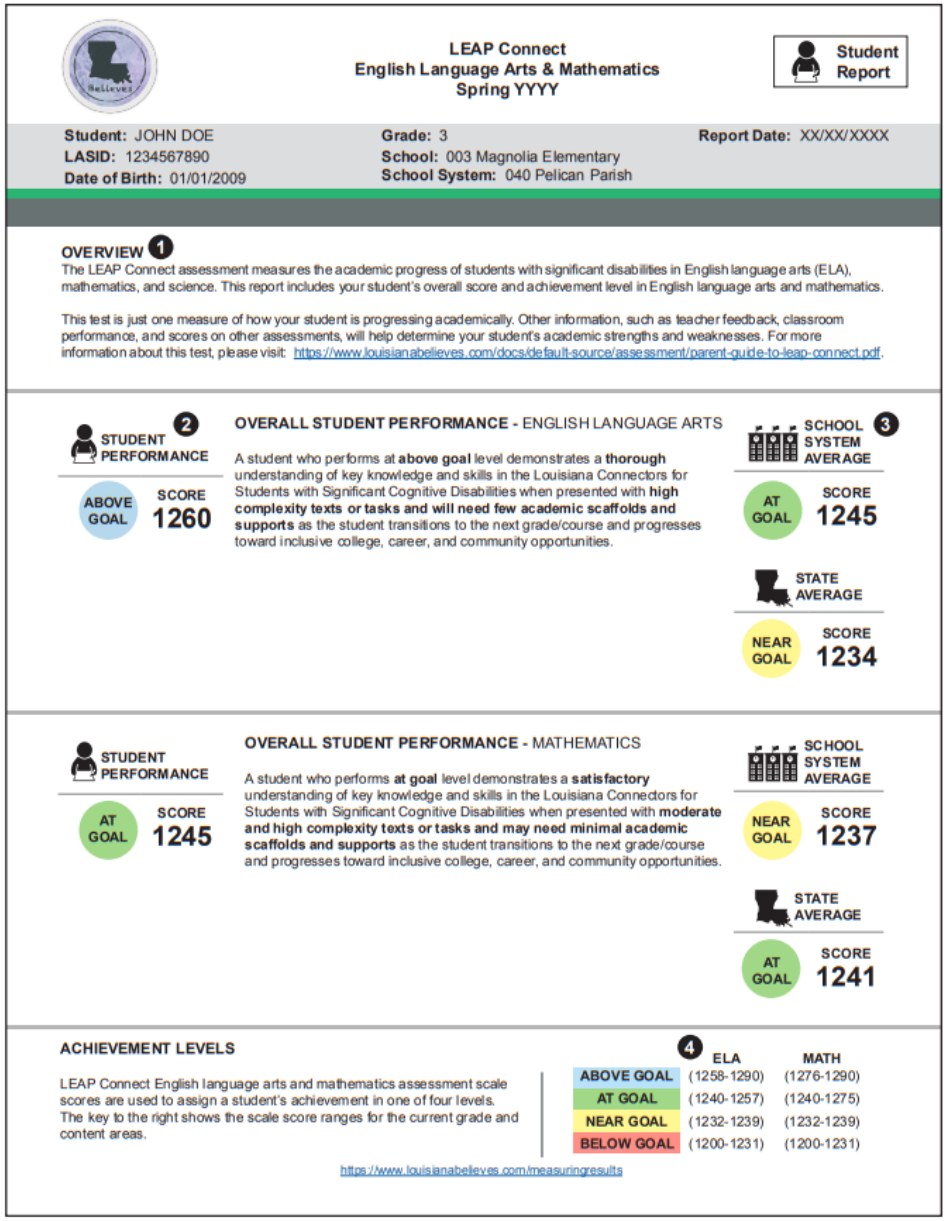
❸ SCHOOL SYSTEM AND STATE AVERAGE

For a more complete picture of the student's performance, it is helpful to compare the student's achievement level and scale score to the school system and state averages, provided to the right of the Overall Student Performance information.

The Sample Student Report B shows that John's overall score of 1241 for science was lower than the school system average score of 1245, but better than the overall state average score of 1234 for science.

❹ ACHIEVEMENT LEVELS

The Student Achievement Level chart shows the score ranges that correspond with the achievement levels for the current grade and subject.



LEAP Connect
English Language Arts & Mathematics
Spring YYYY

Student Report

Student: JOHN DOE
LASID: 1234567890
Date of Birth: 01/01/2009

Grade: 3
School: 003 Magnolia Elementary
School System: 040 Pelican Parish

Report Date: XX/XX/XXXX

OVERVIEW 1

The LEAP Connect assessment measures the academic progress of students with significant disabilities in English language arts (ELA), mathematics, and science. This report includes your student's overall score and achievement level in English language arts and mathematics.

This test is just one measure of how your student is progressing academically. Other information, such as teacher feedback, classroom performance, and scores on other assessments, will help determine your student's academic strengths and weaknesses. For more information about this test, please visit: https://www.louisianabelieves.com/docs/default-source/assessment/parent-guide-to-leap-connect.pdf.

OVERALL STUDENT PERFORMANCE - ENGLISH LANGUAGE ARTS

STUDENT PERFORMANCE 2
ABOVE GOAL
SCORE 1260

A student who performs at **above goal** level demonstrates a **thorough** understanding of key knowledge and skills in the Louisiana Connectors for Students with Significant Cognitive Disabilities when presented with **high complexity texts or tasks and will need few academic scaffolds and supports** as the student transitions to the next grade/course and progresses toward inclusive college, career, and community opportunities.

SCHOOL SYSTEM AVERAGE 3
AT GOAL
SCORE 1245

STATE AVERAGE
NEAR GOAL
SCORE 1234

OVERALL STUDENT PERFORMANCE - MATHEMATICS

STUDENT PERFORMANCE
AT GOAL
SCORE 1245

A student who performs **at goal** level demonstrates a **satisfactory** understanding of key knowledge and skills in the Louisiana Connectors for Students with Significant Cognitive Disabilities when presented with **moderate and high complexity texts or tasks and may need minimal academic scaffolds and supports** as the student transitions to the next grade/course and progresses toward inclusive college, career, and community opportunities.

SCHOOL SYSTEM AVERAGE
NEAR GOAL
SCORE 1237

STATE AVERAGE
AT GOAL
SCORE 1241

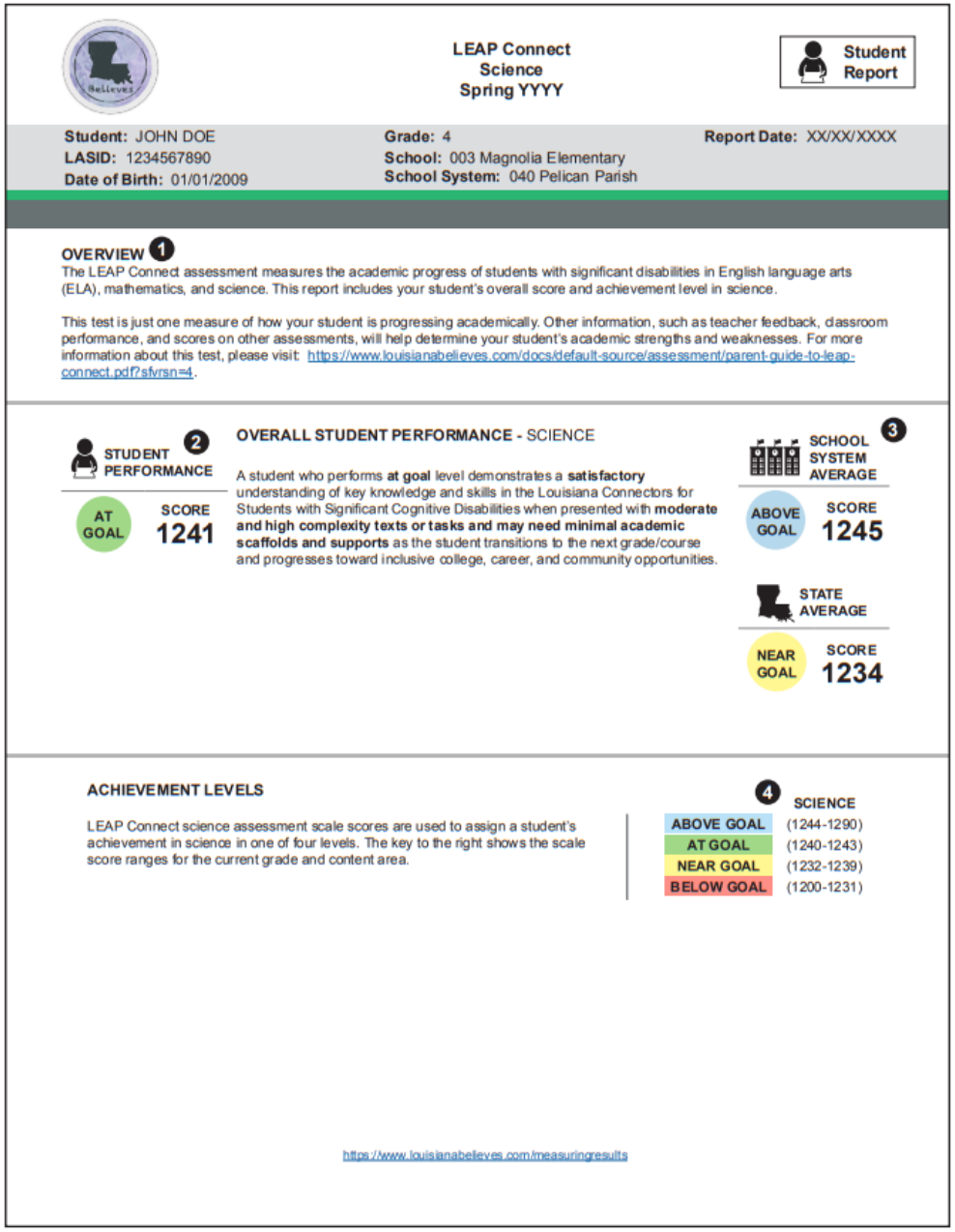
ACHIEVEMENT LEVELS

LEAP Connect English language arts and mathematics assessment scale scores are used to assign a student's achievement in one of four levels. The key to the right shows the scale score ranges for the current grade and content areas.

4

	ELA	MATH
ABOVE GOAL	(1258-1290)	(1276-1290)
AT GOAL	(1240-1257)	(1240-1275)
NEAR GOAL	(1232-1239)	(1232-1239)
BELOW GOAL	(1200-1231)	(1200-1231)

https://www.louisianabelieves.com/measuringresults



LEAP Connect
Science
Spring YYYY

Student Report

Student: JOHN DOE
LASID: 1234567890
Date of Birth: 01/01/2009

Grade: 4
School: 003 Magnolia Elementary
School System: 040 Pelican Parish

Report Date: XX/XX/XXXX

OVERVIEW 1

The LEAP Connect assessment measures the academic progress of students with significant disabilities in English language arts (ELA), mathematics, and science. This report includes your student's overall score and achievement level in science.

This test is just one measure of how your student is progressing academically. Other information, such as teacher feedback, classroom performance, and scores on other assessments, will help determine your student's academic strengths and weaknesses. For more information about this test, please visit: https://www.louisianabelieves.com/docs/default-source/assessment/parent-guide-to-leap-connect.pdf?sfvrsn=4.

STUDENT PERFORMANCE 2

AT GOAL

SCORE 1241

OVERALL STUDENT PERFORMANCE - SCIENCE

A student who performs **at goal** level demonstrates a **satisfactory** understanding of key knowledge and skills in the Louisiana Connectors for Students with Significant Cognitive Disabilities when presented with **moderate and high complexity texts or tasks and may need minimal academic scaffolds and supports** as the student transitions to the next grade/course and progresses toward inclusive college, career, and community opportunities.

SCHOOL SYSTEM AVERAGE 3

ABOVE GOAL

SCORE 1245

STATE AVERAGE

NEAR GOAL

SCORE 1234

ACHIEVEMENT LEVELS

LEAP Connect science assessment scale scores are used to assign a student's achievement in science in one of four levels. The key to the right shows the scale score ranges for the current grade and content area.

4

	SCIENCE
ABOVE GOAL	(1244-1290)
AT GOAL	(1240-1243)
NEAR GOAL	(1232-1239)
BELOW GOAL	(1200-1231)

https://www.louisianabelieves.com/measuringresults

SCHOOL ROSTER REPORT

Sample School Roster Report: Explanation of Results and Terms

The School Roster Report is posted in PDF format and may be downloaded and printed from DRC INSIGHT Portal (eDIRECT) (https://la.drcedirect.com) by school systems and by schools. For most schools, the report has multiple pages.

The School Roster Report, which provides summary information about student performance on the ELA, mathematics, and science assessments, is a useful tool for identifying students who might be performing below the school average in specific content areas. It can also be helpful in determining if there are school-wide strengths or weaknesses in a particular content area.

The following sample school roster reports are provided in this guide.

- **Sample School Roster Report A**—grade 5 LEAP Connect ELA and mathematics
- **Sample School Roster Report B**—grade 4 LEAP Connect science

The sample school roster reports provided show ELA, mathematics, and science results for fictitious students and include circled numbers that identify important parts of the report. The information that follows explains what each circled number represents and how that information may be used when analyzing the report. It may be helpful to refer to the explanations found in the earlier section, Interpreting Scores and Achievement Levels (see page 4), when reading through this section.

❶ ACHIEVEMENT LEVELS

The scale score ranges associated with each achievement level are shown at the bottom of the report page. These ranges can be useful for understanding the achievement level rankings in relation to one another and in determining how close a student's score may be in relation to another achievement level. For example, a student receiving a scale score of 1239 on the mathematics assessment would be at the Near Goal achievement level, but only one point away from the At Goal achievement level.

❷ ROSTER OF STUDENTS TESTED

In the far left column of the sample school roster report, a list of students who tested in the school is printed alphabetically by last name and first name. The second column from the left lists the student's state identification number.

❸ PERFORMANCE DATA

Each student's performance on the ELA and mathematics assessments can be found in the columns to the right of the student information, with ELA followed by mathematics. Science is a stand-alone report. When reading across each row, users will see the student's achievement level and scale score.

For example, in the sample school roster report A, Brian Johnson received a scale score of 1237 on the ELA assessment which corresponds to the Near Goal achievement level. Continuing across the row, Brian's overall achievement level for mathematics is listed as At Goal. His scale score for mathematics is 1248.

The roster facilitates a comparison among students in the same class or school for the same content area. For example, Mattie Bellard and Bruce Genot both scored at the At Goal achievement level for mathematics.

By comparing this school-level information to an individual student's performance, a school can determine a student's relative standing. For instance, on page 13, Mattie Bellard's achievement level of At Goal in mathematics is the same as 28 percent of students.

The asterisk (*) found in the column of Bethany Harvey's science scale score indicates she received no score because her test was voided due to a test security violation. Tests that are voided due to testing irregularities are included in the total participation count but not included in the school, school system, or state averages.

If a student did not take a test and did not have a valid accountability code, the Achievement Level and Scale Score would be blank. For example, on page 12 of the sample school roster report A, Robert Andrepont did not attempt either test; therefore, there is no performance information in his row.

Sample School Roster Report A

LEAP Connect
English Language Arts and Mathematics
Spring YYYY

School Roster

Grade: 5
Report Date: XX/XX/XXXX

School: 002 Egret High School
School System: 040 Pelican Parish

		English Language Arts (3)		Mathematics	
(2) Student Name	LASID	Achievement Level	Scale Score	Achievement Level	Scale Score
ANDREPONT, ROBERT	9999999999				
AVERETT, DEVAN	9999999999	At Goal	1244	At Goal	1248
BAVERETT, DONALD	9999999999	Near Goal	1235	At Goal	1246
BELLARD, MATTIE	9999999999	Above Goal	1258	At Goal	1245
EICH, JULIA	9999999999	Above Goal	1280	Near Goal	1238
FELLARD, JACK	9999999999	At Goal	1246	Below Goal	1230
GENOT, BRUCE	9999999999	Below Goal	1223	At Goal	1240
HARVEY, BETHANY	9999999999		*	Below Goal	1229
JOHNSON, BRIAN	9999999999	Near Goal	1237	At Goal	1248
LANCHER, DANIELE	9999999999	At Goal	1242	At Goal	1246
LOPEZ, MARIE	9999999999	Near Goal	1236	Near Goal	1234
MOAST, SHONDRIK	9999999999	Near Goal	1239	At Goal	1245
NOUREAUX, MICHAEL	9999999999	Below Goal	1230	Near Goal	1235
PRIGGS, CHRISTINE	9999999999	At Goal	1240	At Goal	1244
RALAIS, MAREY	9999999999	Below Goal	1229	Near Goal	1235
ROWNY, HESTER	9999999999	At Goal	1248	Above Goal	1276
SCORMER, MARY	9999999999	At Goal	1246	Above Goal	1280
TARBY, MINDY	9999999999	At Goal	1245	Near Goal	1236
TELKE, DARIN	9999999999	Near Goal	1238	At Goal	1246
WALLIN, SYDNEY	9999999999	Near Goal	1234	Below Goal	1223

ACHIEVEMENT LEVELS (1)

LEAP Connect English language arts and mathematics assessment scale scores are used to assign a student's achievement in one of four levels. The key to the right shows the scale score ranges for the current grade and content areas.

	ELA	MATH
ABOVE GOAL	(1253-1290)	(1257-1290)
AT GOAL	(1240-1252)	(1240-1256)
NEAR GOAL	(1232-1239)	(1232-1239)
BELOW GOAL	(1200-1231)	(1200-1231)

* Tests were voided due to test irregularities. They are included in the total participation count, but not included in the school, school system, or state averages.

Page 1

Sample School Roster Report A (continued)

LEAP Connect
English Language Arts and Mathematics
Spring YYYY

School Roster

Grade: 5
Report Date: XX/XX/XXXX

School: 002 Egret High School
School System: 040 Pelican Parish

Percent of Students at Each Achievement Level 4

	English Language Arts					Mathematics				
	Percent of Students at Each Level				Average Scale Score	Percent of Students at Each Level				Average Scale Score
	Above Goal	At Goal	Near Goal	Below Goal		Above Goal	At Goal	Near Goal	Below Goal	
School	39	33	11	17	1242	50	28	11	11	1254
School System	13	25	35	27	1239	16	35	29	20	1245
State	12	28	34	26	1241	13	30	36	21	1242

ACHIEVEMENT LEVELS

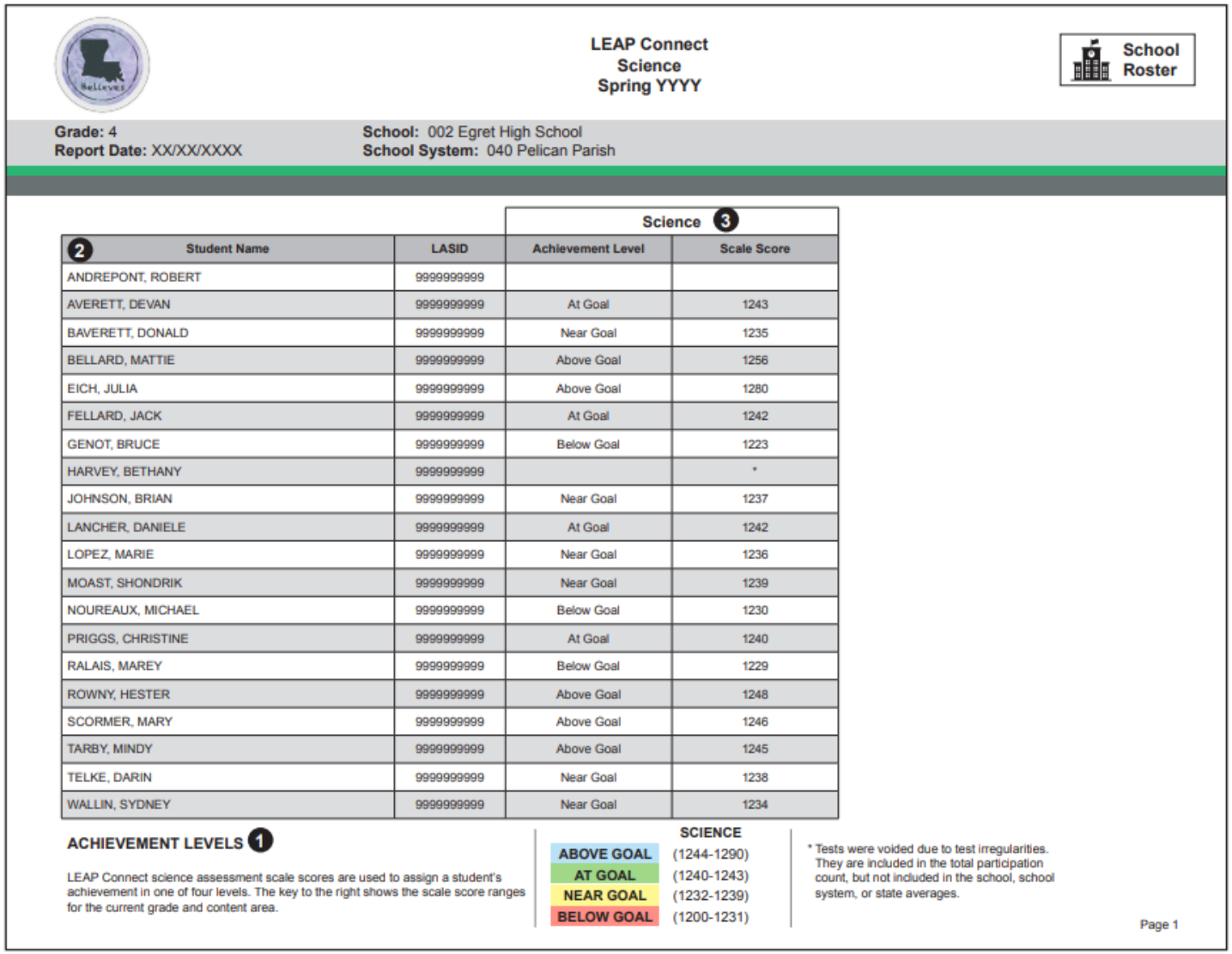
LEAP Connect English language arts and mathematics assessment scale scores are used to assign a student's achievement in one of four levels. The key to the right shows the scale score ranges for the current grade and content areas.

	ELA	MATH
ABOVE GOAL	(1253-1290)	(1257-1290)
AT GOAL	(1240-1252)	(1240-1256)
NEAR GOAL	(1232-1239)	(1232-1239)
BELOW GOAL	(1200-1231)	(1200-1231)

* Tests were voided due to test irregularities. They are included in the total participation count, but not included in the school, school system, or state averages.

Page 2

Sample School Roster Report B



LEAP Connect
Science
Spring YYYY

School Roster

Grade: 4
Report Date: XX/XX/XXXX

School: 002 Egret High School
School System: 040 Pelican Parish

		Science (3)	
(2) Student Name	LASID	Achievement Level	Scale Score
ANDREPONT, ROBERT	9999999999		
AVERETT, DEVAN	9999999999	At Goal	1243
BAVERETT, DONALD	9999999999	Near Goal	1235
BELLARD, MATTIE	9999999999	Above Goal	1256
EICH, JULIA	9999999999	Above Goal	1280
FELLARD, JACK	9999999999	At Goal	1242
GENOT, BRUCE	9999999999	Below Goal	1223
HARVEY, BETHANY	9999999999		*
JOHNSON, BRIAN	9999999999	Near Goal	1237
LANCHER, DANIELE	9999999999	At Goal	1242
LOPEZ, MARIE	9999999999	Near Goal	1236
MOAST, SHONDRIK	9999999999	Near Goal	1239
NOUREAUX, MICHAEL	9999999999	Below Goal	1230
PRIGGS, CHRISTINE	9999999999	At Goal	1240
RALAIS, MAREY	9999999999	Below Goal	1229
ROWNY, HESTER	9999999999	Above Goal	1248
SCORMER, MARY	9999999999	Above Goal	1246
TARBY, MINDY	9999999999	Above Goal	1245
TELKE, DARIN	9999999999	Near Goal	1238
WALLIN, SYDNEY	9999999999	Near Goal	1234

ACHIEVEMENT LEVELS (1)

LEAP Connect science assessment scale scores are used to assign a student's achievement in one of four levels. The key to the right shows the scale score ranges for the current grade and content area.

SCIENCE	
ABOVE GOAL	(1244-1290)
AT GOAL	(1240-1243)
NEAR GOAL	(1232-1239)
BELOW GOAL	(1200-1231)

* Tests were voided due to test irregularities. They are included in the total participation count, but not included in the school, school system, or state averages.

Page 1

Sample School Roster Report B (continued)

LEAP Connect
Science
Spring YYYY

School Roster

Grade: 4
Report Date: XX/XX/XXXX

School: 002 Egret High School
School System: 040 Pelican Parish

Percent of Students at Each Achievement Level 4

	Science				
	Percent of Students at Each Level				Average Scale Score
	Above Goal	At Goal	Near Goal	Below Goal	
School	39	33	11	17	1241
School System	13	25	35	27	1238
State	12	28	34	26	1234

ACHIEVEMENT LEVELS

LEAP Connect science assessment scale scores are used to assign a student's achievement in one of four levels. The key to the right shows the scale score ranges for the current grade and content area.

	SCIENCE
ABOVE GOAL	(1244-1290)
AT GOAL	(1240-1243)
NEAR GOAL	(1232-1239)
BELOW GOAL	(1200-1231)

* Tests were voided due to test irregularities. They are included in the total participation count, but not included in the school, school system, or state averages.

Page 2

Chapter XIV. Validity

The 2023 LEAP Connect test scores are used to collect validity evidence to demonstrate "the degree to which evidence and theory support the interpretation of test scores for proposed uses of tests" (AERA, APA, & NCME, 2014, p. 11). In addition to showing evidence of the reliability of test scores as discussed in Chapter XII, validity evidence discussed in this current chapter is also essential in test development and test score interpretations.

The Standards for Educational and Psychological Testing (AERA, APA, & NCME, 2014) highlights that the primary basis for validity evidence consists of five factors:

- Test content
- Response processes
- Internal structure
- Relationships to other variables
- Consequences of testing

Validity evidence is produced at every stage of the assessment process, starting from test design to item development, all the way through score reporting. As a result, this technical documentation contains evidence of validity throughout. Exhibit 36 provides an overview of the chapters containing evidence related to each source.

Exhibit 36. Summary of Validity Evidence and Relevant Chapters

Validity evidence	Related information	Chapter
Based on test content	Test development	Chapter VII
Based on response processes	Data review	Chapter VII
	Item and passage reviews, alignment evaluation	Chapter VII
	Classical item analysis	Chapter X
Based on internal structure	Differential item functioning, dimensionality	Chapters XIV
	Reliability and standard error of measurement	Chapter XII
Based on relationships to other variables	Relationship of scale scores among LEAP Connect content areas	Chapter XIV
	Relationship between student performance and teacher evaluation	Chapter XIV
Based on the consequences of testing	Reporting, interpretation, and use of scores	Chapter XIII
	Scale score and achievement levels	Chapter X

Evidence Based on Test Content

The test forms in the 2023 administration were the same as the operational forms in 2021 administration; therefore, no updates are needed in terms of the evidence based on the test content using data from the 2023 LEAP Connect administration. For details about this validity evidence, refer to Chapter XIV in the *2020-2021 LEAP Connect Operational Technical Manual*.

Evidence Based on Response Processes

Test validity also relies on facilitating sufficient response processes from all test takers. Analyzing response processes is fundamental to ensure that test takers can respond to the test content as intended. Standard 1.12 states, "[i]f the rationale for score interpretation for a given use depends on premises about the psychological processes or cognitive operations of test takers, then theoretical or empirical evidence in support of those premises should be provided" (AERA, APA, & NCME, p. 26). Refer to Chapter XIV in the *2020-2021 LEAP Connect Operational Technical Manual* for more details on this type of evidence.

As part of the peer review process, the LDOE submits validity evidence to the US Department of Education that its assessments tap the intended cognitive processes appropriate for each grade level, as represented in the academic content standards. To provide this validity evidence and to ensure adherence to best practices for item development, edCount will conduct a study to evaluate the cognitive processes elicited by items on the LEAP Connect in English language arts (ELA), mathematics, and science. The study will occur in 2024.

Evidence of the cognitive process demands of a representative sample of test items will be collected via two methods. The primary method is an Expert Review of the items. The secondary method will be an abbreviated Student Interaction Study (SIS).

Expert Reviews are a process in which a panel with expertise related to the constructs of interest reviews and evaluates a set of items based on a set of given criteria. A critical component of the Expert Review is ensuring that participants have a background that is relevant and appropriate for the evaluation. This approach allows experts to consider how the range of students who interact with the assessment might interpret and respond to assessment items. For this expert review, the panel will include teachers with expertise in administering alternate assessments to this population of students, and subject matter experts with expertise in students participating in this assessment. Experts will review items and provide feedback on how students in this population may engage with these items.

A SIS is a modified cognitive laboratory approach in which researchers observe teachers administering a set of items to a small sample of their students for the purposes of collecting data on administration, engagement, and cognitive processing. While administering items to a student, the teacher may prompt the student with clear, direct questions regarding what the student thought about the difficulty of the item or how the student arrived at his/her answer. This approach ensures the student is in a comfortable environment – working in the classroom with his/her teacher – and allows the researcher to observe student and teacher interactions with the items. Given the target population for the LEAP Connect and their limitations in the ability to engage in a typical think-aloud process, researchers also conduct follow-up interviews with teachers regarding item administration, item content and item difficulty, relation between items and content taught in the classroom, and teacher suggestions for improvement. In our abbreviated SIS, teachers will attend a training session and then administer the items to students. Teachers will fill out a survey after administering the items and reflecting on the session with the student.

Following the completion of the Expert Review and the SIS, edCount will produce a report that can be submitted for evidence of cognitive processing for Peer Review. This report will include the following sections: executive summary, introduction and background, methodology, results, and commendations/recommendations. The commendations and recommendations section will be directly linked to the research questions and the evidence necessary for the peer review requirements related to cognitive processing.

Evidence Based on Internal Structure

Internal structure validity is defined as "the degree to which the relationships among test items and test components conform to the construct on which the proposed test score interpretations are based" (AERA, APA, & NCME, 2014, p. 16). Chapter XII of this technical manual provides a concise overview of statistics essential for internal structure validity. It includes reliability estimates for both the overall population and student subgroups, along with results from classification accuracy and consistency analysis.

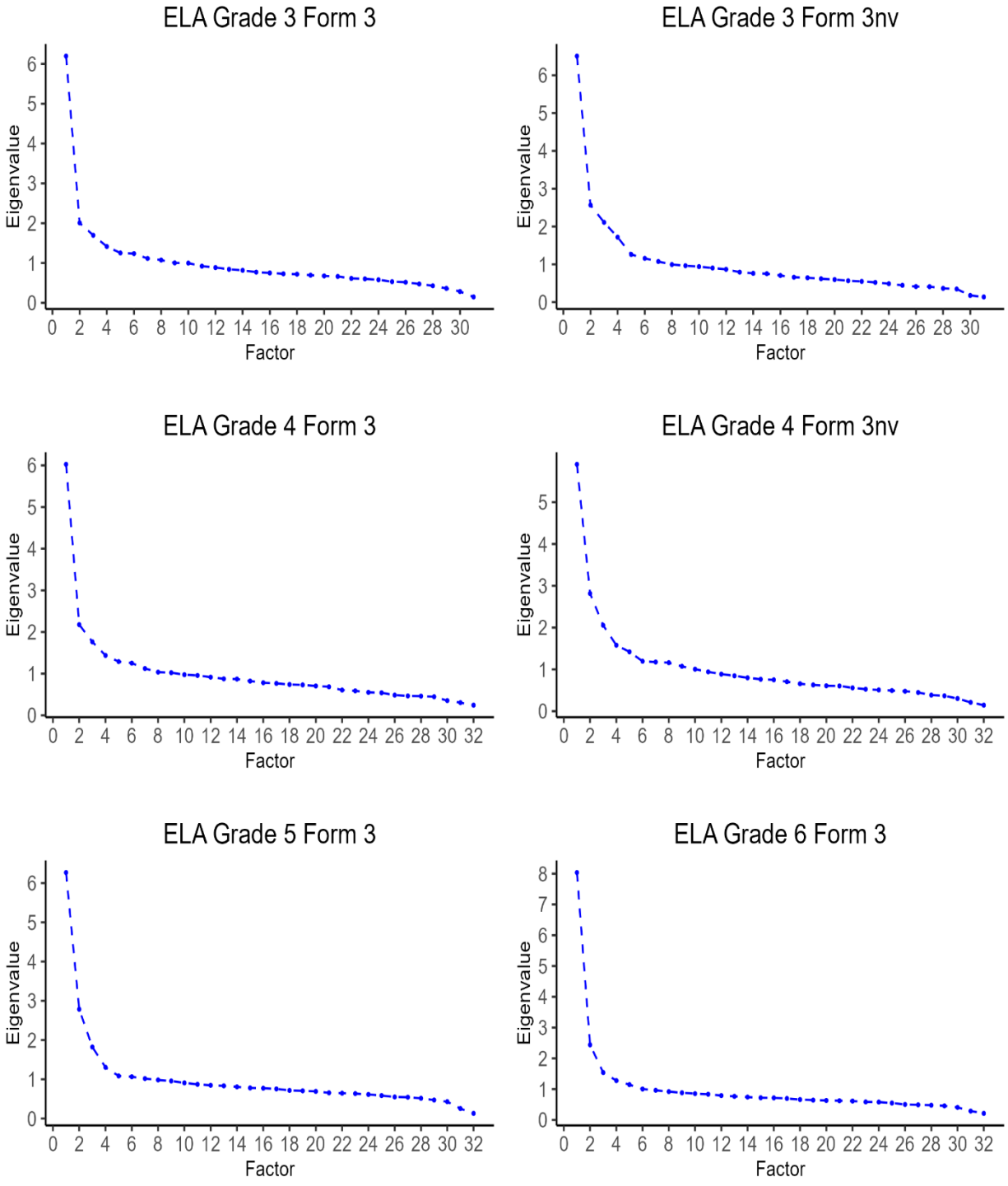
Dimensionality and Local Independence

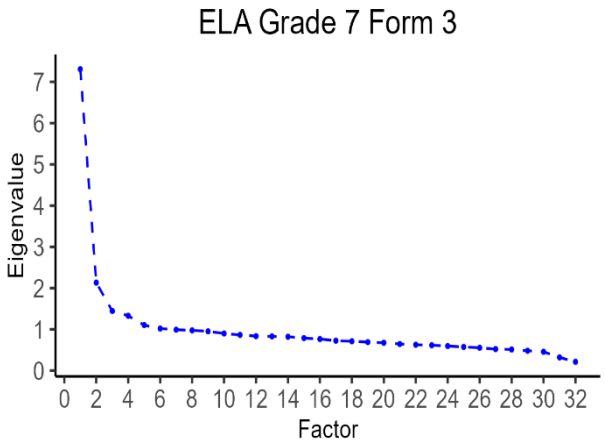
Principal component analysis (PCA), a dimensionality-reduction method commonly used in exploratory data analysis, was utilized to evaluate the unidimensionality assumption of the Rasch and partial credit models. PCA examines the correlations among item-level variables to compute the principal components, that help determine the number of factors needed to explain the intercorrelations among variables. These factors are extracted, and eigenvalues are generated to represent the magnitude of factors (i.e., percentage of variation explained) based on items that are reflected or loaded on these factors. The Scree plots (see Exhibit 37) display the obtained eigenvalues against the number of factors in a descending order (Cattell, 1966). Many LEAP Connect forms showed that the "elbow" appeared not right after the first factor, indicating that a multi-factor model might fit the data better.

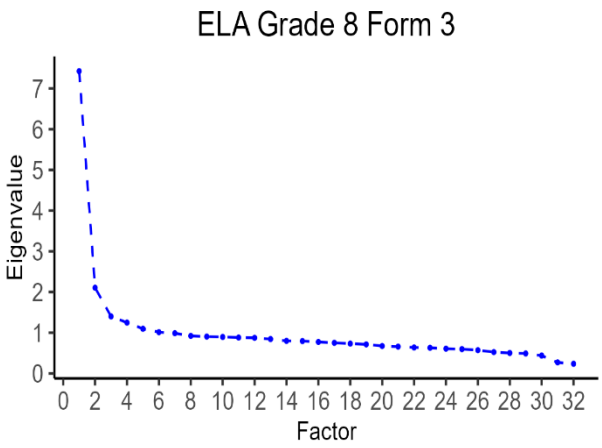
Exhibit 38 presents the eigenvalues and the percentages of variance explained for a maximum of five factors with eigenvalues greater than one. In the majority of LEAP Connect assessments, the primary dimension (i.e., the first principal component or factor) accounted for more than 14% of the total variance. For example, in high school ELA, the first component or factor explained 25.67% of total variance. A significant amount of variance being explained by a single dominant factor indicates there is one major underlying construct being measured. The results were similar to those in the National Center and State Collaborative 2015 Operational Assessment Technical Manual (NCSC, 2016).

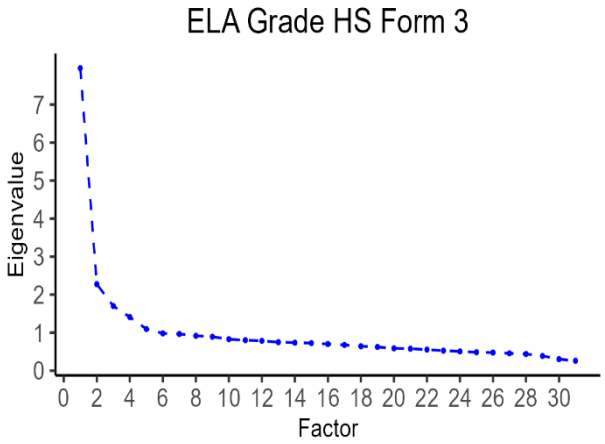
Local independence is another vital assumption of the Rasch model, signifying that examinees' response to a specific item should not be influenced by their responses to other items, once their abilities measured by the test are considered. That is, the likelihood of answering an item correctly is solely determined by the item's characteristics and the student's ability. The evaluation of local independence begins during the item development phase. Local independence is guaranteed as long as all test items are meticulously developed and scrutinized to ensure they do not depend on the responses to other items. During the LEAP Connect test construction, all items on the test are carefully reviewed to ensure both the items and the answers do not provide any clues to students about other items presented on the same test (NCSC, 2016).

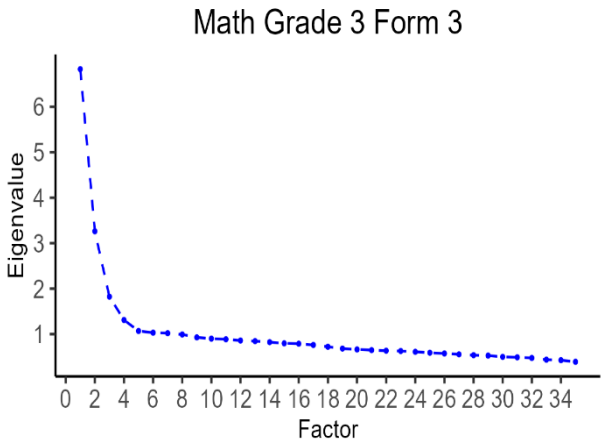
Exhibit 37. Scree Plots of Eigenvalues Against Factors

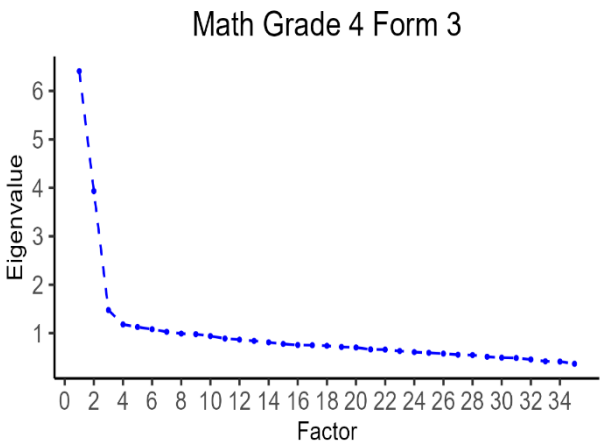


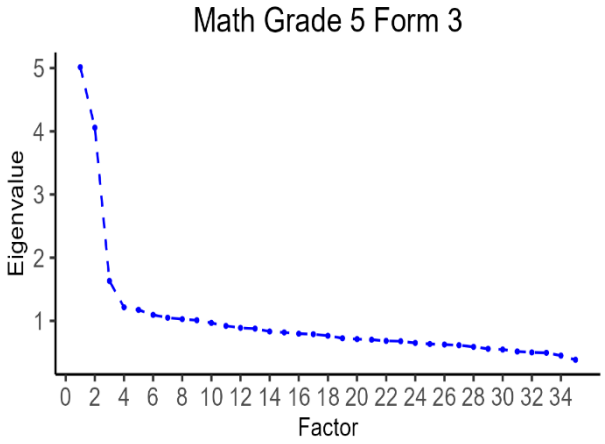

ELA Grade 7 Form 3
Eigenvalue
0 1 2 3 4 5 6 7
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32
Factor

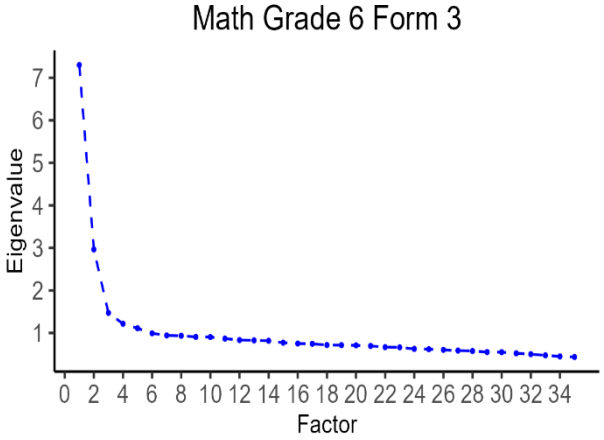

ELA Grade 8 Form 3
Eigenvalue
0 1 2 3 4 5 6 7
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32
Factor

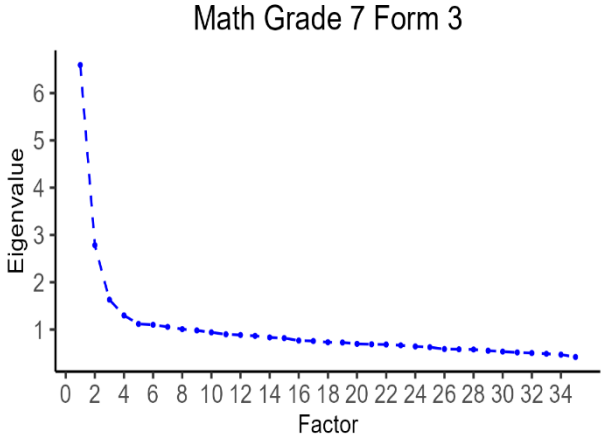

ELA Grade HS Form 3
Eigenvalue
0 1 2 3 4 5 6 7
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
Factor

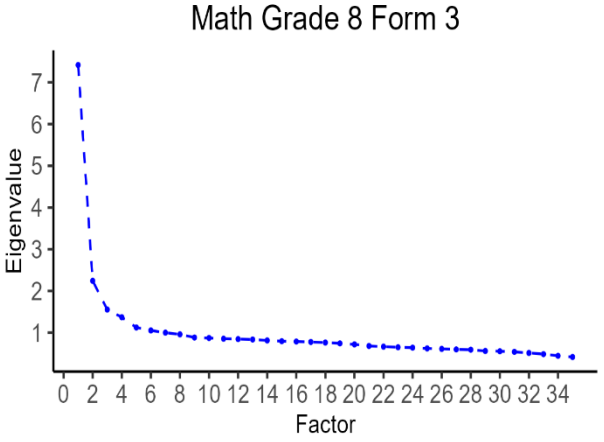

Math Grade 3 Form 3
Eigenvalue
Factor

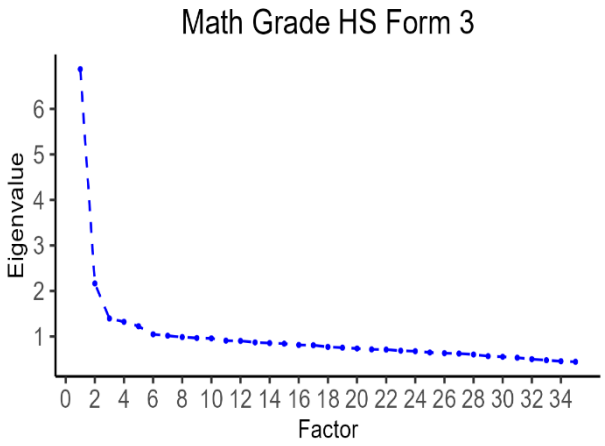

Math Grade 4 Form 3
Eigenvalue
Factor

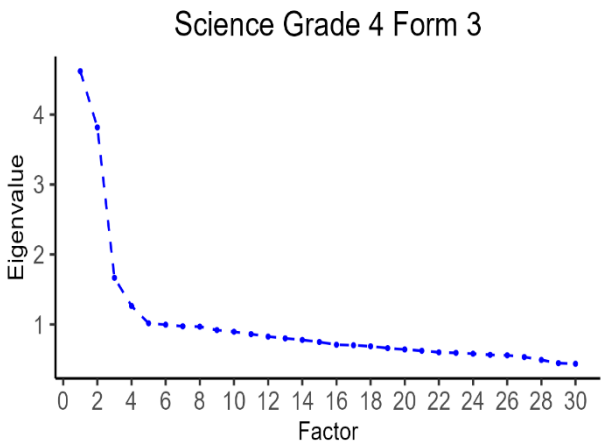

Math Grade 5 Form 3
Eigenvalue
Factor

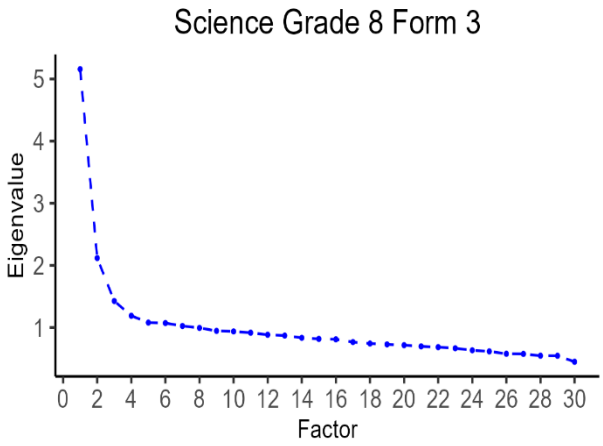

Math Grade 6 Form 3
Eigenvalue
Factor


Math Grade 7 Form 3
Eigenvalue
Factor


Math Grade 8 Form 3
Eigenvalue
Factor


Math Grade HS Form 3
Eigenvalue
6
5
4
3
2
1
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34
Factor


Science Grade 4 Form 3
Eigenvalue
Factor
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
1 2 3 4


Science Grade 8 Form 3
Eigenvalue
Factor
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
1 2 3 4 5

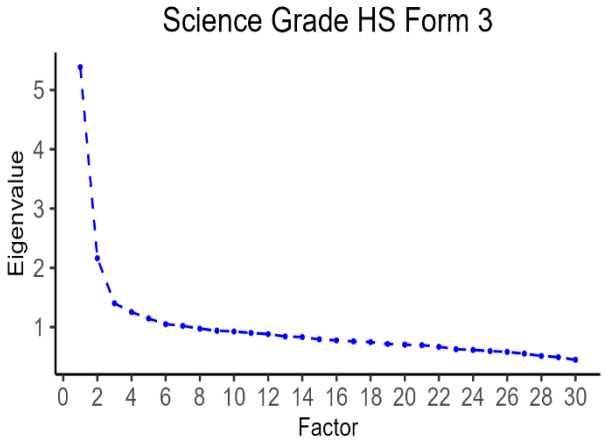

Science Grade HS Form 3
Eigenvalue
Factor
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
1 2 3 4 5

Exhibit 38. Eigenvalue and Percentage of Variance Explained

Content area	Grade	Form	Index	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
ELA	3	3	Eigenvalue	6.20	2.01	1.70	1.41	1.25
			Percent	19.99%	6.48%	5.47%	4.56%	4.04%
		3NV	Eigenvalue	6.51	2.57	2.11	1.72	1.26
			Percent	20.99%	8.28%	6.81%	5.54%	4.07%
	4	3	Eigenvalue	6.03	2.18	1.76	1.44	1.29
			Percent	18.83%	6.80%	5.51%	4.49%	4.03%
		3NV	Eigenvalue	5.91	2.82	2.05	1.58	1.42
			Percent	18.45%	8.80%	6.42%	4.94%	4.44%
	5	3	Eigenvalue	6.27	2.78	1.82	1.31	1.08
			Percent	19.59%	8.70%	5.69%	4.08%	3.39%
	6	3	Eigenvalue	8.04	2.44	1.54	1.28	1.14
			Percent	25.11%	7.62%	4.81%	3.99%	3.57%
	7	3	Eigenvalue	7.31	2.13	1.45	1.33	1.10
			Percent	22.84%	6.67%	4.52%	4.16%	3.45%
	8	3	Eigenvalue	7.43	2.10	1.40	1.25	1.10
			Percent	23.21%	6.58%	4.37%	3.90%	3.43%
	HS	3	Eigenvalue	7.96	2.28	1.70	1.41	1.10
			Percent	25.67%	7.34%	5.49%	4.55%	3.54%
Math	3	3	Eigenvalue	6.83	3.26	1.82	1.31	1.07
			Percent	19.50%	9.32%	5.21%	3.74%	3.05%
	4	3	Eigenvalue	6.41	3.93	1.48	1.18	1.13
			Percent	18.31%	11.23%	4.22%	3.37%	3.22%
	5	3	Eigenvalue	5.02	4.06	1.63	1.22	1.17
			Percent	14.33%	11.59%	4.66%	3.47%	3.35%
	6	3	Eigenvalue	7.30	2.96	1.47	1.22	1.11
			Percent	20.86%	8.47%	4.21%	3.47%	3.17%
	7	3	Eigenvalue	6.60	2.78	1.63	1.30	1.12
			Percent	18.84%	7.95%	4.66%	3.71%	3.19%
	8	3	Eigenvalue	7.42	2.24	1.55	1.37	1.13
			Percent	21.19%	6.41%	4.44%	3.92%	3.21%
	HS	3	Eigenvalue	6.87	2.16	1.39	1.32	1.22
			Percent	19.64%	6.18%	3.98%	3.77%	3.49%
Science	4	3	Eigenvalue	4.62	3.82	1.67	1.26	1.02
			Percent	15.40%	12.72%	5.56%	4.21%	3.39%
	8	3	Eigenvalue	5.16	2.12	1.43	1.19	1.08
			Percent	17.19%	7.06%	4.75%	3.96%	3.59%
	HS	3	Eigenvalue	5.38	2.16	1.40	1.25	1.15
			Percent	17.95%	7.21%	4.67%	4.18%	3.82%

Note. HS = high school.

Differential Item Functioning

It is important to ensure that the LEAP Connect assessments are fairly measuring the performance of all groups of test-takers. To analyze differential item functioning (DIF), the Mantel-Haenszel (MH) procedure (Holland & Thayer, 1988) was employed. Specifically, the MH delta difference (ΔMH DIF), which measures the magnitude of the difference between two groups after controlling for ability estimates, was used to classify items into one of the three categories (see Exhibit 39)—A (negligible DIF), B (moderate DIF), or C (large DIF)—according to the criteria developed by Educational Testing Service (Holland & Thayer, 1988; Zieky, 1993; Zwick, 2012; Zwick & Kadriye, 1989; Zwick, Thayer, & Mazzeo, 1997). For polytomously-scored items, the extension of the MH procedure (Mantel Chi-square) with the standardized mean difference (SMD) was used to evaluate the magnitude of DIF (Dorans & Schmitt, 1991; Zieky, 1993).

Exhibit 39. Differential Item Functioning Criteria

DIF Category	Dichotomously Scored Items	Polytomously Scored Items
A (Negligible)	Nonsignificant MH-D Chi-square statistic ($p \geq .05$) or $\lvert \Delta MH\ DIF \rvert < 1.0$	Nonsignificant Mantel Chi-square ($p \geq .05$) or $\lvert SMD/SD \rvert \leq .17$
B (Slight to Moderate)	Significant MH-D Chi-square ($p < .05$) and $1.0 \leq \lvert \Delta MH\ DIF \rvert < 1.5$	Significant Mantel Chi-square ($p < .05$) and $.17 < \lvert SMD/SD \rvert \leq .25$
C (Moderate to Large)	Significant MH-D Chi-square ($p < .05$) and $\lvert \Delta MH\ DIF \rvert \geq 1.5$	Significant Mantel Chi-square ($p < .05$) and $\lvert SMD/SD \rvert > .25$

Note. DIF = differential item functioning, MH = Mantel-Haenszel, SMD = standardized mean difference.

DIF analyses for items were conducted considering gender, ethnicity, and economic status, as shown in Exhibit 40. Sample sizes for other subgroups of examinees were not large enough for valid DIF analyses.

Exhibit 40. DIF Comparisons Groups

Group	Reference	Focal
Gender	Male	Female
Ethnicity	White	African American
EcoDis	Not Economically Disadvantaged	Economically Disadvantaged

Note. EcoDis represents economically disadvantaged status.

Exhibit 41, Exhibit 42, and Exhibit 43 provide the DIF results for gender, ethnicity, and economically disadvantaged status, respectively. A positive value indicates DIF that favors the focal group, and a negative value indicates DIF that favors the reference group. For instance, “B- DIF” suggests B-category DIF favoring the reference group and “B+ DIF” suggests B-category DIF favoring the focal group. The same interpretation applies to the C-category DIF as well. As can be observed in the tables, all DIF items are in B-category (i.e., slight to moderate). No items were identified as having C-category DIF.

Exhibit 41. Count of Flagged DIF Items for Gender Groups by Content Area and Grade

Content area	Grade	Item usage	N of items	B- DIF	B+ DIF	C- DIF	C+ DIF
ELA	3	OP	33	2			
ELA	4	OP	34	2			
ELA	5	OP	32	1			
ELA	6	OP	32				
ELA	7	OP	32	1			
ELA	8	OP	32				
ELA	HS	OP	31	1			
Math	3	OP	35	1			
Math	4	OP	35	1	1		
Math	5	OP	35		3		
Math	6	OP	35		1		
Math	7	OP	35	2	1		
Math	8	OP	35				
Math	HS	OP	35				
Science	4	OP	30	1	2		
Science	8	OP	30				
Science	HS	OP	30				
ELA	3	FT	7				
ELA	4	FT	5				
ELA	5	FT	8		1		
ELA	6	FT	6				
ELA	7	FT	5				
ELA	8	FT	6				
ELA	HS	FT	8				
Math	3	FT	5		1		
Math	4	FT	5				
Math	5	FT	5				
Math	6	FT	5				
Math	7	FT	5				
Math	8	FT	5				
Math	HS	FT	6				
Science	4	FT	6				
Science	8	FT	6				
Science	HS	FT	6				

Note. HS = high school; OP represents operational; FT = field test.

Exhibit 42. Count of Flagged DIF Items for Ethnicity Groups by Content Area and Grade

Content area	Grade	Item usage	N of items	B- DIF	B+ DIF	C- DIF	C+ DIF
ELA	3	OP	33	1	1		
ELA	4	OP	34		2		
ELA	5	OP	32	2	2		
ELA	6	OP	32				
ELA	7	OP	32		1		
ELA	8	OP	32		2		
ELA	HS	OP	31				
Math	3	OP	35				
Math	4	OP	35		1		
Math	5	OP	35		2		
Math	6	OP	35	1	2		
Math	7	OP	35		1		
Math	8	OP	35	1	2		
Math	HS	OP	35	1			
Science	4	OP	30	1			
Science	8	OP	30	1	3		
Science	HS	OP	30				
ELA	3	FT	7				
ELA	4	FT	5				
ELA	5	FT	8	2			
ELA	6	FT	6				
ELA	7	FT	5				
ELA	8	FT	6				
ELA	HS	FT	8				
Math	3	FT	5				
Math	4	FT	5				
Math	5	FT	5				
Math	6	FT	5		1		
Math	7	FT	5				
Math	8	FT	5				
Math	HS	FT	6				
Science	4	FT	6		2		
Science	8	FT	6		1		
Science	HS	FT	6				

Note. HS = high school; OP represents operational; FT = field test.

Exhibit 43. Count of Flagged DIF Items for Groups Based on Economically Disadvantaged Status by Content Area and Grade

Content area	Grade	Item usage	N of items	B- DIF	B+ DIF	C- DIF	C+ DIF
ELA	3	OP	33	4	1		
ELA	4	OP	34		3		
ELA	5	OP	32				
ELA	6	OP	32				
ELA	7	OP	32				
ELA	8	OP	32				
ELA	HS	OP	31		1		
Math	3	OP	35	2	3		
Math	4	OP	35		1		
Math	5	OP	35				
Math	6	OP	35				
Math	7	OP	35				
Math	8	OP	35		2		
Math	HS	OP	35				
Science	4	OP	30		2		
Science	8	OP	30		1		
Science	HS	OP	30				
ELA	3	FT	7				
ELA	4	FT	5				
ELA	5	FT	8				
ELA	6	FT	6				
ELA	7	FT	5				
ELA	8	FT	6		1		
ELA	HS	FT	8				
Math	3	FT	5				
Math	4	FT	5				
Math	5	FT	5				
Math	6	FT	5				
Math	7	FT	5				
Math	8	FT	5				
Math	HS	FT	6				
Science	4	FT	6		1		
Science	8	FT	6		1		
Science	HS	FT	6				

Note. HS = high school; OP represents operational; FT = field test.

Evidence Based on Relationships with Other Variables

"Evidence based on relationships with other variables provides evidence about the degree to which these relationships are consistent with the construct underlying the proposed test score interpretations" (AERA, APA, & NCME, 2014, p. 16). This type of evidence is classified into three categories: convergent, discriminant, and criterion-related validity. According to Cronbach (1971) and Messick (1989), convergent validity evidence is provided by the relationships among students' test scores on various assessments measuring a similar construct or similar constructs; discriminant validity evidence is provided by relationships among students' test scores on assessments measuring distinct constructs; criterion-related validity evidence is established through the correlations between students' test scores and a designated criterion measure.

Discriminant validity can be evaluated using the correlation between content areas, such as ELA and math. Although correlations among content areas should not be too high, high correlations indicate that some common traits are shared across subjects. Correlations among ELA, math, and science tests at the same grade level are present as evidence of discriminant validity for the LEAP Connect assessments (see Exhibit 44). At grade level, the correlation coefficients range from.62 (i.e., the correlation between ELA and mathematics in high school) to .76 (i.e., the grade-3 ELA and mathematics correlation and the grade-5 ELA and science correlation). The correlations observed among LEAP Connect content areas suggest a combination of shared attributes and distinct characteristics being measured across these content areas.

Exhibit 44. Correlations Among ELA, Math, and Science

Grade	ELA and math	ELA and science	Math and science
3	.76		
4	.70	.71	.74
5	.76		
6	.72		
7	.71		
8	.72	.72	.75
HS	.62	.70	.67

Note. HS = high school.

To gather more evidence on relationships with other variables, the 2023 end-of-test survey (EOTS) integrated inquiries aimed at investigating teachers' viewpoints regarding students' master of knowledge and skills within the classroom as well as their anticipation regarding students' future performance on the LEAP Connect assessments. To be specific, the first six survey questions gathered educators' perceptions about students' grade-level knowledge and skills (i.e., Questions 1, 3, and 5) and their anticipation of students' achievement on the LEAP Connect assessments (i.e., Questions 2, 4, and 6) based on their observation of students' classroom performance in ELA, math, and science, respectively.

Exhibit 45 summarizes Spearman's rank correlations between students' scale scores and two factors: 1) educators' perceptions about students' grade-level knowledge and skills, and 2) educators' anticipation of students' achievement on the LEAP Connect assessment, categorized by content area and grade.

The overall results at the grade level indicate positive and moderate relationships between students' scale scores and educators' evaluation. In general, a stronger relationship was found between students' scale scores and educators' anticipation of students' achievement on the LEAP Connect assessments (correlation coefficients ranging from .52 to .67) than that between the scale scores and educators' perceptions about their grade-level knowledge and skills (correlation coefficients ranging from .40 to .54).

In terms of the relationship between students' scale scores and educators' perceptions about their grade-level knowledge and skills, ELA exhibited correlations ranging from .41 to .54 across all grade levels, yielding an overall correlation coefficient of .47; math demonstrated correlations ranging from .41 to .53 across all grade levels, with an overall correlation coefficient of .46; and science displayed correlations ranging from .40 to .52 across all grade levels, resulting in an overall correlation coefficient of .49.

Regarding the relationship between students' scale scores and educators' anticipation of students' achievement on the LEAP Connect assessments, ELA exhibited correlations ranging from .57 to .67 across all grade levels, yielding an overall correlation coefficient of .62; for math, correlations ranged from .52 to .64 across all grade levels, with an overall correlation coefficient of .59; and in science, correlations varied from .57 to .61 across all grade levels, resulting in an overall correlation coefficient of .60.

The relationships above are positive but moderate because the scale scores are intervals ranging from 1200 to 1290, while the teacher evaluation is based on an ordinal Likert scale ranging from 1 to 3 for knowledge and skills, or from 1 to 4 for anticipated achievement levels.

Exhibit 45. Correlations between Student Scale Score and Teacher Evaluation

Content area	Grade	N	Scale score and knowledge & skills	Scale score and anticipated achievement
ELA	3	≥ 630	.41	.67
	4	≥650	.49	.67
	5	≥ 620	.49	.65
	6	≥ 860	.45	.62
	7	≥ 930	.41	.57
	8	≥ 1040	.52	.67
	11	≥ 930	.54	.59
	Overall	≥ 5680	.47	.62
Math	3	≥ 620	.47	.64
	4	≥ 650	.44	.61
	5	≥ 620	.50	.63
	6	≥ 850	.48	.61
	7	≥ 920	.41	.55
	8	≥ 1030	.53	.64
	11	≥ 920	.47	.52
	Overall	≥ 5630	.46	.59
Science	4	≥ 640	.40	.59
	8	≥ 1020	.49	.61
	11	≥ 930	.52	.57

	Overall	≥ 2610	.49	.60

Further examination of the correlations by student group[1] provides insights into the relationships between student performance (i.e., scale scores) and educator evaluations across content areas and grade levels. Results show that subgroup correlations are comparable between the compared groups (except for ethnicity groups) and to the overall correlations at the grade level, given sufficiently large sample sizes. Appendix P provides details of Spearman's rank correlations between students' scale scores and the two factors by demographic group for each content area and grade level. A summary of major findings is as follows:

- Nearly all students were non-migrants or non-ELs. Due to the very small sample sizes, the correlations between ELs' or migrant students' scale scores and educators' evaluation display noticeable variation. On the contrary, correlations for non-migrant and non-EL groups are almost identical to overall correlations at the grade level in all content areas.
- In terms of the groups categorized based on students' economic status, the findings are: 1) the correlations for both relationships are comparable between the economically disadvantaged and non-disadvantaged groups; and 2) the correlations for both relationships for these two student groups are comparable (if not identical) to the overall correlations at the grade level in all content areas.
- Similar findings as above were also found in the gender group. That is, 1) the correlations for both relationships are comparable between male and female students; and 2) the correlations for both relationships for these two student groups are comparable (if not identical) to the overall correlations at the grade level in all subjects. The exception is that the high school female students have lower correlations for their science scale scores and educators' evaluation, compared to those for male students and those at the grade level.
- As for ethnicity groups, mixed findings are noticed. For ELA, there is no clear pattern(s), although higher correlations were observed between the multi-race group and educators' perceptions about students' grade-level knowledge and skills in some grades and higher correlations were observed between both Asian and White students and educators' anticipation of students' achievement on the LEAP Connect assessments in most grades. For math, the multi-race students in grades 3 and 7, the Hispanic students in grades 6 and 7, and the Black students in high school have correlations smaller than .40 between their scale scores and educators' perceptions about students' grade-level knowledge and skills; the sample sizes for these groups (except for Black) were very small (ranging from 20 to 75). Only Asian students in high school (n = 15) have a correlation smaller than .40 between their scale scores and educators' anticipation of students' achievement on the LEAP Connect assessments. For science, grade-4 Hispanic students have a low correlation (r = .25) between their scale scores and educators' perceptions about their grade-level knowledge and skills. High school Asian students have low correlations for both relationships (r = .34 and r = .36). Correlations for other groups and in other grades are comparable to those at the grade level.

Exhibit 46-Exhibit 51 compare the predicted numbers and percentages of students at each achievement level by educators with the observed numbers and percentages of students at each achievement level. Exhibit 46-Exhibit 48 display the classification of students across grades based on their actual achievement levels in ELA, math, and science, respectively, in comparison to the levels predicted by educators. Exhibit 49-Exhibit 51 illustrate the alignment between students' achievement levels and their

[1] Only groups having at least 15 students were kept for analysis.

grade-level knowledge and skills perceived by educators in ELA, math, and science, respectively. In summary, a stronger alignment is observed between educators' evaluation and students' achievement for lower-end students compared to those in the middle-level and upper-end, across content areas and grades. For example, as shown in Exhibit 46, the alignment between educators' evaluation and students' achievement is as follows: 16% for Below Goal students, 8% for Near Goal students, 10% for At Goal students, and 5% for Above Goal students.

Exhibit 46. Actual Achievement Level vs. Predicted Achievement Level in ELA

ELA		LEAP Connect achievement level			
		Below Goal (%)	Near Goal (%)	At Goal (%)	Above Goal (%)
Educator predicated achievement level	Below Goal	≥ 880 (16)	≥ 610 (11)	≥ 430 (8)	≥ 80 (≤ 5)
	Near Goal	≥ 140 (≤ 5)	≥ 440 (8)	≥ 840 (15)	≥ 490 (9)
	At Goal	≥ 20 (≤ 5)	≥ 110 (≤ 5)	≥ 540 (10)	≥ 690 (12)
	Above Goal	< 10 (≤ 5)	≥ 10 (≤ 5)	≥ 70 (≤ 5)	≥ 260 (≤ 5)

Note. Percentages may not sum up to 100 due to rounding.

Exhibit 47. Actual Achievement Level vs. Predicted Achievement Level in Math

Math		LEAP Connect achievement level			
		Below Goal (%)	Near Goal (%)	At Goal (%)	Above Goal (%)
Educator predicated achievement level	Below Goal	≥ 930 (17)	≥ 570 (10)	≥ 580 (10)	≥ 210 (≤ 5)
	Near Goal	≥ 200 (≤ 5)	≥ 280 (≤ 5)	≥ 580 (10)	≥ 72013)
	At Goal	≥ 40 (≤ 5)	≥ 80 (≤ 5)	≥ 250 (≤ 5)	≥ 81014)
	Above Goal	< 10 (≤ 5)	≥ 20 (≤ 5)	≥ 30 (≤ 5)	≥ 260 (≤ 5)

Note. Percentages may not sum up to 100 due to rounding.

Exhibit 48. Actual Achievement Level vs. Predicted Achievement Level in Science

Science		LEAP Connect achievement level			
		Below Goal (%)	Near Goal (%)	At Goal (%)	Above Goal (%)
Educator predicated achievement level	Below Goal	≥ 300 (12)	≥ 370 (14)	≥ 110 (≤ 5)	≥ 150 (6)
	Near Goal	≥ 60 (≤ 5)	≥ 190 (8)	≥ 180 (7)	≥ 430 (17)
	At Goal	≥ 10 (≤ 5)	≥ 60 (≤ 5)	≥ 70 (≤ 5)	≥ 470 (18)
	Above Goal	< 10 (≤ 5)	≥ 10 (≤ 5)	< 10 (≤ 5)	≥ 130 (≤ 5)

Note. Percentages may not sum up to 100 due to rounding.

Exhibit 49. Actual Achievement Level vs. Knowledge and Skills in ELA

ELA		LEAP Connect achievement level			
		Below Goal (%)	Near Goal (%)	At Goal (%)	Above Goal (%)
Educator perceived knowledge & skills	Beginning	≥ 960 (17)	≥ 910 (16)	≥ 960 (17)	≥ 430 (8)
	Intermediate	≥ 90 (≤ 5)	≥ 250 (≤ 5)	≥ 840 (15)	≥ 900 (16)
	Advanced	< 10 (≤ 5)	≥ 10 (≤ 5)	≥ 80 (≤ 5)	≥ 200 (≤ 5)

Note. Percentages may not sum up to 100 due to rounding.

Exhibit 50. Actual Achievement Level vs. Knowledge and Skills in Math

Math		LEAP Connect achievement level			
		Below Goal (%)	Near Goal (%)	At Goal (%)	Above Goal (%)
Educator perceived knowledge & skills	Beginning	≥ 1050 (19)	≥ 740 (13)	≥ 930 (17)	≥ 640 (11)
	Intermediate	≥ 120 (≤ 5)	≥ 200 (≤ 5)	≥ 470 (8)	≥ 1160 (21)
	Advanced	≥ 10 (≤ 5)	≥ 20 (≤ 5)	≥ 40 (≤ 5)	≥ 210 (≤ 5)

Note. Percentages may not sum up to 100 due to rounding.

Exhibit 51. Actual Achievement Level vs. Knowledge and Skills in Science

Science		LEAP Connect achievement level			
		Below Goal (%)	Near Goal (%)	At Goal (%)	Above Goal (%)
Educator perceived knowledge & skills	Beginning	≥ 340 (13)	≥ 500 (19)	≥ 220 (8)	≥ 400 (16)
	Intermediate	≥ 30 (≤ 5)	≥ 130 (≤ 5)	≥ 140 (6)	≥ 660 (25)
	Advanced	< 10 (≤ 5)	≥ 10 (≤ 5)	≥ 10 (≤ 5)	≥ 130 (≤ 5)

Note. Percentages may not sum up to 100 due to rounding.

Evidence Based on Consequences of Testing

Standard 1.25 states, "[w]hen unintended consequences result from test use, an attempt should be made to investigate whether such consequences arise from the test's sensitivity to characteristics other than those it is intended to assess or from the test's failure to fully represent the intended construct" (AERA, APA, & NCME, pp. 30-31). Evidence derived from the consequences of testing can be collected through prospective research that examines how LEAP Connect test results are used to impact or influence the classroom environment for students, including changes to curricula and classroom assessments, as discussed by Lane & Stone (2002).

Chapter XV. LEAP Connect Validity Argument

Summary of Validity Evaluation Results

As noted in Chapter III, the *Standards for Educational and Psychological Testing* (*the Standards*; AERA, APA, & NCME, 2014) confirms that validity evidence should come from several different sources. Specifically, they articulate five types of evidence as described in the previous chapter:

1. Content: Evidence that the assessments encompass the intended content domain.
2. Cognitive processes: Evidence that the assessment items and tasks elicit the intended cognitive processes from students.
3. Internal structure: Evidence that assessment scores relate to each other in the expected ways, corresponding to the relationships among aspects of the content domain.
4. External relationships: Evidence that the patterns of relationships between assessment scores and outside criteria correspond to the expected patterns.
5. Consequences: Evidence that decisions and actions based on scores correspond to intended decisions and actions.

As we noted in Chapter III, there are four questions (developed through the NCSC project; see NCSC Brief #9) for evaluating these five types of evidence:

1. Content coherence: To what extent have the assessments and their operational system been designed to yield scores that reflect students' knowledge and skills in relation to the academic expectations defined in the standards?
2. Comparability: To what extent does the assessment system operate as intended (e.g., administration, scoring, analyses, reporting) so that scores may be compared across students, sites, and time?
3. Accessibility and fairness: To what extent do students take the assessments under conditions that allow them to demonstrate what they know and can do in relation to the academic expectations defined in the standards?
4. Consequences: To what extent do the processes and outcomes of the assessments contribute to improvements in teachers' capacity to provide academic instruction and to select and use appropriate communications strategies?

In using validity evidence to answer these questions, a solid rationale (validity argument) should emerge that links the evidence to the intended uses and interpretations of assessment scores. Further, the intended uses and interpretations of scores should be directly linked back to the assessment's purpose. Below, we consider the four evaluation questions and pertinent validity evidence for the LEAP Connect Assessments in ELA, mathematics, and science.

Content Coherence

To what extent has the assessment and its operational system been designed to yield scores that reflect students' knowledge and skills in relation to the academic expectations defined in the standards?

As described in Chapter VII. Test Development, the LEAP Connect items are reviewed for their alignment to the Louisiana Connectors (which are derived from the Louisiana Student Standards) as part of the development process. In addition, an independent alignment evaluation of the LEAP Connect assessments was conducted during the 2020–2021 school year. This evaluation followed criteria set forth in the Links for Academic Learning (LAL) alignment evaluation methodology developed for alternate assessments (Flowers, Wakeman, Browder, & Karvonen, 2007). The basic premises of the LAL methodology include the following expectations for alternate assessments (adapted from Flowers et al., 2007):

- The assessments must be linked to grade-level academic content standards.
- The target for achievement must be academic content (e.g., reading, mathematics, science) that is referenced to the student's assigned grade based on chronological age.
- Functional activities and materials may be used to promote understanding, but the target skills for student achievement are academically focused.
- Some prioritizations of the content will occur in setting these academic expectations, but it should reflect the major domains of the curricular area (e.g., strands of math) and have fidelity with this content and how it is typically taught in general education.
- The alternate expectation for achievement may focus on prerequisite skills or some partial attainment of the grade level content standards, but students should still have the opportunity to meet high academic and performance expectations, to demonstrate a range of depth of knowledge, to achieve within their symbolic communication level, and to show growth across grade levels or grade bands.

The results of this alignment evaluation were used to inform field test item development activities for future administrations (alignment evaluation results are included in Appendix I). LDOE documented a response to the alignment evaluation findings in Appendix J. The LEAP Connect Item Development Plans for 2022-23 and 2023-24 also address items for replacement (as needed) based on findings from the alignment evaluation.

Finally, item-total correlation has been calculated as part of the performance data review of all LEAP Connect items. This calculation reveals the extent to which an individual assessment item relates to the overall assessment score. In other words, it shows whether students who performed well overall on the assessment also performed well on the item in question. Item-total correlation is helpful in determining whether individual items are measuring the intended construct. Item-total correlation data for operational items are presented in Chapter X and the same data for field tested items are included in Appendix N. These results indicate strong evidence of construct coherence for the LEAP Connect assessments.

Comparability

To what extent does the assessment system operate as intended (e.g., administration, scoring, analyses, reporting) so that scores may be compared across students, sites, and time?

The administration, scoring, analysis, and reporting procedures for the LEAP Connect assessments have been documented and disseminated to educators and administrators across the state to ensure that assessment procedures are implemented as intended. The online platform for the LEAP Connect

assessments reinforces these standardized procedures and guides educators, administrators, and other stakeholders through each aspect of the assessment process. The standardized procedures reinforced by the system and the uniformity of reports across schools and districts allows scores to be compared across students, sites, and time.

Accessibility and Fairness

To what extent do students take the assessment under conditions that allow them to demonstrate what they know and can do in relation to the academic expectations defined in the standards?

As described in Chapter VII. Test Development, the LEAP Connect items were developed using UD and principled design to ensure that items are fair, accessible, and measure construct-relevant content, and items undergo accessibility and fairness reviews as part of the development process. In addition, the TAM and the LEAP Connect Assessment Guides provide instructions to educators to ensure that they follow the established protocol for administration, including that the assessments are administered in the proper setting (i.e., one-to-one) (refer to Chapter VIII for more information). Educators must demonstrate proficiency in their test administration training to serve as test administrators.

Using a principled design approach, the LEAP Connect minimizes accessibility challenges by taking into consideration test characteristics, such as the choice of content and topics, response processes, and administration procedures (e.g., read aloud) that may impede test takers' access to the construct. To support flexible assessment design and delivery, policies for accessibility and item features are employed that provide opportunities for all students to show what they know and can do, while incorporating other important aspects of item design such as depth of knowledge, text complexity, and degree and type of scaffolds and supports. The assessments include the following accessibility features for all students who take the test:

- The entire test can be read aloud to students.
- Students may respond to items based on their preferred mode of communication (e.g., eye gaze, assistive technology, point to a picture, etc.).
- Items include pictures and graphics to support what is read to students. Nearly all the mathematics items contain visual stimuli to assist students in determining an answer.
- Graphic descriptions read to all students describe an image on the assessment (such as chart, diagram, graph, picture, etc.). Graphic descriptions are an unbiased way of providing accessibility to test items that contain images.
- Alternative text is included for students who are blind or have a visual impairment and require graphics to be described. This Alternative Text includes descriptive statements for tables, charts, graphs, and any graphics necessary for appropriate interaction with the items.
- Items indicate when students may use calculators. Any student with an IEP accommodation for calculator use may use their specified calculator for every item. While an online calculator is provided, students may use the handheld calculator they typically use during instruction on the mathematics test.
- The Next and Back buttons allow students to move from question to question.
- The Flag button can be used to mark any question to which students may wish to return, and the Review/End Test button allows them to review their answers.

- Appendix K describes the position statement of the LDOE for ensuring the accessibility of the LEAP Connect Assessments for students who are visually impaired.

The administration guides also provide a description of additional online accessibility tools available through the platform, which include a pointer tool, highlight tool, cross-off tool, sticky note tool, magnifying tool, line guide, calculator, and help tool. The guides also recommend that students and teachers practice with the system to become familiar with these tools prior to the assessment.

Another tool that produces evidence in support of accessibility and fairness is DIF analysis. DIF ensures that assessments are fairly measuring the performance of all populations of students (e.g., all school districts, genders, races, free and reduced lunch categories, etc.). DIF calculations were conducted in 2023 to ensure that the LEAP Connect assessment items are fairly measuring all groups of students who participate in the assessments. The DIF results can be found in Chapter XIV).

Consequences

To what extent do the process and outcomes of the assessments contribute to improvements in teachers' capacity to provide academic instruction and to select and use appropriate communications strategies?

Assessment is the mechanism by which evidence of students' knowledge, skills, and abilities is obtained. The design of the assessments must be in the service of promoting student learning as part of a larger curriculum, instruction, and assessment system. There must be cohesion between the desired learning outcomes (the grade- and content-specific LCs) and this system. All the components of this system and how they interrelate must be considered together. Thus, designing an assessment is a process in which every decision should be considered in light of each of these three components.

The LEAP Connect assessments are designed to be part of this broader system of curriculum, instruction, and assessments. The system is built on a foundation that recognizes the importance of first providing students an opportunity to learn the assessed academic content and considering the students' communicative competence. The system is also reliant on educators having the training, materials, and resources required to implement effective instruction aligned to the LCs to achieve the intended outcomes of the system – that students with significant cognitive disabilities are prepared for community, college, or career following their K-12 educational experience.

To support the full implementation of the LEAP Connect assessment system, the LDOE recognizes the necessity of providing training and professional development opportunities in addition to materials and resources. As part of the transition to the Louisiana Connectors and the LEAP Connect assessments, the LDOE developed resources to support standards-based instruction for students with significant disabilities. These include:

- Louisiana Connectors Crosswalks with Louisiana Student Standards;
- Louisiana Connectors Essential Elements Cards;
- Student Response Modes;
- Lesson Plan Adaptation;
- Case Studies for Exemplary Instruction.

In addition, as described in the LEAP Connect Assessment Guides, the assessment system allows educators to observe and gauge a student's mode of response via the SRC, which is a set of three content-neutral items administered prior to testing. The purpose of the SRC is to assist educators in determining whether students are able to respond using their preferred mode of communication and to ensure that the educator can clearly identify the students' responses.

During the 2019–2020 school year, edCount researchers collaborated with the LDOE to create drafts of *Companion Resources for the ELA Guidebooks for Students with Significant Cognitive Disabilities* (found in the Students with Significant Cognitive Disabilities resource library). These companion resources were developed for grades 3–8 by modifying the content of the *ELA Guidebook Units* that were previously developed by Louisiana teachers in partnership with the LDOE to support ELA instruction for general and special education students with diverse learning needs by providing classroom-ready daily ELA lessons. It was the goal of the LDOE to implement a well-defined teaching and learning strategy for all students to include Students with Significant Cognitive Disabilities (SWSCDs) while maintaining high expectations of their learning (i.e., building their knowledge of the world; reading meaningful texts; expressing their unique ideas through writing and speaking; and solving complex problems).

The purpose of the *Companion Resources* was to facilitate access to and opportunity for educators to teach SWSCDs a high-quality ELA curriculum, improve professional learning between content specialists and experts in special education, and increase options for students with the most complex needs to participate in an inclusive, least restrictive environment. The LDOE understood that shifts in teacher pedagogy and practice and expectations of learning and achievement for SWSCDs and ongoing development of resources and making available professional development opportunities were necessary to achieve the goals of the project defined as:

- Provide a high-quality curriculum for students with significant cognitive disabilities using adapted, authentic, grade-level texts and integration of reading, writing, speaking, listening, and language standards (i.e., LCs) through the provision of supports and scaffolds based on research and evidence-based practices (i.e., Universal Design for Learning);
- Increase the likelihood of their inclusion in general education settings;
- Improve professional learning between content area specialists and expert teachers of special education students;
- Advance the LDOE's vision that all students, including those with significant cognitive disabilities, deserve an education that prepares them to be independent and successful in life after high school.

edCount researchers worked closely with the LDOE in an iterative, year-long process that included: 1) the establishment of a shared understanding of the goals and outcomes of the work including expectations for the Teacher Leader Associates (TLAs) who drafted the *Companion Guides*; 2) development of training and professional development materials; 3) development and provision of exemplars of modifications for instruction (i.e., academic lessons, guidance on the purpose, use, and development of adapted texts); and 4) employment of a detailed review process based on guidelines, templates, and checklists made available to the TLAs to inform unit revisions and receive subsequent feedback to create final drafts of the units.

The ELA guidebooks were developed with these shifts in mind to incorporate text complexity through rich, authentic texts. They incorporate evidence through questions and assessments that are text-dependent. Finally, the ELA guidebooks build knowledge through text sets that center around a topic or theme and help students build knowledge throughout the unit. Currently, the LDOE is considering how to expand the guidebook into other content areas.

In 2023, the LDOE further investigated teachers' perceptions of student performance in the classroom as well as teachers' perceptions of how students will perform on the LEAP Connect assessments. The data were gathered via the EOTS and used in comparison with students' actual performance on the LEAP Connect assessment. Validity evidence supporting positive relationships between student scale scores on the LEAP Connect and teachers' perceptions of 1) student performance in classroom and of 2) how student will perform on the LEAP Connect assessments are presented in Chapter XIV.

Summary and Conclusions

The evidence for each of the four validity evaluation questions summarized above demonstrates the LDOE's commitment to ensuring that the interpretations and uses of LEAP Connect assessment scores are valid in terms of content coherence, comparability, accessibility and fairness, and consequences. Alignment evaluations and item-total correlation calculations provide evidence that the LEAP Connect assessments yield scores that reflect students' knowledge and skills in relation to the academic expectations outlined in the standards (i.e., content coherence). Documented administration, scoring, analysis, and reporting procedures, which are reinforced through the online assessment system, ensure that LEAP Connect scores may be compared across students, sites, and time (i.e., comparability). The LEAP Connect assessment system's accessibility features and documentation for test administrators on using these features, along with DIF calculations, provides evidence that students participate in the assessments under conditions that allow them to demonstrate what they know and can do (i.e., accessibility and fairness). Finally, tools and resources designed for educators (e.g., Student Response Modes document, Lesson Plan Adaption document, curricular guidebooks, etc.) ensure that the LEAP Connect assessment system supports teacher capacity to provide quality instruction and to use appropriate communication strategies with students (i.e., consequences).

In addition, the LDOE has plans to gather additional information about response processing via the student interaction studies and evidence to support the relationship of the assessment to external measures via data on the EOTS.

In general, validity arguments for large-scale assessments are based on rationale, logic, and scrutinization of evidence. Based on the intended purposes and uses of the test scores, the validity argument is supported for the LEAP Connect assessments in ELA, mathematics, and science. However, the LDOE is committed to continuous improvement efforts and will pursue the additional validity evidence noted above in future years. LDOE and their vendors will continue to gather validity evidence to support the LEAP Connect assessment program over time.

References

Almond, P., Winter, P., Cameto, R., Russell, M., Sato, E., Clarke-Midura, J., Torres, C., Haertel, G., Dolan, R., Beddow, P., & Lazarus, S. (2010). Technology-Enabled and universally designed assessment: Considering access in measuring the achievement of students with disabilities—A foundation for research. *Journal of Technology, Learning, and Assessment*, *10*. Retrieved July 9, 2021, from http://www.jtla.org.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (2014). *Standards of Educational & Psychological Testing*.

Balow, J. & Miller, C. M. (2020). *Restart & recovery: Assessments in Spring 2021.* Washington, DC: Council of Chief State School Officers.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*, 245-276.

Code of Fair Testing Practices in Education. (2004). Washington, DC: Joint Committee on Testing Practices.

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*(1), 37-46.

Council of Chief State School Officers (CCSSO). (2014). *CCSSO criteria for procuring and evaluating high-quality assessments*. Washington, DC: Author.

Council of Chief State School Officers (CCSSO). (2015). *Comprehensive statewide assessment systems: A framework for the role of the state education agency in improving quality and reducing burden*. Washington, DC: Author.

Council of Chief State School Officers (CCSSO) and the Association of Test Publishers (ATP). (2013). *Operational best practices for statewide large-scale assessment programs*. Washington, DC: Author.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*, 297–334.

Cronbach, L. J. (1971). *Test validation*. In R. L. Thorndike (Ed.), *Educational measurement*, pp. 443–507.

Dorans, N. J., & Schmitt, A. P. (1991). Constructed response and differential item functioning: A pragmatic approach (ETS RR-91-47). Princeton, NJ: ETS.

Flowers, C., Wakeman, S., Browder, D., & Karvonen, M. (2007). *Links for Academic Learning: An alignment protocol for alternate assessments based on alternate achievement standards*. Charlotte, NC: University of North Carolina at Charlotte.

Holland, P. W., & Thayer, D. T. (1988). Differential item performance and the Mantel-Haenszel procedure. In H. Wainer & H. I. Braun (Eds.), Test validity (pp. 129–145). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Kearns, J., Kleinert, H., Kleinert, J., & Towles-Reeves, E. (2006). *Learner characteristics inventory.* Lexington, Kentucky: University of Kentucky, National Alternate Assessment Center.

Kolen M. J., Brennan R. L. (2004). *Test Equating, Scaling, and Linking: Methods and Practices.* Berlin: Springer Science & Business Media. National Center and State Collaborative (NCSC, 2016, March). *2015 Operational Assessment Technical Manual*. Minneapolis, MN.

Lane, S. and Stone, C. A. (2002). Strategies for examining the consequences of assessment and accountability programs. *Educational Measurement: Issues and Practice*, *21*, 23-30.

Linacre, J. M. (2012). *Winsteps® Rasch measurement computer program*. Beaverton, Oregon: Winsteps.com

Livingston, S. A., & Lewis, C. (1995). Estimating the consistency and accuracy of classifications based on test scores. *Journal of Educational Measurement*, *32*, 179–197.

Messick, S. (1989). *Validity*. In R. L. Linn (Ed.), *Educational measurement* (3rd ed., pp. 13– 103). New York, NY: Macmillan.

National Center and State Collaborative (2016). *National Center and State Collaborative 2015 Operational Assessment Technical Manual.*

National Council on Measurement in Education (2012). *Testing and data integrity in the administration of statewide student assessment programs*. Madison, WI: Author.

Thurlow, M. L., Wu, Y., Quenemoen, R. F., & Towles, E. (2016, January). Characteristics of students with significant cognitive disabilities (NCSC Brief #8). Minneapolis, MN: University of Minnesota, National Center and State Collaborative. Wright, B. D., & Linacre, J. M. (1994). Reasonable mean-square fit values. Rasch Measurement Transactions, 8, 370-371.

Wright, B. D., & Masters, G. N. (1982). *Rating scale analysis: Rasch measurement*. Chicago: Mesa Press.

Yen, W. M., & Fitzpatrick, R. R. (2006). *Item response theory*. In R. L. Brennan (Ed.), *Educational measurement* (4th ed., pp. 111–153). Westport, CT: American Council on Education and Praeger Publishers.

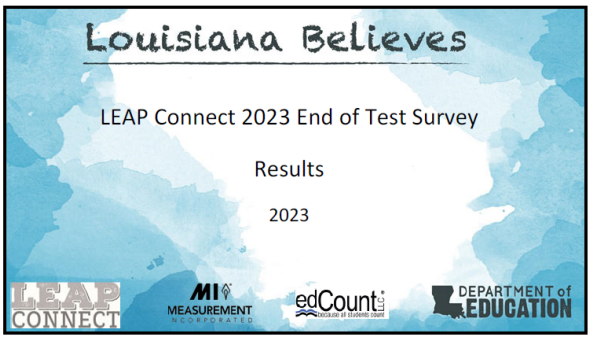
Zieky, M. (1993). Practical questions in the use of DIF statistics in test development. In P. W. Holland & H. Wainer (Eds.), Differential item functioning (pp. 337–347). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

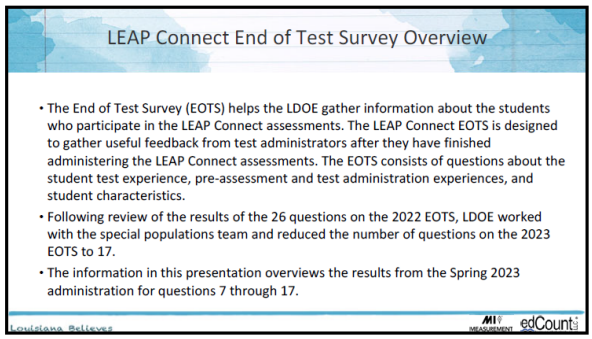
Zwick, R., Thayer, D. T., & Mazzeo, J. (1997). Describing and categorizing DIF in polytomous items (ETS RR-97-05). Princeton, NJ: ETS.

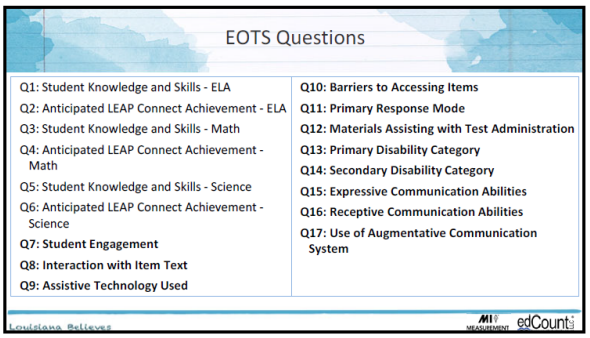
Zwick, R. (2012). A review of ETS differential item functioning assessment procedures: Flagging rules, minimum sample size requirements, and criterion refinement (ETS RR-12-08). Princeton, NJ: ETS.

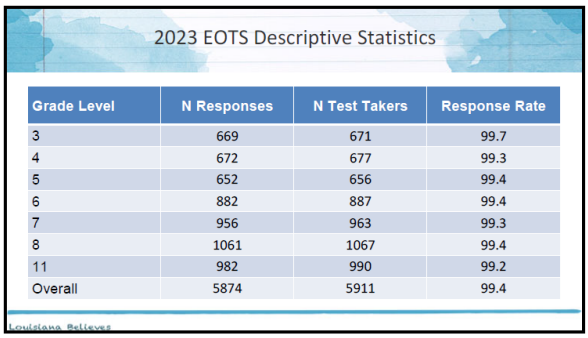
Zwick, R., & Kadriye, E. (1989). Analysis of differential item functioning in the NAEP History Assessment. Journal of Educational Measurement, 26, 55–66.

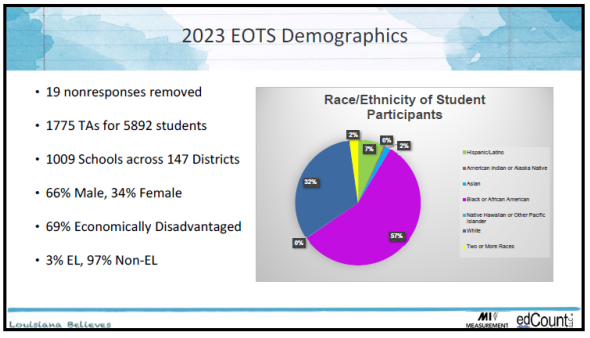
Appendix A. End-of-Test Survey Results

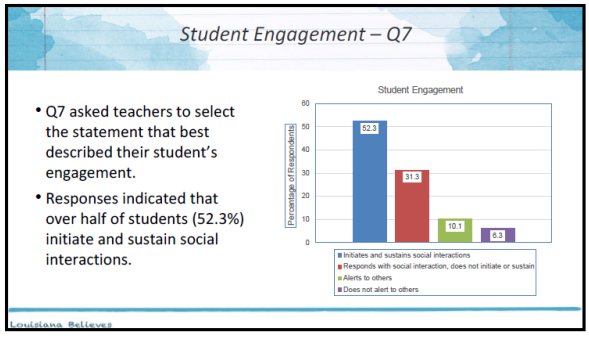


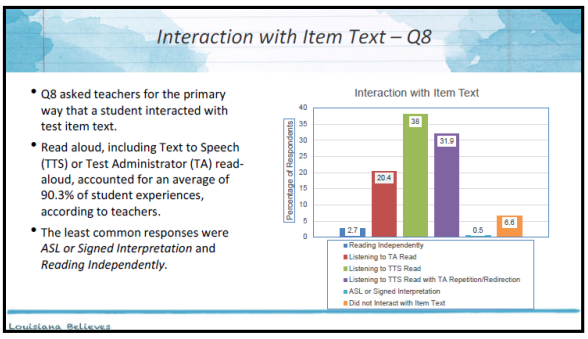


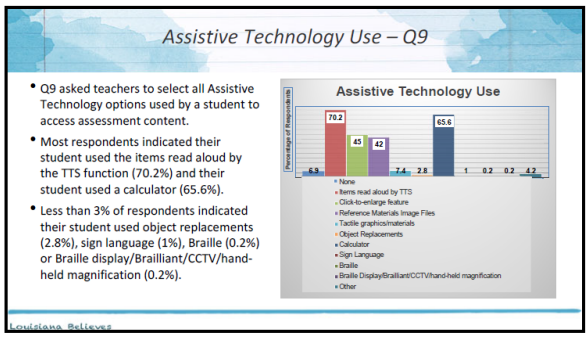






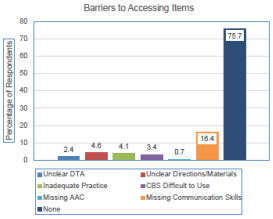






Barriers to Accessing Items – Q10

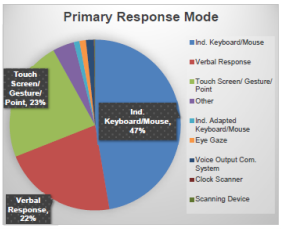
- Q10 asked teachers to indicate any barriers for a student in accessing LEAP Connect test items.
- Most responses (75.7%) indicated none of the options presented in the survey were barriers to the student.
- A smaller percentage of students (16.4%) were reported as not having the necessary communication skills in general, which presented a barrier to access.



Louisiana Believes

Primary Response Mode – Q11

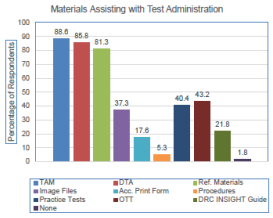
- Q11 asked teachers to select the primary way a student indicated their responses to the LEAP Connect assessment items.
- Most responses (47.3%) indicated that the student independently used a keyboard or mouse.
- Lowest frequency responses were *Other* (4.1%), *Voice output communication system* (1.5%), *Eye gaze* (1.2%), *Independently used an adapted keyboard/mouse* (1.1%), *Clock scanner with switch* (0.1%), or *Scanning device* (0.1%).



Louisiana Believes

Materials Assisting with Test Administration – Q12

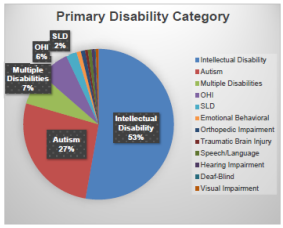
- Q12 asked teachers to select all materials that assisted them in administering the LEAP Connect test to their student.
- For all grades, a majority of respondents indicated using the *Test Administration Manual (TAM)*, *Directions for Test Administration (DTA)*, and *Reference Materials*.



Louisiana Believes

Primary Disability Category – Q13

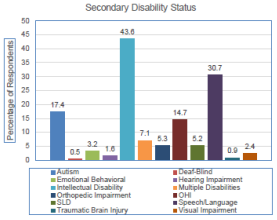
- Q13 asked teachers to indicate a student's primary IDEA disability label.
- Most responses indicated the student's primary disability label was *Intellectual Disability* (52.8%).
- Less than 2% of responses included *Emotional/Behavioral Disability* (0.9%), *Orthopedic Impairment* (0.9%), *Speech/Language Impairment* (0.8%), *Hearing Impairment* (0.7%), *Traumatic Brain Injury* (0.6%), *Visual Impairment* (0.6%), and *Deaf-Blind* (0.2%).



Louisiana Believes

Secondary Disability Status– Q14

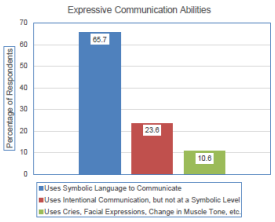
- Q14 asked teachers to select any additional identified disabilities for which a student received school-based special education services.
- On average, the largest percentage of responses indicated that students additionally received services for *Intellectual Disability* (43.6%).
- An average of 30.7% of responses indicated the student additionally received services for *Speech/Language Impairment*.



Louisiana Believes

Expressive Communication Abilities – Q15

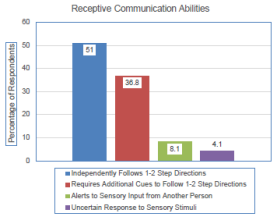
- Q15 asked teachers to select the statement that best described their student's expressive communication.
- Most responses (65.7%) indicated that the student *uses symbolic language to communicate*.



Louisiana Believes

Receptive Communication Abilities – Q16

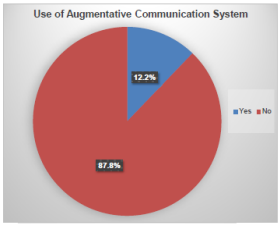
- Q16 asked teachers to select the statement that best described their student's receptive communication.
- Most students (87.8%) could follow 1-2 step directions, either independently or with additional cues.



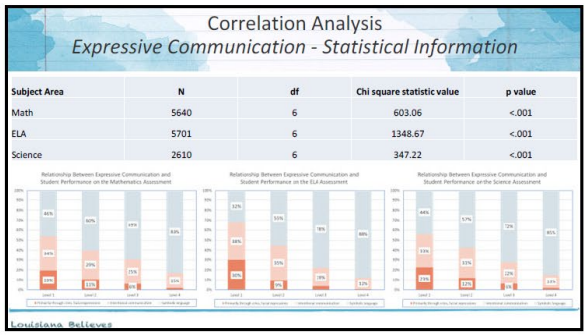
Louisiana Believes

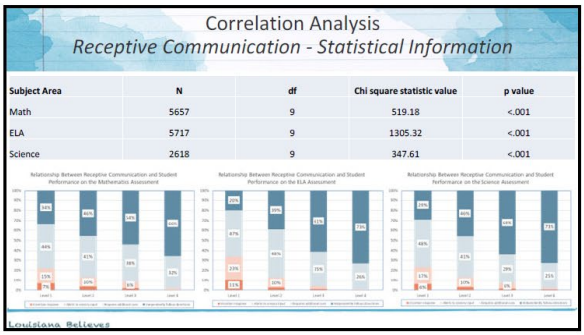
Use of Augmentative Communication System – Q17

- Q17 asked teachers to indicate whether their student uses an augmentative communication system in addition to or in place of oral speech.
- Most students (87.8%) ***did not*** *use an augmentative communication system.*



Louisiana Believes


Correlation Analysis
Expressive Communication - Statistical Information
Subject Area | N | df | Chi square statistic value | p value
Math | 5640 | 6 | 603.06 | <.001
ELA | 5701 | 6 | 1348.67 | <.001
Science | 2610 | 6 | 347.22 | <.001
Relationship Between Expressive Communication and Student Performance on the Mathematics Assessment
Relationship Between Expressive Communication and Student Performance on the ELA Assessment
Relationship Between Expressive Communication and Student Performance on the Science Assessment
Louisiana Believes


Correlation Analysis
Receptive Communication - Statistical Information
Subject Area | N | df | Chi square statistic value | p value
Math | 5657 | 9 | 519.18 | <.001
ELA | 5717 | 9 | 1305.32 | <.001
Science | 2618 | 9 | 347.61 | <.001
Relationship Between Receptive Communication and Student Performance on the Mathematics Assessment
Relationship Between Receptive Communication and Student Performance on the ELA Assessment
Relationship Between Receptive Communication and Student Performance on the Science Assessment
Louisiana Believes

Appendix B. 2023 LEAP Connect Operational Assessment Blueprints

English Language Arts Test Blueprints

Purpose

This document provides the 2022-2023 LEAP Connect English Language Arts (ELA) operational test blueprints for grades 3 – 8 and high school. In each assessed grade and at high school, four (4) passage sets, two (2) Literature and two (2) Informational are assessed and will contribute to the ELA total score. Foundational reading items will contribute to the score in grades 3 and 4 and Language items will contribute to the score in all grades and high school. In addition, at grades 3 – 8 and high school, four (4) stand-alone writing selected-response items, one (1) multi-part writing selected-response item, and one (1) writing constructed-response item will contribute to the ELA total score based on the proposed 2022-2023 English Language Arts (ELA) Directory of Test Specifications (DOTS).

Background Information

The 2022-2023 LEAP Connect ELA operational test blueprints presented in this document as grade-level tables are consistent with 2020-2021 operational LEAP Connect ELA assessments. For grades 3 – 8 and high school, a grade-level table first describes the overall content distribution by content category (e.g., Reading Literature). For each content category, the scoring weight, the corresponding standards (i.e., Louisiana Connectors (LCs)), item types, and score points are detailed.

Source Documents

The following documents were referenced to inform the development and review of the content of the 2022-2023 LEAP Connect ELA test blueprints.

- 2020-2021 LEAP Connect ELA DOTS
- 2020-2021 LEAP Connect ELA Field Testing Plan
- 2020-2021 LEAP Connect Assessment Framework Grades 3 – 8 and High School ELA and Mathematics

LEAP Connect English Language Arts Test Blueprints

The LEAP Connect ELA test blueprints are provided below in Exhibit 10. For grades 3 – 8 and high school, the content category, weight, ELA LCs, item type, score point, and number of passages (i.e., Literature or Informational) are indicated. The weight ranges are approximate and are based on a percentage of the median total number of points (39).

Exhibit 10. 2022-2023 Grade 3 LEAP Connect ELA Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range	Passage
Reading: Literature	23-28%	**LC.RL.3.1a** Answer questions related to the relationship between characters, setting, events, or conflicts (e.g., characters and events, characters and conflicts, setting and conflicts).	SR	2-3	2
		LC.RL.3.1b Answer questions (literal and inferential) and refer to text to support your answer.	SR	3-4	
		LC.RL.3.2a Identify the central message (theme), lesson, or moral within a story, folktale, or fable from diverse cultures.*	SR	3-4	
Reading: Informational	23-28%	**LC.RI.3.2a** Determine the main idea of text, read aloud, or information presented in diverse media and formats, including visually, quantitatively, and orally.	SR	2-3	2
		LC.RI.3.2b Determine the main idea of a text; recount the key details and explain how they support the main idea.*	SR	3-4	
		LC.RI.3.5a Identify the purpose of a variety of text features.*	SR	3-4	
		LC.RI.3.7a Use illustrations (e.g., maps, photographs) in informational texts to answer questions.	SR	2-3	
Language	5-8%	**LC.L.3.4a** Use sentence context as a clue to the meaning of a new word, phrase, or multiple meaning word.	SR	2-3	NA
Foundational Reading	5%	**LC.RF.3.4b** Identify grade-level words with accuracy.*	SR	2	NA
Writing	36-39%	**LC.W.3.2c** Include illustrations to enhance clarity and meaning.	SR	2	NA
		LC.W.3.4 With guidance and support from adults, produce a permanent product that is appropriate to the specific task (e.g., topic or text), purpose (e.g., to inform or entertain), and audience (e.g., reader).	SR*	1-2	
			CR	9	
		LC.W.3.8g Sort evidence collected from print and/or digital sources into provided categories.	SR	2	
Total	100%			38-40	4

* The LC requires a multi-part item or writing item set to assess.

Exhibit 11. 2022-2023 Grade 4 LEAP Connect ELA Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range	Passage
Reading: Literature	points 23-28%	**LC.RL.4.1a** Refer to details and examples in a text when explaining what the text says explicitly.	SR	2–3	2
		LC.RL.4.2b Determine the theme of a story, drama, or poem; refer to text to support answer.*	SR	3–4	
		LC.RL.4.3b Describe character traits (e.g., actions, deeds, dialogue, description, motivation, interactions); use details from text to support description.*	SR	3–4	
Reading: Informational	23-28%	**LC.RI.4.2a** Determine the main idea of an informational text.	SR	2	2
		LC.RI.4.7a Use information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) to answer questions.	SR	2–3	
		LC.RI.4.7c Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.*	SR	3–4	
Language	5-10%	**LC.L.4.4a** Use context to determine the meaning of unknown or multiple meaning words, or words showing shades of meaning.	SR	1–2	NA
		LC.L.4.6a Use grade-appropriate general academic and domain-specific words and phrases accurately when communicating.	SR	1–2	
Foundational Reading	5%	**LC.RF.4.3b** Identify grade level words with accuracy and on successive attempts.*	SR	2	NA
Writing	36-39%	**LC.W.4.2c** Include formatting (e.g., headings), illustrations, and multimedia when appropriate to convey information about the topic.	SR	2	NA
		LC.W.4.2f Provide a concluding statement or section related to the information presented.	SR	2	
		LC. W.4.4a Produce a clear coherent permanent product that is appropriate to the specific task (e.g., topic or text), purpose (e.g., to inform or entertain), and audience (e.g., reader).	SR*	1-2	
			CR	9	
Total	100%			38-40	4

* The LC requires a multi-part item or writing item set to assess.

Exhibit 12. 2022-2023 Grade 5 LEAP Connect ELA Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range	Passage
Reading: Literature	26-31%	**LC.RL.5.1a** Refer to details and examples in a text when explaining what the text says explicitly.	SR	2-4	2
		LC.RL.5.2b Summarize a text from beginning to end in a few sentences*	SR	3–6	
		LC.RL.5.3a Compare characters, settings, events within a story; provide or identify specific details in the text to support the comparison.	SR	2-4	
Reading: Informational	26-31%	**LC.RI.5.2a** Determine the main idea, and identify key details to support the main idea.*	SR	2-4	2
		LC.RI.5.5c Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts. * **	SR	3–4	
		LC.RI.5.8a Explain how an author uses reasons and evidence to support particular points in a text.	SR	3–4	
Language	5-8%	**LC.L.5.4a** Use context to determine the meaning of unknown or multiple meaning words.	SR	2-3	NA
Writing	36-39%	**LC.W.5.2b** Group related information logically.	SR	2	NA
		LC.W.5.2c Develop the topic (i.e., add additional information related to the topic) with facts, definitions, concrete details, quotations, or other information and examples.	SR	2	
		LC.W.5.4 Produce a clear, coherent permanent product that is appropriate to the specific task (e.g., topic or text), purpose (e.g., to inform or entertain), and audience (e.g., reader).	SR*	1-2	
			CR	9	
Total	100%			38-40	4

* The LC requires a multi-part item or writing item set to assess.
**A paired passage set is used for one of the Informational texts assessed in grade 5.

Exhibit 13. 2022-2023 Grade 6 LEAP Connect ELA Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range	Passage
Reading: Literature	26-31%	**LC.RL.6.1a** Refer to details and examples in a text when explaining what the text says explicitly.	SR	1-2	2
		LC.RL.6.1b Use specific details from the text (e.g., words, interactions, thoughts, motivations) to support inferences or conclusions about characters including how they change during the course of the story.	SR	2-3	
		LC.RL.6.2c Summarize a text from beginning to end in a few sentences without including personal opinions.*	SR	3–6	
Reading: Informational	26-36%	**LC.RI.6.2** Provide a summary of the text distinct from personal opinions or judgments.	SR	2-4	2
		LC.RI.6.3d Determine how key individuals, events, or ideas are elaborated or expanded on in a text.	SR	3-4	
		LC.RI.6.7b Summarize information gained from a variety of sources including media or texts.**	SR	1-2	
		LC.RI.6.8b Evaluate the claim or argument; determine if it is supported by evidence.	SR	3-4	
Language	5-10%	**LC.W.6.4a** Use context to determine the meaning of unknown or multiple meaning words.	SR	1-2	NA
		LC.L.6.6a Use grade-appropriate general academic and domain-specific words and phrases accurately.	SR	1-2	
Writing	36-39%	**LC.W.6.3b** Organize events so they unfold naturally.	SR	2	NA
		LC.W.6.3d Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.	SR	2	
		LC.W.6.4 Produce a clear, coherent permanent product that is appropriate to the specific task (e.g., topic or text), purpose (e.g., to inform or entertain), and audience (e.g., reader).	SR*	1-2	
			CR	9	
Total	100%			38-40	4

* The LC requires a multi-part item or writing item set to assess.
**A paired passage set is used for one of the Informational texts assessed in grade 6.

Exhibit 14. 2022-2023 Grade 7 LEAP Connect ELA Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range	Passage
Reading: Literature	23-31%	**LC.RL.7.1b** Use two or more pieces of textual evidence to support conclusions, or summaries of text.	SR	4–8	2
		LC.RL.7.2b Analyze the development of the theme or central idea over the course of the text.	SR	2-4	
Reading: Informational	26-36%	**LC.RI.7.1** Use two or more pieces of evidence to support inferences, conclusions, or summaries of text.	SR	4–6	2
		LC.RI.7.3 Analyze the interactions between individuals, events, and ideas in a text (e.g., how ideas influence individuals or events, or how individuals influence ideas or events).	SR	2-4	
		LC.RI.7.8b Evaluate the claim or argument to determine if they are supported by evidence.	SR	2-4	
		LC.RI.7.7 Compare/contrast how two or more authors write about the same topic.**	SR	1-2	
Language	5-10%	**LC.L.7.4a** Use context as a clue to determine the meaning of a grade-appropriate word or phrase.	SR	2-4	NA
Writing	36-39%	**LC.W.7.3e** Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.	SR	2	NA
		LC.W.7.3f Provide a conclusion that follows from the narrated experiences or events.	SR	2	
		LC.W.7.4 Produce a clear, coherent permanent product that is appropriate to the specific task (e.g., topic or text), purpose (e.g., to persuade or inform), and audience (e.g., reader).	SR*	1-2	
			CR	9	
Total	100%			38-40	4

* The LC requires a multi-part item or writing item set to assess.
**A paired passage set is used for one of the Informational texts assessed in grade 7

Exhibit 15. 2022-2023 Grade 8 LEAP Connect ELA Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range	Passage
Reading: Literature	23-31%	**LC.RL.8.1b** Use two or more pieces of evidence to support inferences, conclusions, or summaries or text.*	SR	6–8	2
		LC.RL.8.2b Analyze the development of the theme or central idea over the course of the text including its relationship to the characters, setting and plot.	SR	2-4	
Reading: Informational	26-36%	**LC.RI.8.1a** Use two or more pieces of evidence to support inferences, conclusions, or summaries of text.*	SR	4–6	2
		LC.RI.8.5d Determine how the information in each section contributes to the whole or to the development of ideas.	SR	3-4	
		LC.RI.8.8a Identify an argument or claim that the author makes.	SR	2-3	
		LC.RI.8.9 Analyze a case in which two or more texts provide conflicting information on the same topic and identify where the texts disagree on matters of fact or interpretation.**	SR	1-2	
Language	5-10%	**LC.L.8.4a** Use context as a clue to the meaning of a grade-appropriate word or phrase.	SR	1-2	NA
		LC.L.8.6a Use grade-appropriate general academic and domain-specific words and phrases accurately.	SR	1-2	
Writing 15 points	36-39%	**LC.W.8.1b** Create an organizational structure in which ideas are logically grouped to support the claim.	SR	2	NA
		LC.W.8.4 Produce a clear, coherent permanent product that is appropriate to the specific task (e.g., topic or text), purpose (e.g., to persuade or inform), and audience (e.g., reader).	SR*	1-2	
			CR	9	
		LC.W.8.8a Gather relevant information (e.g., highlight in text, quote or paraphrase from text or discussion) from print (e.g., text read aloud, printed image) and/or digital sources (e.g., video, audio, images/graphics) relevant to a topic.	SR	2	
Total	100%			38-40	4

*The LC requires a multi-part item or writing item set to assess.
** A paired passage set is used for one of the Informational texts assessed in grade 8.

Exhibit 16. 2022-2023 High School LEAP Connect ELA Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range	Passage
Reading: Literature	15-21%	**LC.RL.11-12.1a** Use two or more pieces of evidence to support inferences, conclusions, or summaries of the plot, purpose, or theme within a text.*	SR	3–4	2
		LC.RL.11-12.5 Analyze how an author's choices concerning how to structure specific parts of a text (e.g., the choice of where to begin or end a story, the choice to provide a comedic or tragic resolution) contribute to its overall structure and meaning.	SR	3-4	
Reading: Informational	36-41%	**LC.RI.11-12.1a** Use two or more pieces of evidence to support inferences, conclusions, or summaries or text.*	SR	4–6	2
		LC.RI.11-12.2c Determine how key details support the development of the central idea of a text.	SR	4–8	
		LC.RI.11-12.6a Determine the author's point of view or purpose in a text.	SR	2-3	
		LC.RI.11-12.6d Develop and explain ideas for why authors made specific word choices within text.	SR	2–3	
		LC.RI.11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.**	SR	1-2	
Language	5-10%	**LC.L.11-12.4a** Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position in a sentence) as a clue to the meaning of a word or phrase.	SR	2-4	NA
Writing	36-39%	**LC.W.11-12.2b** Create an organizational structure (e.g., cause/effect, compare/contrast, descriptions and examples) that groups information logically to support the stated topic.	SR	2	NA
		LC.W.11-12.2c Develop the topic (i.e., add additional information related to the topic) with facts, extended definitions, concrete details, quotations, or other information and examples that are most relevant to the focus and appropriate for the audience.	SR	2	
		LC.W.11-12.4 Produce a clear, coherent permanent product that is appropriate to the specific task (e.g., topic or text), purpose (e.g., to persuade or inform), or audience (e.g., reader).	SR*	1-2	
			CR	9	
Total	100%			38-40	4

* The LC requires a multi-part item or writing item set to assess.
**A paired passage set is used for one of the Informational texts assessed in high school.

Mathematics Test Blueprints

Purpose

This document provides the 2022-2023 LEAP Connect Mathematics operational test blueprints for grades 3 – 8 and high school. In each assessed grade and at high school, the specific test content that will contribute to the mathematics total score is detailed based on the proposed 2020-2021 Mathematics Directory of Test Specifications (DOTS).

Background Information

The 2022-2023 LEAP Connect Mathematics operational test blueprints presented in this document as grade-level tables are consistent with the 2020-2021 operational LEAP Connect Mathematics assessments.

For grades 3 – 8 and high school, grade-level tables incorporate the overall content distributions used for the operational test. Each grade level is represented by a table, which first describes the content category (e.g., Number and Operations Base 10), standards (Louisiana Connectors (LCs)), item types, score point range, and reports the overall scoring weights by content category.

Source Documents

The following documents were referenced to inform the content of the 2022-2023 LEAP Connect operational mathematics test blueprints.

- 2020-2021 LEAP Connect Mathematics DOTS
- 2020-2021 LEAP Connect Mathematics Field Testing Plan
- 2020-2021 LEAP Connect Assessment Framework Grades 3 – 8 and High School ELA and Mathematics

LEAP Connect Mathematics Test Blueprints

The LEAP Connect mathematics operational test blueprints are provided below in Exhibit 17-Exhibit 23. For grades 3 – 8 and high school, the content category, weight, mathematics LCs, item type, and score point range are indicated.

Exhibit 17. 2022-2023 Grade 3 LEAP Connect Mathematics Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Operations and Algebraic Thinking	26-31%	**LC.3.OA.C.7c** Solve multiplication problems with neither number greater than 5.	SR	2–3
		LC.3.OA.D.8b* Solve or solve and check one- or two-step word problems requiring addition, subtraction, or multiplication with answers up to 100.	SR	3–4
		LC.3.OA.D.9c Identify multiplication patterns in a real word setting.	SR	4–5
Number and Operations Base Ten	14-20%	**LC.3.NBT.A.1** Use place value to round to the nearest 10 or 100.	SR	2-4
		LC.3.NBT.A.2b Solve multi-step addition and subtraction problems up to 100.	SR	2-4
Number and Operations Fractions	20-26%	**LC.3.NF.A.1c** Identify the fraction that matches the representation (rectangles and circles; halves, fourths, thirds, and eighths).	SR	3-5
		LC.3.NF.A.3a Use =, <, or > to compare 2 fractions with the same numerator or denominator.	SR	3-5
Measurement and Data	17-23%	**LC.3.MD.B.3a** Collect data; organize into picture or bar graph.	SR/CR	3–4
		LC.3.MD.C.6 Measure area of rectilinear figures by counting squares.	SR	3–4
Geometry	9-11%	**LC.3.G.A.2** Partition rectangles into equal parts with equal area.	SR	3-4
Total	100%			35

Exhibit 18. 2022-2023 Grade 4 LEAP Connect Mathematics Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Operations and Algebraic Thinking	26-31%	**LC.4.OA.A.2a** Determine how many objects go into each group when given the total number of objects and groups where the number in each group or number of groups is not > 10.	SR	3–5
		LC.4.OA.A.2b Solve multiplicative comparisons with an unknown using up to 2-digit numbers with information presented in a graph or word problem (e.g., an orange hat cost $3. A purple hat cost 2 times as much. How much does the purple hat cost? [3 x 2 = p]).	SR	3–4
		LC.4.OA.A.3a* Solve or solve and check one or two step word problems requiring addition, subtraction, or multiplication with answers up to 100.	SR	3–4
Number and Operations Base Ten	9-14%	**LC.4.NBT.A.3** Use place value to round to any place (i.e., ones, tens, hundreds, thousands).	SR	3-5
Number and Operations Fractions	23-29%	**LC.4.NF.A.1** Determine equivalent fractions.	SR	3-4
		LC.4.NF.A.2b Compare up to 2 given fractions that have different denominators.	SR	3-4
		LC.4.NF.A.2a Use =, <, or > to compare 2 fractions (fractions with a denominator or 10 or less).	SR	2-3
Measurement and Data	17-23%	**LC.4.MD.A.3** Solve word problems using perimeter and area where changes occur to the dimensions of a rectilinear figure.	SR	3–4
		LC.4.MD.B.4a Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8).	SR/CR	3–4
Geometry	9-11%	**LC.4.G.A.2a** Classify two-dimensional shapes based on attributes (# of angles).	SR/CR	3-4
Total	100%			35

Exhibit 19. 2022-2023 Grade 5 LEAP Connect Mathematics Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Operations and Algebraic Thinking	9-11%	**LC.5.OA.B.3c** Generate or select a comparison between two graphs from a similar situation.	SR	3-4
Number and Operations Base Ten	37-43%	**LC.5.NBT.A.3a** Read, write, or select a decimal to the hundredths place.	SR	3–4
		LC.5.NBT.A.4a Round decimals to the next whole number.	SR	3–4
		LC.5.NBT.B.7 Solve one-step problems using decimals.	SR	3–4
		LC.5.NBT.B.5 Multiply whole numbers with up to 3-digits or by numbers with up to 2-digits.	SR	1-3
		LC.5.NBT.B.6a Find whole number quotients up to two-digit dividends and two-digit divisors.	SR	2–4
Number and Operations Fractions	17-23%	**LC.5.NF.A.2** Solve one-step word problems involving addition and subtraction of fractions with unlike denominators.	SR	2–4
		LC.5.NF.B.5 Determine whether the product will increase or decrease based on the multiplier.	SR	3–4
Measurement and Data	17-23%	**LC.5.MD.A.1b** Convert standard measurements of length.	SR	3–4
		LC.5.MD.A.1d Solve problems involving conversions of standard measurement units when finding area, volume, time lapse, or mass.	SR	3–4
Geometry	9-11%	**LC.5.G.A.1c** Use order pairs to graph given points.	SR/CR	3-4
Total	100%			35

Exhibit 20. 2022-2023 Grade 6 LEAP Connect Mathematics Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Ratio and Proportions	29-34%	**LC.6.RP.A.1c** Describe the ratio relationship between two quantities for a given situation.	SR	3–4
		LC.6.RP.A.3d Solve one-step real world measurement problems involving unit rates with ratios of whole numbers when given the unit rate (3 inches of snow falls per hour, how much in 6 hours?).	SR	3–4
		LC.6.RP.A.3e Calculate a percent of a quantity as rate per 100.	SR	3–4
Expressions and Equations	17-23%	**LC.6.EE.B.7b** Solve real world single-step linear equations.	SR	3–4
		LC.6.EE.B.7a Solve problems or word problems using up to three-digit numbers and any of the four operations.	SR	3–4
The Number System	29-34%	**LC.6.NS.B.3** Solve one-step, addition, subtraction, multiplication, or division problems with fractions or decimals.	SR	3–4
		LC.6.NS.C.5 Select the appropriate meaning of a negative number in a real world situation.	SR	3–4
		LC.6.NS.C.6d* Locate positive and negative numbers on a number line.	SR	3–4
Statistics and Probability	9-11%	**LC.6.SP.B.5d*** Select the statement that matches mean, mode, and spread of data for 1 measure of central tendency for a given data set.	SR	3-4
Geometry	9-11%	**LC.6.G.A.1c** Find area of quadrilaterals.	SR	3-4
Total	100%			35

Exhibit 21. 2022-2023 Grade 7 LEAP Connect Mathematics Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Ratio and Proportions	37-43%	**LC.7.RP.A.2a** Identify the proportional relationship between two quantities (use rules or symbols to show quantitative relationships).	SR	3–4
		LC.7.RP.A.2b Determine if two quantities are in a proportional relationship using a table of equivalent ratios or points graphed on a coordinate plane.	SR	3–4
		LC.7.RP.A.3d Solve word problems involving ratios.	SR	3–4
		LC.7.RP.A.3e Use proportional relationships to solve multistep percent problems.	SR	3–4
Expressions and Equations	9-11%	**LC.7.EE.B.4c** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.	SR	3-4
The Number System	14-20%	**LC.7.NS.A.2a** Solve multiplication problems with positive/negative numbers.	SR	3-4
		LC.7.NS.A.2b Solve division problems with positive/negative numbers..	SR	2-3
Statistics and Probability	11-14%	**LC.7.SP.B.4b** Analyze graphs to determine or select appropriate comparative inferences about two samples or populations.	SR	4-5
Geometry	17-20%	**LC.7.G.B.4** Apply formula to measure area and circumference of circles.	SR	3–4
		LC.7.G.B.6b Find the surface area of three-dimensional figures using nets of rectangles or triangles.	SR	3–5
Total	100%			35

Exhibit 22. 2022-2023 Grade 8 LEAP Connect Mathematics Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Functions	17-20%	**LC.8.F.B.4*** Identify the rate of change (slope) and initial value (*y*-intercept) from graphs.	SR	3–4
		LC.8.F.B.5c Describe or select the relationship between the two quantities given a line graph of a situation.	SR	3–4
Expressions and Equations	17-20%	**LC.8.EE.B.5** Represent proportional relationships on a line graph.	SR	3-4
		LC.8.EE.C.7 Solve linear equations with 1 variable.	SR	3-4
The Number System	9-11%	**LC.8.NS.A.2** Use approximations of irrational numbers to locate them on a number line.	SR	3-4
Statistics and Probability	17-20%	**LC.8.SP.A.1a*** Graph bivariate data using scatter plots and identify possible associations between the variables.	SR/CR	3–4
		LC.8.SP.A.1c Analyze displays of bivariate data to develop or select appropriate claims about those data.	SR	3–4
Geometry	29-34%	**LC.8.G.A.4b** Given two similar two-dimensional figures, show or describe a sequence that exhibits the similarity between them.	SR	3–4
		LC.8.G.A.2* Recognize congruent and similar figures.	SR	3–4
		LC.8.G.C.9 Apply the formula to find the volume of 3-dimensional shapes (i.e., cubes, spheres, and cylinders).	SR	3–4
Total	100%			35

Exhibit 23. 2022-2023 High School LEAP Connect Mathematics Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Algebra and Functions	40-46%	**LC.A1: A-CED.A.1** Translate a real-world problem into a one-variable linear equation.	SR	4-6
		LC.A1: A-REI.D.10 Understand that all solutions to an equation in two variables are contained on the graph of that equation.	SR	4-6
		LC.A1: A-CED.A.4 Solve multi-variable formulas or literal equations, for a specific variable.	SR	5-7
Number and Quantity	14-17%	**LC.A1: N-Q.A.1b** Solve real world problems involving units of measurement.	SR	5-6
Statistics and Probability	26-31%	**LC.A1: S-ID.A.2a** Use descriptive stats, range, median, mode, mean, outliers/gaps, to describe data set.	SR	4-6
		LC.A1: S-ID.C.7 Interpret the rate of change using graphical representations.	SR	4-6
Geometry	9-11%	**LC.GM: G-SRT.B.5a** Use definitions to demonstrate congruency and similarity in figures.	SR	3-4
Total	100%			35

Science Test Blueprints

Purpose

This document provides the 2022-2023 LEAP Connect Science operational test blueprints for grades 4, 8 and high school. In each assessed grade and at high school, the specific test content that will contribute to the science total score is detailed based on the proposed 2020-2021 Science Directory of Test Specifications (DOTS).

Background Information

The 2022-2023 LEAP Connect Science operational test blueprints presented in this document as grade-level tables are consistent with the 2020-2021 operational LEAP Connect Science assessments. For grades 4, 8 and high school, grade-level tables incorporate the overall content distributions used for the operational test. Each grade level is represented by a table, which first describes the content category (e.g., Physical Science), standards (Louisiana Connectors (LCs)), item types, score point range, and reports the overall scoring weights by content category.

Source Documents

The following documents were referenced to document the content of the 2022-2023 LEAP Connect operational science test blueprints.

- 2020-2021 LEAP Connect Science DOTS
- 2020-2021 LEAP Connect Science Field Testing Plan
- 2020-2021 LEAP Connect Assessment Framework Grades 4, 8, and High School Science

LEAP Connect Science Test Blueprints

The LEAP Connect science operational test blueprints are provided below in Exhibit 24-Exhibit 26. For grades 4, 8 and high school, the content category, weight, science LCs, item type, and score point range are indicated.

Exhibit 24. 2022-2023 Grade 4 LEAP Connect Science Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Physical Science	40%	**LC-4-PS3-1b** Demonstrate that objects moving faster possess more energy than objects moving slower.	SR/CR	2-4
		LC-4-PS3-3a dentify the change in energy or the change in objects' motions when objects collide (e.g., speeds as objects interact, direction).	SR/CR	2-4
		LC-4-PS3-4a Relate an example that demonstrates that energy can be converted from one form to another form (e.g., electric circuits that convert electrical energy into light, motion, sound or heat).	SR/CR	2-4
		LC-4-PS4-1b Identify relationships involving wave amplitude, wavelength, and the motion of an object (e.g., when the amplitude increases, the object moves more).	SR/CR	2-4
Life Science	20%	**LC-4-LS1-1a** Identify external macroscopic structures (e.g., bird beaks, eyes, feathers, roots, needles on a pine tree) that support growth, survival, behavior, and reproduction of organisms.	SR/CR	2-4
		LC-4-LS1-2b Identify how animals use their sense receptors to respond to different types of information (e.g., sound, light, odor, temperature) in their surroundings with behaviors that help them survive.	SR/CR	2-4
Earth and Space Science	40%	**LC-4-ESS1-1a** Identify rock formations that show how the Earth's surface has changed over time (e.g., change following earthquakes).	SR/CR	2-4
		LC-4-ESS2-1b Identify older fossils as being found in deeper, older rock layers.	SR/CR	2-4
		LC-4-ESS2-2a Use maps to locate different land and water features of Earth.	SR/CR	2-4
		LC-4-ESS3-2a Identify how plants affect the environment (e.g., some have roots that can stabilize or destabilize the soil).	SR/CR	2-4
Total	100%			30

Exhibit 25. 2022-2023 Grade 8 LEAP Connect Science Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Physical Science	30%	**LC-8-MS-PS1-3a** Compare and contrast characteristics of natural and synthetic materials (e.g., fibers) from provided information (e.g., text, media, visual displays, data).	SR/CR	2-4
		LC-8-MS-PS1-6b Identify a way to test or modify a device that either releases or absorbs thermal energy by chemical processes.	SR/CR	2-4
		LC-8-MS-PS3-3a Use information (e.g., graph, model) to identify a device (e.g., foam cup, insulated box) that either minimizes or maximizes thermal energy transfer (e.g., keeping liquids hot or cold).	SR/CR	2-4
Life Science	40%	**LC-8-MS-LS1-5a** Identify a scientific explanation for how environmental factors (e.g., availability of light, space, water, size of habitat) affect the growth of animals and plants.	SR/CR	2-4
		LC-8-MS-LS3-1a Use a model to explain how genetic variations in specific traits may occur as organisms pass on their genetic material from one generation to the next, along with small changes.	SR/CR	2-4
		LC-8-MS-LS4-2a Recognize that similarities and differences in external structures can be used to infer evolutionary relationships between living and fossil organisms.	SR/CR	2-4
		LC-8-MS-LS4-3a Identify patterns (i.e., pictorial displays, representations, data) in the embryological development as evidence of relationships among species.	SR/CR	2-4
Earth and Space Science	30%	**LC-8-MS-ESS1-4a** Sequence the relative order of events from Earth's history shown by rock strata and patterns of layering (organize was more complex as a task/term than sequence).	SR/CR	2-4
		LC-8-MS-ESS2-1a Identify relationships between components in a model showing the cycling of energy flows and matter within and among Earth's systems, including the sun and Earth's interior as primary energy sources.	SR/CR	2-4
		LC-8-MS-ESS3-1a Identify explanations of the uneven distributions of Earth's minerals, energy, and groundwater resources due to past and current geoscience processes or by removal of resources.	SR/CR	2-4
Total	100%			30

Exhibit 26. 2022-2023 High School LEAP Connect Science Operational Test Blueprint

Content Category	Weight	Louisiana Connector	Item Type	Score Point Range
Ecosystems	20%	**LC-HS-LS2-6a** Use evidence to identify how modest biological or physical changes versus extreme changes affect stability and change (e.g., number and types of organisms) in ecosystems..	SR/CR	2-4
		LC-HS-LS2-7a Describe how people can help protect the Earth's environment and biodiversity (e.g., preserving ecosystems) and how a human activity would threaten Earth's environment and biodiversity (e.g., pollution, damaging habitats, over hunting).	SR/CR	2-4
From Molecules to Organisms	40%	**LC-HS-LS1-2a** Using model(s), identify that different systems of the body carry out essential functions (e.g., digestive system, respiratory system, circulatory system, nervous system).	SR/CR	2-4
		LC-HS-LS1-3a Identify how different organisms react (e.g., heart rate, body temperature) to changes in their external environment.	SR/CR	2-4
		LC-HS-LS1-8c Identify ways to protect against infectious diseases to maintain a body's health (e.g., eat nutritious food, washing hands, rest, exercise, etc.).	SR/CR	2-4
		LC-HS-LS1-8d Identify treatments and/or prevention of viral and/or bacterial infections (e.g., antibiotics and vaccines).	SR/CR	2-4
Heredity	20%	**LC-HS-LS3-2a** Identify a model showing evidence that parents and offspring may have different traits.	SR/CR	2-4
		LC-HS-LS3-3a Calculate the probability (e.g., two out of four) of a particular trait in an offspring based on a completed Punnett square.	SR/CR	2-4
Biological Evolution	20%	**LC-HS-LS4-2b** Recognize that different individuals have specific traits that give advantages (e.g., survive and reproduce at higher rates) over other individuals in the species.	SR/CR	2-4
		LC-HS-LS4-5a Identify the relationship between naturally occurring or human-induced changes in the environment (e.g., drought, flood, deforestation, fishing, application of fertilizers) and the expression of traits in a species (e.g., peppered moth studies).	SR/CR	2-4
Total	100%			30

Appendix C. LEAP Connect English Language Arts (ELA) Item Bank Report

With the adoption of the Louisiana Student Standards (LSS) in spring 2016, Louisiana's Extended Standards and assessments for students with significant disabilities required update and alignment. The Louisiana Department of Education (LDOE) met with a diverse group of stakeholders to develop a draft set of aligned learning expectations for these students. In addition, the LDOE completed a comparative analysis of the LSS, the Louisiana Extended Standards, and the work of national models, including the NCSC Core Content Connectors. On December 6, 2016, the Board of Elementary and Secondary Education (BESE) approved revisions to *Bulletin 127, LEAP Connect Assessment, Louisiana Connectors for Students with Significant Cognitive Disabilities*, which outlines the learning expectations for students with significant disabilities as defined by those students meeting the alternate assessment eligibility criteria. These Louisiana Connectors (LCs) are fully aligned to the Louisiana Student Standards for English language arts and the LCs prioritized for the LEAP Connect assessments represent the "big ideas" of the content and skills found in the LSS.

Fully aligned to the LSS for ELA, the LCs provide developmentally appropriate content for all grades and courses while maintaining high expectations for all students (Louisiana Student Standards, Louisiana Connectors, 2019). The LCs provide fully aligned pathways for students with significant cognitive disabilities to work toward the LSS. Specifically, the LCs identify the:

- Most salient grade-level, core ELA academic content found in the LSS;
- Necessary knowledge and skills needed to reach expectations of the LSS;
- Core content, knowledge, and skills needed at each grade to promote success at the next;
- Priorities in each content area to guide the instruction for students in this population.

Unlike the LEAP 2025 assessments, which provide overall student level performance and information in each of several reporting categories, the LEAP Connect assessments provide an overall total score for each assessed content area. The ELA LEAP Connect assessments include multiple sessions. In ELA there are a total of four sessions: two sessions are dedicated to assessing the reading content categories, and two sessions are dedicated to assessing the writing content categories. In ELA, the Foundational Reading items (at grades 3 and 4 only) include an open response item set. The set is worth one (1) point.

Through item development, the prioritized grade-level constructs and prerequisite knowledge and skills within the LCs are addressed in the assessment items. Item writers use Universal Design for Learning (UDL) and the recommended item specifications for each content area, grade, and LC to ensure alignment to the knowledge, skills, and abilities during item development.

The LEAP Connect ELA assessments provide ways for students with cognitive disabilities to demonstrate what they know and can do through participation in the statewide assessment system. The LEAP Connect assessments use two item design features to measure student performance: (1) levels of content complexity, and (2) degrees and types of scaffolds and supports applied through the concept of tiers. The LEAP Connect assessment items each represent one of four levels of complexity (Tiers 1–4), designed to follow instructional practices. Tier 1 and Tier 2 questions reflect the higher level of support needed when students begin to learn a new skill or acquire new knowledge. Tier 3 and Tier 4 questions reflect the lower level of support needed as students learn and develop mastery of that skill or knowledge.

Each grade- and content-specific assessment represents the critical content and skills for progressing from grade to grade, as included in the LCs. The least complex items provide extensive scaffolds and are written to the Essential Understanding (EU) or the foundational skill aligned to the LC. The more complex items are designed to include more complex content assessed by the knowledge, skills, and abilities inherent in the LC with fewer scaffolds and supports. To ensure that students can demonstrate what they know and can do, multiple types of items are presented, such as selected response and constructed response, Universal Design principles are applied to developed items, and accessibility features are provided in each assessed content area as described within the item specifications for each content area, grade, and prioritized LC.

The LEAP Connect test blueprints are consistent with a principled-design approach undertaken to develop summative assessments. Exhibit 1 provides values that represent the distribution of content category by grade on the 2022-2023 test. These targets provide general guidance for identifying areas of emphasis in the development of the ELA tests.

Exhibit 1. 2022-2023 LEAP Connect Guidelines for Percent Distribution of ELA Content by Grade

	Percent Distribution						
Content Category	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**High School**
Reading: Literature	23-28	23-28	26-31	26-31	23-31	3-31	15-21
Reading: Informational Text	23-28	23-28	26-31	26-36	26-36	26-36	36-41
Vocabulary	5-8	5-10	5-8	5-10	5-10	5-10	5-10
Reading: Foundational	5	5					
Writing	36-39	36-39	36-39	36-39	36-39	36-39	36-39

Purpose of the Item Bank Analysis

This document presents a summary of the status of the LEAP Connect ELA item bank. Below, we describe the processes employed to complete the analysis of the item bank and the results. The purpose of the item bank analysis is to support LDOE in understanding the organization and content of the current item bank, to inform decisions related to item development based upon the prioritized LCs, and to plan for the creation of unique test forms in future years for the LEAP Connect ELA Assessments in grades 3-8 and high school.

ELA Item Bank Analysis Process

In the summer of 2023, edCount reviewed the LEAP Connect ELA Assessment Item Bank to determine the number of items in the bank by content area, grade level, item type, and item tier. Data Recognition Corporation (DRC) hosts the item bank of record for the LEAP Connect Assessments. DRC provided edCount with an Excel file of all items in the bank including metadata and item performance statistics. We include in this review the field test items from the 2023 assessment that were not flagged, as well as those items accepted after data review for operational use.

Item Bank Analysis Results

Reading Passage Sets by Grade

In Exhibit 2, we display the number of reading passage sets available for operational testing by Literature and Informational Text type and by tier across grades 3 through high school.

Exhibit 2. Reading Passages by Grade, Text Type, and Tier

Grade	Text Type	Number of Passage Sets			
		Tier 1	Tier 2	Tier 3	Total
3	Reading: Literature	2		3	5
	Reading: Informational Text	2	2		4
4	Reading: Literature	3		1	4
	Reading: Informational Text	1	2	2	5
5	Reading: Literature	3		2	5
	Reading: Informational Text	1	1	1	3
6	Reading: Literature	1	2	1	4
	Reading: Informational Text	3		2	5
7	Reading: Literature	1	1	2	4
	Reading: Informational Text	4		2	6
8	Reading: Literature	1	1	2	4
	Reading: Informational Text	3		2	5
High School	Reading: Literature	2	1		3
	Reading: Informational Text	2		4	6

English Language Arts Items by Reporting Category and Prioritized Louisiana Connector

In Exhibit 3 through Exhibit 9, we present the operational items available for use on the LEAP Connect ELA tests, including selected-response and constructed-response items in the bank of record. These exhibits include the reporting category, blueprint weight expectations for that reporting category, the LCs contained within the reporting category, specific blueprint item count/range per LC, a breakdown of the number of items on the 2023 test form per each LC, and the total number of items in the item bank for each LC. These exhibits also contain the names and tiers of the passage sets available for operational use on the LEAP Connect ELA assessments.

Exhibit 3. Grade 3 ELA Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Current Form Passages	Bank Item Count (Includes current form)	Bank Passage Count (Includes current form)
Reading Literature	23-28	LC.RL.3.1a	2-3	2	P1 P2	6	P3 P4
		LC.RL.3.1b	3-4	4		6	P1 P2
		LC.RL.3.2a	3-4	4			P5
Reading Informational	23-28	LC.RI.3.2a	2-3	2	P6 P7	4	P8 P6
		LC.RI.3.2b	3-4	2		6	P7 P9
		LC.RI.3.5a	3-4	3		6	
		LC.RI.3.7a	2-3	2		4	
Language	5-8	LC.L.3.4a	2-3	3		6	
Foundational Reading	5	LC.RF.3.4b	10V (2 pts) 10NV (2 pts)	10V (2pts) 10NV (2 pts)			
Writing	36-39	LC.W.3.2c	2	2			P11 P10
		LC.W.3.4	6 SR (1 pt) 1 CR (9 pts)	6 SR (1 pt) 1 CR (9 pts)	P10	6 SR (1 pt) 2 CR (9 pts)	
		LC.W.3.8g	2	2			

Exhibit 4. Grade 4 ELA Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Current Form Passages	Bank Item Count (Includes current form)	Bank Passage Count (Includes current form)
Reading Literature	23-28	LC.RL.4.1a	2-3	3	P1 P2	7	P3 P4
		LC.RL.4.2b	3-4	3		6	P1 P2
		LC.RL.4.3b	3-4	4		6	
Reading Informational	23-28	LC.RI.4.2a	2	2	P5 P6	5	P5 P6
		LC.RI.4.7a	2-3	3		8	P7 P8
		LC.RI.4.7c	3-4	4		9	P9
Language	5-8	LC.L.4.4a	1-2	2		4	
		LC.L.4.6a	1-2	1		2	
Foundational Reading	5	LC.RF.4.3b	10 V (2 pts) 10 NV (2 pts)	10 V (2 pts) 10 NV (2 pts)		10 V (2 pts) 10 NV (2 pts)	
Writing	36-39	LC.W.4.2c	2			2	P10 P11
		LC.W.4.2f	2			2	
		LC.W.4.4a	4 SR (1 pt) 1 CR (9 pts)	4 SR (1 pt) 1 CR (9 pts)	P10	4 SR (1 pt) 2 CR (9 pts each)	

Exhibit 5. Grade 5 ELA Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Current Form Passages	Bank Item Count (Includes current form)	Bank Passage Count (Includes current form)
Reading Literature	26-31	LC.RL.5.1a	2-4	4	P1 P2	10	P1 P2 P3 P4 P5
		LC.RL.5.2b	3-6	4		9	
		LC.RL.5.3a	2-4	3		8	
Reading Informational	26-31	LC.RI.5.2a	2-4	4	P6 P7	5	P6 P7 P8
		LC.RI.5.5c	3-4	2		2	
		LC.RI.5.8a	3-4	4		6	
Language	5-8	LC.L.5.4a	2-3	3		6	
Writing	36-39	LC.W.5.2b	2	2	2	2	
		LC.W.5.2c	2	2	2	2	
		LC.W.5.4	6 SR (1 pt) 1 CR (9 pts)	6 SR (1 pt) 1 CR (9 pts)	P9	6 SR (1 pt) 2 CR (9 pts)	P10 P9

Exhibit 6. Grade 6 ELA Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Current Form Passages	Bank Item Count (Includes current form)	Bank Passage Count (Includes current form)
Reading Literature	26-31	LC.RL.6.1a	1-2	2	P1 P2	4	P3 P1
		LC.RL.6.1b	2-3	2		4	P2 P4
		LC.RL.6.2c	3-6	6		11	
Reading Informational	26-36	LC.RI.6.2	2-4	2	P5 P6	5	P7 P8
		LC.RI.6.3d	3-4	4		10	P5 P6
		LC.RI.6.7b	1-2	1		2	P9
		LC.RI.6.8b	3-4	3		7	
Language	5-10	LC.L.6.4a	1-2	2		5	
		LC.L.6.6a	1-2	2		4	
Writing	36-39	LC.W.6.3b	2	2		2	
		LC.W.6.3d	2	2		2	
		LC.W.6.4	5 SR (1 pt) 1 CR (9 pts)	5 SR (1 pt) 1 CR (9 pts)	P10	5 SR (1 pt) 2 CR (9 pts each)	P11 P10

Exhibit 7. Grade 7 ELA Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Current Form Passages	Bank Item Count (Includes current form)	Bank Passage Count (includes current form)
Reading Literature	23-31	LC.RL.7.1b	4-8	8	P1 P2	14	P3 P1
		LC.RL.7.2b	2-4	2		4	P2 P4
Reading Informational	26-36	LC.RI.7.1	4-6	4	P5 P6	9	WP7 P8
		LC.RI.7.3	2-4	2		6	P5 P6
		LC.RI.7.8b	2-4	2		5	P9
		LC.RI.7.7	1-2	2		4	
Language	5-10	LC.L.7.4a	2-4	4		9	
Writing	36-39	LC.W.7.3e	2	2		2	
		LC.W.7.3f	2	2		2	
		LC.W.7.4	6 SR (1 pt) 1 CR (9 pts)	6 SR (1 pt) 1 CR (9 pts)	P10	6 SR (1 pt) 2 CR (9 pts each)	P11 P10

Exhibit 8. Grade 8 ELA Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Current Form Passages	Bank Item Count (Includes current form)	Bank Passage Count (includes current form)
Reading Literature	23-31	LC.RL.8.1b	6-8	8	P1 P2	14	P3 P1
		LC.RL.8.2b	2-4	2		4	P2 P4
Reading Informational	26-36	LC.RI.8.1a	4-6	5	P5 P6	12	P7 P8
		LC.RI.8.5d	3-4	2		6	P5 P6
		LC.RI.8.8a	2-3	3		6	P9
		LC.RI.8.9	1-2	1		3	
Language	5-10	LC.L.8.4a	1-2	2		4	
		LC.L.8.6a	1-2	2		5	
Writing	36-39	LC.W.8.1b	2	2		2	
		LC.W.8.8a	2	2		2	
		LC.W.8.4	6 SR (1 pt) 1 CR (9 pts)	6 SR (1 pt) 1 CR (9 pts)	P10	6 SR (1 pt) 2 CR (9 pts each)	P11 P10

Exhibit 9. High School ELA Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Current Form Passages	Bank Item Count (includes current form)	Bank Passage Count (includes current form)
Reading Literature	15-21	LC.RL.11-12.1a	3-4	3	P1 P2	4	P3 P1 P2
		LC.RL.11-12.5	3-4	4		6	
Reading Informational	36-41	LC.RI.11-12.1a	4-6	4	P4 P5	12	P6 P7 P4 P5 P8
		LC.RI.11-12.2c	4-8	4		15	
		LC.RI.11-12.6a	2-3	3		7	
		LC.RI.11-12.6d	2-3	2		4	
		LC.RI.11-12.7	1-2	1		3	P9
Language	5-10	LC.L.11-12.4a	2-4	2		6	
Writing	36-39	LC.W.11-12.2b	2	2			
		LC.W.11-12.2c	2	2			
		LC.W.11-12.4	6 SR (1 pt) 1 CR (9 pts)	6 SR (1 pt) 1 CR (9 pts)	P10	6 SR (1 pt) 2 CR (9 pts each)	P11 P10

Appendix D. LEAP Connect Mathematics Item Bank Report

With the adoption of the Louisiana Student Standards (LSS) in spring 2016, Louisiana's Extended Standards and assessments for students with significant disabilities required update and alignment. The Louisiana Department of Education (LDOE) met with a diverse group of stakeholders to develop a draft set of aligned learning expectations for these students. In addition, the LDOE completed a comparative analysis of the LSS, the Louisiana Extended Standards, and the work of national models, including the NCSC Core Content Connectors. On December 6, 2016, the Board of Elementary and Secondary Education (BESE) approved revisions to *Bulletin 127, LEAP Connect Assessment, Louisiana Connectors for Students with Significant Cognitive Disabilities*, which outlines the learning expectations for students with significant disabilities as defined by those students meeting the alternate assessment eligibility criteria.

Fully aligned to the LSS for mathematics, the LCs provide developmentally appropriate content for all grades and courses while maintaining high expectations for all students (Louisiana Student Standards, Louisiana Connectors, 2019). The LCs provide fully aligned pathways for students with significant cognitive disabilities to work toward the LSS. Specifically, the LCs identify the:

- Most salient grade-level, core mathematics academic content found in the LSS;
- Necessary knowledge and skills needed to reach expectations of the LSS;
- Core content, knowledge, and skills needed at each grade to promote success at the next;
- Priorities in each content area to guide the instruction for students in this population.

Unlike the LEAP 2025 assessments, which provide overall student level performance and information in each of several reporting categories, the LEAP Connect assessments provide an overall total score for each assessed content area. The mathematics LEAP Connect assessments include multiple sessions. There are two sessions that assess the content categories specific to a grade. The mathematics assessments include SR items and CR items (at certain grades), each worth one (1) point.

Through item development, the prioritized grade-level constructs and prerequisite knowledge and skills within the LCs are addressed in the assessment items. Item writers use Universal Design for Learning (UDL) and the recommended item specifications for each content area, grade, and LC to ensure alignment to the knowledge, skills, and abilities during item development.

The LEAP Connect mathematics assessments provide ways for students with cognitive disabilities to demonstrate what they know and can do through participation in the statewide assessment system. The LEAP Connect assessments use two item design features to measure student performance: (1) levels of content complexity, and (2) degrees and types of scaffolds and supports applied through the concept of tiers. The LEAP Connect assessment items each represent one of four levels of complexity (Tiers 1–4), designed to follow instructional practices. Tier 1 and Tier 2 questions reflect the higher level of support needed when students begin to learn a new skill or acquire new knowledge. Tier 3 and Tier 4 questions reflect the lower level of support needed as students learn and develop mastery of that skill or knowledge.

Each grade- and content-specific assessment represents the critical content and skills for progressing from grade to grade, as included in the LCs. The least complex items provide extensive scaffolds and are written to the Essential Understanding (EU) or the foundational skill aligned to the LC. The more

complex items are designed to include more complex content assessed by the knowledge, skills, and abilities inherent in the LC with fewer scaffolds and supports. To ensure that students can demonstrate what they know and can do, multiple types of items are presented, such as selected response and constructed response, Universal Design principles are applied to developed items, and accessibility features are provided in each assessed content area as described within the item specifications for each content area, grade, and prioritized LC.

The LEAP Connect test blueprints are consistent with a principled-design approach undertaken to develop summative assessments. Exhibit 1 provides values that represent the distribution of content category by grade on the 2022-2023 test. These targets provide general guidance for identifying areas of emphasis in the development of the mathematics tests.

Exhibit 1. 2022-2023 LEAP Connect Guidelines for Percent Distribution of Mathematics Content by Grade

	Percent Distribution						
Content Category	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**High School**
Operations and Algebraic Thinking	26-31	26-31	9-11				
Numbers and Operations Base Ten	14-20	9-14	37-43				
Number and Operations Fractions	20-26	23-29	17-23				
Measurement and Data	17-23	17-23	17-23				
Geometry	9-11	9-11	9-11	9-11	17-20	29-34	9-11
Ratio and Proportions				29-34	37-43		
Expressions and Equations				17-23	9-11	17-20	
The Number System				29-34	14-20	9-11	
Statistics and Probability				9-11	11-14	17-20	26-31
Functions						17-20	
Algebra							40-46
Number and Quantity							14-17

Purpose of the Item Bank Analysis

This document presents a summary of the status of the LEAP Connect Mathematics item bank. Below, we describe the processes employed to complete the analysis of the item bank and the results. The purpose of the item bank analysis is to support LDOE in understanding the organization and content of the current item bank, to inform decisions related to item development based upon the prioritized LCs, and to plan for the creation of unique test forms in future years for the LEAP Connect Mathematics Assessments in grades 3-8 and high school.

Mathematics Item Bank Analysis Process

In the summer of 2023, edCount reviewed the LEAP Connect Mathematics Assessment Item Bank to determine the number of items in the bank by content area, grade level, item type, and item tier. Data Recognition Corporation (DRC) hosts the item bank of record for the LEAP Connect Assessments. DRC provided edCount with an Excel file of all items in the bank including metadata and item performance statistics.

We include in this review the field test items from the 2023 assessment that were not flagged, as well as those items accepted after data review for operational use. At this time, we have excluded all items labeled *Do Not Use*.

Item Bank Analysis Results

Exhibit 2 provides a summary of the number of items available for operational testing in each grade in Mathematics.

Exhibit 2. Mathematics Items Available for Operational Testing by Grade

Grade	# of Items
3	54
4	55
5	55
6	55
7	56
8	56
High School	68

Mathematics Items by Domain and Prioritized LCs

In Exhibit 3 through Exhibit 9, we present the operational items available for use on the LEAP Connect Mathematics tests, including selected-response and constructed-response items in the bank of record. These exhibits include the reporting category, blueprint weight expectations for that reporting category, the LCs contained within the reporting category, specific blueprint item count per LC, a breakdown of the number of items on the 2023 test form per each LC, and the total number of items in the item bank for each LC.

Exhibit 3. Grade 3 Math Items Available for Operational Use

Reporting Category	Blueprint Weight	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Bank Count (Includes Current Form)
Operations & Algebraic Thinking	26-31% (9-11 items)	LC.3.OA.C.7c	2-3	2	3
		LC.3.OA.D.8b	3-4	3	5
		LC.3.OA.D.9c	4-5	5	7
Numbers & Operations in Base Ten	14-20% (5-7 items)	LC.3.NBT.A.1	2-4	3	5
		LC.3.NBT.A.2b	2-4	3	6
Numbers & Operations - Fractions	20-26% (7-9 items)	LC.3.NF.A.1c	2-4	4	6
		LC.3.NF.A.3a	2-4	4	7
Measurement & Data	17-23% (6-8 items)	LC.3.MD.B.3a	3-4	3	5
		LC.3.MD.C.6	3-4	4	5
Geometry	9-11% (3-4 items)	LC.3.G.A.2	3-4	4	5
Total				**35**	**54**

Exhibit 4. Grade 4 Math Items Available for Operational Use

Reporting Category	Blueprint Weight	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Bank Count (Includes Current Form)
Operations & Algebraic Thinking	26-31% (9-11 items)	LC.4.OA.A.2a	3-5	5	5
		LC.4.OA.A.2b	3-4	3	7
		LC.4.OA.A.3a	3-4	3	6
Numbers & Operations in Base Ten	9-14% (3-5 items)	LC.4.NBT.A.3	3-5	4	5
Numbers & Operations - Fractions	23-29% (8-10 items)	LC.4.NF.A.1	3-4	4	5
		LC.4.NF.A.2a	3-4	3	3
		LC.4.NF.A.2b	2-3	3	7
Measurement & Data	17-23% (6-8 items)	LC.4.MD.A.3	3-4	4	6
		LC.4.MD.B.4a	3-4	3	6
Geometry	9-11% (3-4 items)	LC.4.G.A.2a	3-4	3	5
Total				**35**	**55**

Exhibit 5. Grade 5 Math Items Available for Operational Use

Reporting Category	Blueprint Weight	Louisiana Connector	Blueprint Item Count	Current Form Item Count	Bank Count (Includes Current Form)
Operations & Algebraic Thinking	9-11% (3-4 items)	LC.5.OA.B.3c	3-4	3	4
Numbers & Operations in Base Ten	37-43% (13-15 items)	LC.5.NBT.A.3a	3-4	4	5
		LC.5.NBT.A.4a	3-4	4	6
		LC.5.NBT.B.5	1-3	2	2
		LC.5.NBT.B.6a	2-4	2	5
		LC.5.NBT.B.7	3-4	3	6
Numbers & Operations - Fractions	17-23% (6-8 items)	LC.5.NF.A.2	2-4	2	5
		LC.5.NF.B.5	3-4	4	5
Measurement & Data	17-23% (6-8 items)	LC.5.MD.A.1b	3-4	3	5
		LC.5.MD.A.1d	3-4	4	6
Geometry	9-11% (3-4 items)	LC.5.G.A.1c	3-4	4	6
Total				**35**	**55**

Exhibit 6. Grade 6 Math Items Available for Operational Use

Reporting Category	Blueprint Weight	Louisiana Connector	Blueprint item count	Current Form Item Count	Bank Count (Includes Current Form)
Ratio & Proportions	29-34% (10-12 items)	LC.6.RP.A.1c	3-4	3	4
		LC.6.RP.A.3d	3-4	3	6
		LC.6.RP.A.3e	3-4	4	6
Expressions & Equations	17-23% (6-8 items)	LC.6.EE.7a	3-4	3	5
		LC.6.EE.7b	3-4	4	5
The Number System	29-34% (10-12 items)	LC.6.NS.B.3	3-4	4	7
		LC.6.NS.C.5	3-4	4	5
		LC.6.NS.C.6d	3-4	4	5
Statistics & Probability	9-11% (3-4 items)	LC.6.SP.B.5d	3-4	3	7
Geometry	9-11% (3-4 items)	LC.6.G.A.1c	3-4	3	5
Total				**35**	**55**

Exhibit 7. Grade 7 Math Items Available for Operational Use

Reporting Category	Blueprint Weight	Louisiana Connector	Blueprint item count	Current Form Item Count	Bank Count (Includes Current Form)
Ratio & Proportions	37-43% (13-15 items)	LC.7.RP.A.2a	3-4	3	6
		LC.7.RP.A.2b	3-4	4	6
		LC.7.RP.A.3d	3-4	3	7
		LC.7.RP.A.3e	3-4	4	6
Expressions & Equations	9-11% (3-4 items)	LC.7.EE.B.4c	3-4	3	5
The Number System	14-20% (10-12 items)	LC.7.NS.A.2a	3-4	3	5
		LC.7.NS.A.2b	2-3	3	4
Statistics & Probability	11-14% (4-5 items)	LC.7.SP.B.4b	4-5	4	6
Geometry	17-20% (6-7 items)	LC.7.G.B.4	3-4	3	5
		LC.7.G.B.6b	3-5	5	6
Total				**35**	**56**

Exhibit 8. Grade 8 Math Items Available for Operational Use

Reporting Category	Blueprint Weight	Louisiana Connector	Blueprint item count	Current Form Item Count	Bank Count (Includes Current Form)
Functions	17-20% (6-7 items)	LC.8.F.B.4	3-4	3	6
		LC.8.F.B.5c	3-4	3	6
Expressions & Equations	17-20% (6-7 items)	LC.8.EE.B.5	3-4	4	6
		LC.8.EE.C.7	3-4	3	3
The Number System	9-11% (3-4 items)	LC.8.NS.A.2	3-4	4	5
Statistics & Probability	17-20% (6-7 items)	LC.8.SP.A.1a	3-4	4	9
		LC.8.SP.A.1c	3-4	3	4
Geometry	29-34% (10-12 items)	LC.8.G.A.4b	3-4	4	6
		LC.8.G.A.2	3-4	3	5
		LC.8.G.C.9	3-4	4	6
Total				**35**	**56**

Exhibit 9. High School Math Items Available for Operational Use

Reporting Category	Blueprint Weight	Louisiana Connector	Blueprint item count	Current Form Item Count	Bank Count (Includes Current Form)
Algebra & Function	40-46% (14-16 items)	LC.A1: A-CED.A.1	4-6	5	8
		LC.A1: A-REI.D.10	4-6	5	12
		LC.A1: A-CED.A.4	5-7	7	11
Number & Quantity	14-17% (5-6 items)	LC.A1: N-Q.A.1b	5-6	5	7
Statistics & Probability	26-31% (9-10 items)	LC.A1: S-ID.A.2a	4-6	5	6
		LC.A1: S-ID.C.7	4-6	4	16
Geometry	9-11% (3-4 items)	LC.GM: G-SRT.B.5a	3-4	4	8
Total				**35**	**68**

Tier Distribution by Grade

We also conducted a review of the number of items from each tier per LC and reporting category that are available for operational use in the mathematics item bank. Exhibit 10 through Exhibit 16 contain the findings of this review.

Exhibit 10. Number of Grade 3 Math Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Operations & Algebraic Thinking	LC.3.OA.C.7c		3	1	
	LC.3.OA.D.8b	1	2	2	
	LC.3.OA.D.9c	3	1	2	1
Numbers & Operations in Base Ten	LC.3.NBT.A.1	1	1	3	
	LC.3.NBT.A.2b	1	2	2	1
Numbers & Operations - Fractions	LC.3.NF.A.1c	1	3	1	1
	LC.3.NF.A.3a	1	3	2	1
Measurement & Data	LC.3.MD.B.3a	1	2	2	
	LC.3.MD.C.6		2	2	1
Geometry	LC.3.G.A.2	1	1	3	
Total		**10**	**20**	**20**	**5**

Exhibit 11. Number of Grade 4 Math Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Operations & Algebraic Thinking	LC.4.OA.A.2a		2	2	1
	LC.4.OA.A.2b	1	1	4	1
	LC.4.OA.A.3a	1	2	3	
Numbers & Operations in Base Ten	LC.4.NBT.A.3	1	2	1	1
Numbers & Operations - Fractions	LC.4.NF.A.1	1	1	2	1
	LC.4.NF.A.2a	1	1	1	
	LC.4.NF.A.2b	1	1	5	
Measurement & Data	LC.4.MD.A.3		4	2	
	LC.4.MD.B.4a	2	2	2	
Geometry	LC.4.G.A.2a	1	1	2	1
Total		**9**	**17**	**24**	**5**

Exhibit 12. Number of Grade 5 Math Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Operations & Algebraic Thinking	LC.5.OA.B.3c		1	2	1
Numbers & Operations in Base Ten	LC.5.NBT.A.3a	1	2	1	1
	LC.5.NBT.A.4a	1	2	3	
	LC.5.NBT.B.5		1		1
	LC.5.NBT.B.6a	1	1	3	
	LC.5.NBT.B.7		2	3	1
Numbers & Operations - Fractions	LC.5.NF.A.2		3	2	
	LC.5.NF.B.5	2	1	2	
Measurement & Data	LC.5.MD.A.1b	2	1	2	
	LC.5.MD.A.1d	2	2	2	
Geometry	LC.5.G.A.1c	1	1	3	1
Total		**10**	**17**	**23**	**5**

Exhibit 13. Number of Grade 6 Math Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Ratio & Proportions	LC.6.RP.A.1c		1	3	
	LC.6.RP.A.3d	2	1	2	1
	LC.6.RP.A.3e	1	3	2	
Expressions & Equations	LC.6.EE.7a	1	1	3	
	LC.6.EE.7b	1	2	2	
The Number System	LC.6.NS.B.3	1	2	2	2
	LC.6.NS.C.5	1	2	1	1
	LC.6.NS.C.6d		3	1	1
Statistics & Probability	LC.6.SP.B.5d	2	2	2	1
Geometry	LC.6.G.A.1c	2	1	1	1
Total		**11**	**18**	**19**	**7**

Exhibit 14. Number of Grade 7 Math Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Ratio & Proportions	LC.7.RP.A.2a	2	2	2	
	LC.7.RP.A.2b	2	1	2	1
	LC.7.RP.A.3d	1	3	2	1
	LC.7.RP.A.3e	1	2	1	2
Expressions & Equations	LC.7.EE.B.4c	1	2	1	1
The Number System	LC.7.NS.A.2a	1	1	3	
	LC.7.NS.A.2b	1	2	1	
Statistics & Probability	LC.7.SP.B.4b	1	2	2	1
Geometry	LC.7.G.B.4	1	2	1	1
	LC.7.G.B.6b	1	2	3	
Total		**12**	**19**	**18**	**7**

Exhibit 15. Number of Grade 8 Math Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Functions	LC.8.F.B.4		2	4	
	LC.8.F.B.5c	2	1	2	1
Expressions & Equations	LC.8.EE.B.5	3	1	1	1
	LC.8.EE.C.7		1	2	
The Number System	LC.8.NS.A.2	2	1	1	1
Statistics & Probability	LC.8.SP.A.1a	2	3	2	2
	LC.8.SP.A.1c	1	2	1	
Geometry	LC.8.G.A.4b	1	3	2	
	LC.8.G.A.2		2	2	1
	LC.8.G.C.9	1	2	2	1
Total		**12**	**18**	**19**	**7**

Exhibit 16. Number of High School Math Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Algebra & Function	LC.A1: A-CED.A.1	2	4	1	1
	LC.A1: A-REI.D.10	5	1	5	1
	LC.A1: A-CED.A.4	1	4	5	1
Number & Quantity	LC.A1: N-Q.A.1b	1	3	2	1
Statistics & Probability	LC.A1: S-ID.A.2a	2	2	1	1
	LC.A1: S-ID.C.7	5	5	3	3
Geometry	LC.GM: G-SRT.B.5a	1	3	1	3
Total		**17**	**21**	**18**	**11**

Appendix E. LEAP Connect Science Item Bank Report

When the Board of Elementary and Secondary Education (BESE) approved the Louisiana Student Standards in Science (LSS) in spring 2017, a parallel process (as was followed for both English Language Arts (ELA) and mathematics) was adopted for the creation of aligned Louisiana Connectors for students with significant disabilities in science (Louisiana Student Standards, Louisiana Connectors, 2019). In the instance of science, there were no nationally accepted models of extended standards from which to draw. The LDOE contracted with edCount, LLC, who together with LDOE staff and a panel of special education and science content experts from across the state of Louisiana, went through several iterations of the Science Connectors. Once more, the LDOE sought feedback from Louisiana stakeholders who reviewed draft proposals and provided feedback. While maintaining alignment with typical grade-level expectations, the Louisiana Connectors accentuate the "big ideas" found in the LSS for science.

Fully aligned to the LSS for science, the LCs for science provide developmentally-appropriate content for all grades and courses while maintaining high expectations for all students. The LCs provide fully-aligned pathways for students with significant disabilities to work toward the LSS. Specifically, the LCs identify the:

- Most salient grade-level, core science academic content found in the LSS;
- Necessary knowledge and skills needed to reach expectations of the LSS;
- Core content, knowledge, and skills needed at each grade to promote success at the next;
- Priorities in each content area to guide the instruction for students in this population.

Unlike the LEAP 2025 Assessment which provides overall student level performance and information in each of several reporting categories, it is intended that the LEAP Connect in science at grade 4, grade 8, and high school will provide a single overall total score. The LEAP Connect for Science test will include two sessions. Each session will include selected-response (SR) items and constructed-response (CR) items, each worth 1 point. Refer to the LEAP Connect Assessment Guides grades 3–5, grades 6–8, and high school for additional information about the structure and content of the testing sessions.

The LEAP Connect for Science assessments will provide students opportunities to demonstrate their understanding of science and the ability to:

- Apply content knowledge to real world phenomena and to design solutions;
- Demonstrate the practices of scientists and engineers;
- Connect scientific learning to all disciplines of science;
- Express ideas grounded in scientific evidence.

Through item development, the prioritized grade-level constructs and prerequisite knowledge and skills within the LCs are addressed in the assessment items. Item writers use Universal Design for Learning (UDL) and the recommended item specifications for each content area, grade, and LC to ensure alignment to the knowledge, skills, and abilities during item development.

The overall content distributions by the disciplines of science used for the base form of the LEAP Connect Science assessments for 2023-2024 are shown based on a total of 30 points in Exhibit 1. For each assessed grade, the discipline (e.g., Physical Science), the total number of points by discipline per form, and the total number of points per form are shown.

Exhibit 1. Grade 4, Grade 8, and High School Assessed Discipline and Cluster

Grade	Discipline / Course	Number of Points
4	Physical Science	13
	Earth and Space Science	11
	Life Science	6
8	Physical Science	9
	Earth and Space Science	9
	Life Science	12
High School	Ecosystems	6
	From Molecules to Organisms	12
	Heredity	6
	Biological Evolution	6
Total Number of Points per Form		**30**

Each grade and content-specific assessment represents the critical content and skills for progressing from grade to grade, as included in the LCs. The least complex items provide extensive scaffolds and are written to the Essential Understanding (EU) or the foundational skill aligned to the LC. The more complex items are designed to include more complex content assessed by the knowledge, skills, and abilities inherent in the LC with fewer scaffolds and supports. To ensure that students can demonstrate what they know and can do, multiple types of items are presented, such as selected response and constructed response, Universal Design Principles are applied to developed items, and accessibility features are provided in each assessed content area as described within the item specifications for each content area, grade, and prioritized LC. The LEAP Connect test blueprints are consistent with a principled-design approach undertaken to develop summative assessments. The science grade 4, grade 8, and high school test designs are detailed in Exhibit 2 through Exhibit 4 showing the percent coverage by discipline or topic.

Exhibit 2. Grade 4 Percent Coverage of LEAP Connect Science Assessment by Discipline

Discipline	# of Score Points	% Distribution
Physical Science	12	40
Life Science	6	20
Earth and Space Science	12	40
Total	**30**	**100**

Exhibit 3. Grade 8 Percent Coverage of LEAP Connect Science Assessment by Discipline

Discipline	# of Score Points	% Distribution
Physical Science	9	30
Earth and Space Science	9	30
Life Science	12	40
Total	**30**	**100**

Exhibit 4. High School Percent Coverage of LEAP Connect Science Assessment by Life Science Cluster

Life Science Topic	# of Score Points	% Distribution
From Molecules to Organisms	12	40
Ecosystems	6	20
Heredity	6	20
Biological Evolution	6	20
Total	**30**	**100**

Purpose of the Item Bank Analysis

This document presents a summary of the status of the LEAP Connect Science item bank. Below, we describe the processes employed to complete the analysis of the item bank and the results. The purpose of the item bank analysis is to support LDOE in understanding the organization and content of the current item bank, to inform decisions related to item development based upon the prioritized LCs, and to plan for the creation of unique test forms in future years for the LEAP Connect Science Assessments in grades 4, 8, and high school.

Science Item Bank Analysis Process

In the summer of 2023, edCount reviewed the LEAP Connect Science Assessment Item Bank to determine the number of items in the bank by content area, grade level, item type, and item tier. Data Recognition Corporation (DRC) hosts the item bank of record for the LEAP Connect Assessments.

DRC provided edCount with an Excel file of all items in the bank including metadata and item performance statistics.

We include in this review the field test items from the 2023 assessment that were not flagged, as well as those items accepted after data review for operational use. At this time, we have excluded all items labeled *Do Not Use*.

Item Bank Analysis Results

Exhibit 5 provides a summary of the number of items available for operational testing in each grade in science.

Exhibit 5. Science Items Available for Operational Testing by Grade

Grade	Subject	# of Items
4	Science	55
8	Science	53
High School	Science	54

Science Items by Domain and Prioritized LCs

In Exhibit 6 through Exhibit 11, we present the operational items available for use on the LEAP Connect Science tests, including selected-response and constructed-response items in the bank of record. These exhibits include the reporting category, blueprint weight expectations for that reporting category, the LCs contained within the reporting category, specific blueprint item count per LC, a breakdown of the number of items on the 2023 test form per each LC, and the total number of items in the item bank for each LC.

Exhibit 6. Grade 4 Science Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint item count	Current Form Item Count	Bank Count (includes current form)
Physical Science	40	LC-4-PS3-1b	2-4	4	7
		LC-4-PS3-3a	2-4	4	7
		LC-4-PS3-4a	2-4	3	5
		LC-4-PS4-1b	2-4	2	4
Life Science	20	LC-4-LS1-1a	2-4	3	6
		LC-4-LS1-2b	2-4	3	6
Earth & Space Science	40	LC-4-ESS1-1a	2-4	3	5
		LC-4-ESS2-1b	2-4	4	5
		LC-4-ESS2-2a	2-4	1	5
		LC-4-ESS3-2a	2-4	3	5
Total				**30**	**55**

Exhibit 7. Grade 8 Science Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint item count	Current Form Item Count	Bank Count (includes current form)
Physical Science	30	LC-8-PS1-3a	2-4	3	6
		LC-8-PS1-6b	2-4	3	6
		LC-8-PS3-3a	2-4	3	5
Life Science	40	LC-8-LS1-5a	2-4	2	5
		LC-8-LS3-1a	2-4	2	4
		LC-8-LS4-2a	2-4	4	7
		LC-8-LS4-3a	2-4	4	5
Earth & Space Science	30	LC-8-ESS1-4a	2-4	3	4
		LC-8-ESS2-1a	2-4	3	6
		LC-8-ESS3-1a	2-4	3	5
Total				**30**	**53**

Exhibit 8. High School Science Items Available for Operational Use

Reporting Category	Blueprint Weight (%)	Louisiana Connector	Blueprint item count	Current Form Item Count	Bank Count (includes current form)
Ecosystems	20	LC-HS-LS2-6a	2-4	3	6
		LC-HS-LS2-7a	2-4	3	5
From Molecules to Organisms	40	LC-HS-LS1-2a	2-4	4	5
		LC-HS-LS1-3a	2-4	3	6
		LC-HS-LS1-8c	2-4	2	6
		LC-HS-LS1-8d	2-4	3	6
Heredity	20	LC-HS-LS3-2a	2-4	4	6
		LC-HS-LS3-3a	2-4	2	4
Biological Evolution	20	LC-HS-LS4-2b	2-4	3	5
		LC-HS-LS4-5a	2-4	3	5
Total				**30**	**54**

Tier Distribution by Grade

We also conducted a review of the number of items from each tier per LC and reporting category that are available for operational use in the science item bank. Exhibit 9 through Exhibit 11 contain the findings of this review.

Exhibit 9. Number of Grade 4 Science Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Physical Science	LC-4-PS3-1b	1	2	3	1
	LC-4-PS3-3a	1	2	2	2
	LC-4-PS3-4a	1	1	3	0
	LC-4-PS4-1b	1	0	2	1
Life Science	LC-4-LS1-1a	2	1	2	1
	LC-4-LS1-2b	1	2	2	1
Earth & Space Science	LC-4-ESS1-1a	1	2	1	1
	LC-4-ESS2-1b	1	2	2	0
	LC-4-ESS2-2a	1	2	1	1
	LC-4-ESS3-2a	1	2	2	0
Total		**11**	**16**	**20**	**8**

Exhibit 10. Number of Grade 8 Science Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Physical Science	LC-8-PS1-3a	1	2	2	1
	LC-8-PS1-6b	1	1	1	3
	LC-8-PS3-3a	2	2	0	1
Life Science	LC-8-LS1-5a	1	1	2	1
	LC-8-LS3-1a	1	2	0	1
	LC-8-LS4-2a	1	3	2	1
	LC-8-LS4-3a	1	2	1	1
Earth & Space Science	LC-8-ESS1-4a	1	1	2	0
	LC-8-ESS2-1a	1	2	2	1
	LC-8-ESS3-1a	1	2	0	2
Total		**11**	**18**	**12**	**12**

Exhibit 11. Number of High School Science Items by Tier, Louisiana Connector, and Reporting Category

Reporting Category	Louisiana Connector	Tier 1	Tier 2	Tier 3	Tier 4
Ecosystems	LC-HS-LS2-6a	1	2	2	1
	LC-HS-LS2-7a	1	1	3	0
From Molecules to Organisms	LC-HS-LS1-2a	2	1	2	0
	LC-HS-LS1-3a	2	2	1	1
	LC-HS-LS1-8c	1	2	2	1
	LC-HS-LS1-8d	2	1	1	2
Heredity	LC-HS-LS3-2a	1	3	1	1
	LC-HS-LS3-3a	1	1	2	0
Biological Evolution	LC-HS-LS4-2b	1	1	2	1
	LC-HS-LS4-5a	1	1	2	1
Total		**13**	**15**	**18**	**8**

Appendix F. Passage and Item Review Checklists

LEAP Connect Bias and Sensitivity Checklist

Evaluate each item associated with a tier against the following bias and sensitivity criteria by indicating a checkmark (✓) or NA (not applicable). All items are edited for errors in grammar, punctuation, capitalization, and spelling to promote clarity.

Criteria to Evaluate Bias and Sensitivity

Test Items	Criteria	Tier 1	Tier 2	Tier 3	Tier 4
Bias	☐ does not require previous knowledge or familiarity				
	☐ does not include non-global experiences				
	☐ does not include dual meaning words				
	☐ does not include colloquialisms				
	☐ does not use vocabulary that may be considerably more familiar to some groups than others				
	☐ does not favor a population of students				
Sensitivity	☐ avoids references to stereotypes, socioeconomic status, and sexuality				
	☐ avoids references to race or ethnicity				
	☐ avoids religious topics, holidays, or birthdays				
	☐ avoids graphic violence, war, or death				
	☐ uses appropriate terminology to refer to describe individuals or groups				
	☐ avoids language that might be offensive to any group				
	☐ shows awareness of students' physicality and disability				

LEAP Connect Quality Item Writing Checklist

Evaluate each item against the following item writing criteria. All items are edited for errors in grammar, punctuation, capitalization, and spelling to promote clarity.

Criteria to Evaluate Item Quality

Test Item Elements	Criteria
Item Stimulus	☐ focuses on important concepts from the passage
	☐ uses simple sentence structure with an emphasis on clarity
	☐ written in present tense as appropriate
	☐ reduces vocabulary load and non-construct subject area language
	☐ limits use of pronouns
	☐ chunks and segments the text appropriately
	☐ does not include any extraneous content
	☐ provides definitions of terminology relevant to the item or the model
	☐ models a correct response
	☐ consider complexity of problem context and reasoning required
	☐ includes appropriate background information about the item context
	☐ considers use of visual and linguistic supports in model
Visuals	☐ only includes visuals necessary to convey item content
	☐ are relevant to the assessed construct (e.g., diagram, graphs, tables, charts)
	☐ are simple and do not include unnecessary detail
	☐ includes descriptions to support access for all students
Response Options	☐ include only one correct response
	☐ written in present tense as appropriate
	☐ are plausible
	☐ are arranged in a logical order
	☐ are of appropriate complexity and length with minimum verbiage and written plainly
	☐ avoid clueing correct answer

LEAP Connect Universal Design for Assessment and Learning and Item Accessibility Checklist

Evaluate each item associated with a tier against the following Universal Design for Assessment and Learning and item accessibility criteria by indicating a checkmark (✓) or NA (not applicable). All items are edited for errors in grammar, punctuation, capitalization, and spelling to promote clarity.

Criteria to Evaluate Universal Design for Assessment and Learning

Assessment Elements		Criteria	Tier 1	Tier 2	Tier 3	Tier 4
Universal Design for Assessment	☐	allow the widest possible range of students to demonstrate what they know and can do				
	☐	align to learning goals and the construct or focus is clear				
	☐	offer relevant, authentic opportunities for assessment; are personally relatable and culturally relevant				
	☐	consider supports that help a test taker persist through a challenge to engage with the assessment items				
	☐	reduce the barriers that do not tie to the learning goals that are measured				
	☐	minimize construct-irrelevant barriers for all test takers				
	☐	support learner variability through flexile assessments (e.g., accommodations, use of assistive technologies; support resources)				
Universal Design for Learning	☐	incorporate the three principles of Universal Design for Learning: 1. Action and Expression (the "how" of learning) 2. Representation (the "what" of learning), and 3. Engagement (the "why" of learning).				

CAST (2020). *UDL Tips for Assessment*. Wakefield, MA: Author. Retrieved from https://www.cast.org/products-services/resources/2020/udl-tips-assessments

CAST (2018) *Universal Design for Learning Guidelines*. Retrieved from http://udlguidelines.cast.org/?utm_medium=web&utm_campaign=launch&utm_source=cast-news&utm_content=body-text

Criteria to Evaluate Item Accessibility

Item Elements	Criteria	Tier 1	Tier 2	Tier 3	Tier 4
General Criteria	☐ provide equal opportunities for students to demonstrate their knowledge, skills, and abilities, without giving students an unfair advantage over other students or subvert or invalidate the purpose of the test				
	☐ are accessible for students of varying communication abilities and who utilize different modes of communication				
	☐ accessibility testing features are available and may be used by the test taker in the online testing platform or externally delivered by a test administrator including mark items, eliminate answer options (strikethrough), enlarge items / magnification, highlighter tool, and guide the reading of a text or an item line by line				
Item Stimulus	☐ contains only words that are essential for responding to the item				
	☐ includes text that is minimal in length and written as plainly as possible				
	☐ uses grade-appropriate vocabulary				
	☐ uses sentence structure (syntax) that supports meaning interpretation				
Item Stem	☐ includes text which is minimal in length and written as plainly as possible				
	☐ is simple, clear, and understandable language so that “test takers “can respond to a task in the manner that the test developer intended				
	☐ clearly indicates the target construct				
	☐ is positively worded				
	☐ uses active voice				
Visuals	☐ are necessary for responding to the item				
	☐ clearly depict the intended image(s) and are as simple as possible (no extraneous detail)				
	☐ described to promote access to students with visual impairments				
	☐ are unlikely to distract test-takers or cue test-takers to an incorrect response				
Response Options	☐ are minimal in length				
	☐ are written as plainly as possible				
	☐ are balanced with respect to length, order, and content				

Appendix G. LEAP Connect Content and Bias Review Report

Introduction

This document describes the process and outcomes of the Louisiana Department of Education (LDOE) stakeholder review for content and bias within the English language arts (ELA), mathematics, and science field test items that will appear on the spring 2023 LEAP Connect operational assessment. The math and science stakeholder review meetings were conducted virtually via Microsoft Teams on January 25-27, 2022. The ELA stakeholder review meetings were conducted virtually via Microsoft Teams on March 23-24, 2022. This document includes a description of the review's purpose and goals, composition of review panels, the review process by panelists, the results of the reconciliation process by the LDOE personnel, and the evaluation results provided by panelists.

Purpose and Goals

Purpose

The purpose of the stakeholder review was to gather content alignment and bias/sensitivity feedback from Louisiana educators on the ELA, mathematics, and science field test items eligible to appear on the spring 2023 operational assessment (as field test items). The meetings provided educators the opportunity to evaluate the items using an item review checklist and to recommend accepting the item as is, revising and accepting, and rejecting the item.

Goals of Review Process

The goals of the review process were to understand the importance of (a) test security, (b) purpose and use of the LEAP Connect Assessments, (c) assessed content for ELA, math, and science, (d) alignment between the Louisiana Connectors for Students with Significant Cognitive Disabilities (LC) or Essential Understanding (EU) and the item, (e) item complexity guidelines (f) item review criteria, (g) bias and sensitivity guidelines, and (h) guidelines for achieving consensus, when possible. The panelists used the information to evaluate and provide recommendations on ELA, math, and science items regarding alignment, content, complexity, and bias concerns.

Stakeholder Review Panel

Two Louisiana Department of Education (LDOE) staff participated in the review meetings including: Michelle McAdams, the Assessment Content Supervisor and Tywanna Dushime, the Small Populations Assessment Coordinator. edCount staff, Elizabeth Summers, Bill Herrera, Tracy Fazio, Charlene Turner, and Jean Clayton facilitated the stakeholder meetings. Measurement, Incorporated (MI) staff member Jami-Jon Pearson facilitated panelist recruitment and reimbursement.

English Language Arts Panels

The LDOE recruited 34 prospective panelists to serve on two English Language Arts (ELA) grade panels (3-5, 6-8 & high school). The LDOE selected panelists based upon familiarity with students with significant cognitive disabilities, familiarity with the content across the grade spans, expertise with students with visual and hearing impairments, and demographic representation of the students in the state.

Upon finalization of the participant lists, LDOE provided MI with prospective panelists' names, contact information, and grade-level experience/expertise. MI sent an email to each panelist requesting confirmation of participation and return of a signed nondisclosure agreement. edCount sent an email to each participant that provided meeting logistics information.

A total of 18 panelists across the two ELA committees participated in the review. The panelists completed a demographic questionnaire prior to the meetings. The information included areas of teaching experience (e.g., special education teacher, special education supervisor, ELA content teacher), gender and race/ethnicity. The following provides a summary of the demographic information received from each of the panelists.

The Grades 3-5 panel consisted of three special education teachers, one vocational and transition curriculum specialist, three special education supervisors, and one ELA content teacher. The panel was represented by seven female, one male, and four Black or African Americans, one Latinx, and three White panelists.

The Grades 6-8 & HS panel consisted of five special education teachers, one special education teacher of the Deaf, one special education supervisor, one vocational and transition Curriculum Specialist, one ELA content teacher, and one science content teacher. The panel was represented by nine female, one male, and six Black or African American, and four White panelists. In Appendix A, we have included the virtual sign-in sheets for each panel.

Mathematics and Science Panels

The LDOE recruited 30 prospective panelists to serve on three mathematics and science grade panels (3-5, 6-8, high school). The LDOE selected panelists based upon familiarity with students with significant cognitive disabilities, familiarity with the content across the grade spans, expertise with students with visual and hearing impairments, and demographic representation of the students in the state.

Upon finalization of the participant lists, LDOE provided MI with prospective panelists' names, contact information, and grade-level experience/expertise. MI sent an email to each panelist requesting confirmation of participation and return of a signed nondisclosure agreement. edCount sent an email to each participant that provided meeting logistics information.

A total of 28 panelists across all three mathematics and science committees participated in the review. The panelists completed a demographic questionnaire prior to the meetings. The information included areas of teaching experience (e.g., special education teacher, special education supervisor, math content teacher), gender and race/ethnicity. Provided below is a summary of the demographic information received from each of the panelists.

The Grades 3-5 panel consisted of six special education teachers, one vocational and transition curriculum specialist, one special education supervisor, one math content teacher, and one science content teacher. The panel was represented by seven female, three male, and three Black or African Americans, one Latinx, and six White panelists.

The Grades 6-8 panel consisted of three special education teachers, one special education teacher of the Deaf, one special education supervisor, one vocational and transition Curriculum Specialist, one math content teacher, and one science content teacher. The panel was represented by six female, two male, and four Black or African American, and three White panelists

The High School Panel consisted of five special education teachers, one special education teacher of the Deaf, one special education supervisor, one vocational and transitional curriculum specialist, one math content teacher, and one science content teacher. The panel was represented by eight female, two male, five Black or African American, and five White panelists. In Appendix A, we have included the virtual sign-in sheets for each panel.

Summary of Review Meetings

Review Process

During each of the grade band panel meetings (see the Agendas for each grade-band panel meeting in Appendix B), the panelists received the same introductory training before addressing the grade- and content-specific review of the items for content alignment and bias and sensitivity issues. We present a summary of the training below (see Appendix C for the PowerPoint Trainings for each grade-band panel meeting).

Welcome and Introductions

The facilitators welcomed the panelists, gave a high-level overview of the meeting agenda, and discussed the LDOE stipend and honorarium claim voucher. The facilitators introduced themselves, Measurement Incorporated, and LDOE personnel, then participants introduced themselves.

Meetings Goals and Test Security Reminder

The facilitators provided an overview of the goals for the meeting and reminded panelists that they had signed a nondisclosure agreement and reviewed the virtual committee security protocol panelists must follow. The protocol emphasized the security of all testing materials being used by panelists and instructed panelists to delete computer browsing history after the meeting. The panelists were instructed to not take screen shots, print secure materials, take personal notes, and disclose item information. In addition, the agreement stressed that panelists must log on to the meeting in a private room, where no one else can view their screen (see Appendix D).

LEAP Connect Assessments Overview

The panelists received a description of the LEAP Connect English Language Arts (ELA), math, and science assessments. The overview covered the structure of each of the assessments, the content the items are aligned to, and how the items are developed. edCount facilitators described the relationship between items assessed and the approved prioritized content for each area. Panelists also received a brief overview of the item complexity for each of the content areas. The edCount facilitators also described the ELA reading passage development for ELA panelists.

Review Process

The facilitators described the process and criteria panelists would use to review and evaluate the items for each grade and content area for alignment, bias, and sensitivity issues (see Appendix E).

Outcomes of the Review Process

Panelists reviewed field test items for ELA, mathematics, and science assessments using the criteria discussed within the training. During the evaluation process the panelists decided whether to “Accept,” “Revise,” or “Reject” the test items. Accepting the item meant no changes to the item were necessary. If panelists selected “Revise” they had to describe the changes requested within the item, whether that included graphic changes, content changes, or other changes within the item. If panelists selected

"Reject" they were required to describe why the item could not be accepted or revised. The facilitator led a discussion for items for which the panelists selected "Revise" or "Reject." The discussion led the panelists to a consensus which was recorded for all panelists to review. If consensus could not be reached, the facilitator took all comments and then presented results to LDOE for a final decision during reconciliation. Below is a description of the results from the consensus discussion for each content area and grade.

ELA

The panelists evaluated field test items for grades 3-8 and high school in ELA, including both the passage and the associated test items. Each grade consisted of two passages: one informational and one literature with the associated questions. Grade 3 passage and items were at the Tier 2 level of complexity while grades 4 through 8 and high school were at a Tier 3 level. Grades 7, 8, and high school were paired passages.

Grade 3

Panelists reviewed six field-test items for grade 3 ELA across three LCs. All six aligned to the informational passage and standards. Five of the items received "Accept" and one received "Revise" (see Exhibit 52). The recommended revisions focused on a distractor that was too appealing (see Appendix F).

Exhibit 52. Grade 3 ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RI.3.2a	1		
LC.RI.3.2b	2		
LC.RI.3.5a	2	1	

Grade 4

Panelists reviewed five field-test items for grade 4 ELA across three LCs. All five aligned to the informational passage and standards. Three of the items received "Accept" and two received "Revise" (see Exhibit 53). The recommended revisions were to adjust the wording in the passage part chart and add graphics (see Appendix G).

Exhibit 53. Grade 4 ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RI.4.2a	1		
LC.RI.4.7a		2	
LC.RI.4.7c	2		

Grade 5

Panelists reviewed eight field-test items for grade 5 across four LCs. Seven items aligned to the literature passage and one to a language standard. Five of the items received "Accept" and three received "Revise" (see Exhibit 54). The recommended revisions included clarifying wording in the passage and answer options (see Appendix H).

Exhibit 54. Grade 5 ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RL.5.1a	1	1	
LC.RL.5.2b	2	1	
LC.RL.5.3a	2		
LC.L.5.4a		1	

Grade 6

Panelists reviewed six field-test items for grade 6 ELA across four LCs. Five items aligned to the informational passage and one to a language standard. Four items received "Accept" and two received "Revise" (see Exhibit 55). The recommended revisions focused on adding the definition of a term and replacing a pronoun with a name (see Appendix I).

Exhibit 55. Grade 6 ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RI.6.2	1	1	
LC.RI.6.3d	1	1	
LC.RI.6.8b	1		
LC.L.6.6a	1		

Grade 7

Panelists reviewed five field-test items for grade 7 across four LCs. Four items aligned to an informational passage and one item aligned to a language standard. Three items received "Accept" and two received "Revise" (see Exhibit 56). The recommended revisions included formatting and adding a definition of a term (see Appendix J).

Exhibit 56. Grade 7 ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RI.71	1	1	
LC.RI.7.3	1		
LC.RI.7.8b		1	
LC.L.7.4a	1		

Grade 8

Panelists reviewed six field-test items for grade 8 ELA across four LCs. Five items aligned to the informational passage and one item aligned to a language standard. Three items received "Accept" and three received "Revise" (see Exhibit 57). The recommended revisions were to fix typographical errors, remove a sentence, clarify wording of a sentence, and add a definition of a term (see Appendix K).

Exhibit 57. Grade 8 ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RI.8.1a	2		
LC.RI.8.5d		1	
LC.RI.8.8a		1	
LC. RI.8.9		1	
LC.L.8.6a	1		

High School

Panelists reviewed eight field-test items for high school ELA across five LCs. All eight items aligned to an informational passage and standards. Five items received "Accept" and three received "Revise" (see Exhibit 58). The recommended revisions focused on terminology in the passage and wording in the key (see Appendix L).

Exhibit 58. High School ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RI.11-12.1a	1	1	
LC.RI.11-12.2c	1	1	
LC.RI.11-12.6a	2		
LC.RI.11-12.6d	1		
LC.RI.11-12.7		1	

Mathematics

The panelists reviewed field test items for grades 3-8 and high school in mathematics. The number of field test items depended on the grade as did the distribution of item complexity by tier and distribution of connectors.

Grade 3

For grade 3 math, panelists reviewed eight field test items across six LCs. Seven items received "Accept" and one received "Revise" (see Exhibit 59). The recommended revisions consisted of removing the specificity of the cards referenced in the item (see Appendix M).

Exhibit 59. Grade 3 Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.3.OA.D.8b		1	
LC.3.OA.D.9c	1		
LC.3.NBT.A.2b	2		
LC.3.NF.A.1c	1		
LC.3.NF.A.3a	2		
LC.MD.C.6	1		

Grade 4

For Grade 4 math, panelists reviewed eight field test items across six LCs. Of these items, seven received "Accept" and one received "Revise" (see Exhibit 60). The recommended revision was to update the graphic description in the item (see Appendix N).

Exhibit 60. Grade 4 Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.4.OA.A.2b	2		
LC.4.OA.A.3a	1		
LC.4.NF.A.1	1		
LC.4.MD.B.4a	1	1	
LC.4.G.A.2a	1		
LC.4.NF.A. 2a	1		

Grade 5

For grade 5 math, panelists reviewed eight field test items across seven LCs. All eight items received "Accept" (see Exhibit 61; Appendix O).

Exhibit 61. Grade 5 Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.5.NF.A.2	1		
LC.5.NBT.A.4a	1		
LC.5.NBT.B.5	1		
LC.5.NBT.B.6a	2		
LC.5.NBT.B.7	1		
LC.5.MD.A.1b	1		
LC.5.OA.B.3c	1		

Grade 6

Panelists for grade 6 math reviewed seven field test items across five LCs. Six items received "Accept" and one received "Revise" (see Exhibit 62). The recommended revision was to add to the student text identifying that the numbers left of zero are negative numbers (see Appendix P).

Exhibit 62. Grade 6 Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.6.NS.B.3	2		
LC.6.SP.B.5D	2		
LC.6.RP.A.1c	1		
LC.6.RP.A.3e	1		
LC.6.NS.C.6d		1	

Grade 7

For grade 7 math, panelists reviewed seven field test items across six LCs. All seven items received "Accept" (see Exhibit 63; Appendix Q).

Exhibit 63. Grade 7 Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.7.G.B.6b	2		
LC.7.RP.A.2a	1		
LC.7.NS.A.2b	1		
LC.7.EE.B.4c	1		
LC.7.RP.A.3d	1		
LC.7.G.B.4	1		

Grade 8

Panelists for grade 8 math reviewed seven field test items across six LCs. Six items received "Accept" and one received "Revise" (see Exhibit 64). The recommended revisions consisted of the addition of graphics (see Appendix R).

Exhibit 64. Grade 8 Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.8.G.C.9	1		
LC.8.SP.A.1a	2		
LC.8.SP.A.1c	1		
LC.8.EE.B.5	1		
LC.8.G.A.4b	1		
LC.8.EE.C.7		1	

High School

For high school math, panelists reviewed six field test items across four LCs. All items received "Accept" (see Exhibit 65; Appendix S).

Exhibit 65. High School Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.A1: A-REI.D.10	2		
LC.GM: G-SRT.B.5a	2		
LC.A1: S-ID.A.2a	1		
LC.A1: N-Q.A.1b	1		

Science

The panelists reviewed all field-test items for grades 4, 8, and high school in science. The number of field test items depended on the grade as did the distribution of item complexity by tier and distribution of connectors.

Grade 4

For grade 4 science, panelists reviewed five field test items across five LCs. Four items received "Accept" and one received "Revise" (see Exhibit 66). The recommended revision included adding information to the graphic and the graphic description (see Appendix T).

Exhibit 66. Grade 4 Science Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC-4-LS1-2b	1		
LC-4-PS4-1b	1		
LC-4-ESS2-1b	1		
LC-4-ESS2-2a		1	
LC-4-PS3-3a	1		

Grade 8

For grade 8 science, panelists reviewed seven field test items across five LCs. Five items received "Accept" and two received "Revise" (see Exhibit 67). The recommended revisions focused on correcting grammar and changing student text (see Appendix U).

Exhibit 67. Grade 8 Science Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC-8-PS1-6b	1		
LC-8-ESS2-1a	1	1	
LC.8.LS4.2a	1		
LC-8-LS3-1a	1	1	
LC-8-PS1-3a	1		

High School

For high school science, panelists reviewed seven field test items across five LCs. One item received "Accept" and six received "Revise" (see Exhibit 68). The recommended revisions consisted of improving consistency in language, description of graphics, and graphic changes in the answer options (see Appendix V).

Exhibit 68. High School Science Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC-HS-LS1-8c	1	1	
LC-HS-LS1-8d		1	
LC-HS-LS3-2a		2	
LC-HS-LS1-2a		1	
LC-HS-LS3-3a		1	

Evaluation of the Review Process

Panelist Evaluation Summary for the Mathematics and Science CBR

As part of standard practice, edCount evaluates the quality of our CBR process through a panelist evaluation survey intended to collect feedback from all panelists participating in the review. At the conclusion of the review, panelists completed this evaluation using a survey generated through SurveyMonkey. edCount evaluators asked panelists to rate their agreement—strongly agree, agree, disagree, or strongly disagree—with a series of statements about their virtual CBR experience.

Twenty-four panelists completed the evaluation survey. Of these respondents, 10 took part in the Grades 3-5 panel, eight took part in the Grades 6-8 panel, and six were from the High School panel. All panelists had experience working with the grade levels of their respective panels. Respondents represented 14 school districts from across Louisiana. All panelists had at least six years of teaching experience, and two-thirds of respondents had 15 years or more.

Respondents were also asked to indicate their areas of experience. Two-thirds of respondents indicated experience as special education teachers, while a majority of respondents (58%) indicated they had experience teaching students with significant cognitive disabilities. Respondents also included six special education supervisors (25%), three teachers of students with hearing impairments (13%), two teachers of students with visual impairments (8%), and two teachers of students who are English Learners (8%). In addition, respondents also reported working with general education courses, with four panelists indicating experience as general education math teachers (17%) and four panelists indicating experience as general education science teachers (17%). An additional two respondents had experience as general education math content supervisors (8.3%).

The results of these evaluations reflect high levels of satisfaction with the process and outcomes of the CBR meeting (see Exhibit 69). Notably, there were no statements with which panelists indicated disagreement. In addition, for all statements, a substantial majority of participants (between 92 and 100 percent) indicated strong agreement.

Exhibit 69. Mathematics and Science CBR Panelist Evaluation Results

Statement	Strongly Agree		Agree Somewhat	
	n	*%*	*n*	*%*
1. The training materials were clear.	22	91.7	2	8.3
2. The provided materials supported my participation in the content, bias, and accessibility review (e.g., Louisiana Student Standards, Louisiana Connectors, Content Review Criteria, Guidelines for Evaluating Bias, Sensitivity, and Accessibility).	23	95.8	1	4.2
3. The review process was appropriate to accomplish the stated goals of the review.	22	91.7	2	8.3
4. I found the directions for today's reviews easy to follow.	22	91.7	2	8.3
5. I was able to contribute to the content review.	23	95.8	1	4.2
6. I felt my comments were considered regarding content issues with the items.	22	91.7	2	8.3
7. I am satisfied with the group consensus for correcting content issues with the items.	23	95.8	1	4.2
8. I was able to contribute to the bias, sensitivity, and accessibility review.	24	100.0	0	0.0
9. I felt my comments were considered regarding bias, sensitivity, and accessibility issues with the items.	22	91.7	2	8.3
10. I am satisfied with the group consensus for correcting bias, sensitivity, and accessibility.	23	95.8	1	4.2

Panelists were also provided the opportunity to leave narrative feedback on their impressions of the CBR meeting. Comments included commendations for facilitators and satisfaction with the overall process of the review. Panelists felt that all thoughts and opinions were heard, and that comments about suggestions or modifications were listened to by the panel and facilitators. Several respondents expressed gratitude for being part of the process, finding that the discussions were valuable and improved their understanding of the LEAP Connect assessments.

Panelist Evaluation Summary for ELA CBR

Twelve panelists completed the evaluation survey. Of these respondents, five were members of the Grades 3-5 panel, and seven took part in the Grades 6-8 and High School panel. All but one panelist indicated experience working with the grade levels of their respective panels. Respondents represented eight school districts from across Louisiana. Eleven of the twelve panelists had at least six years of teaching experience, and the majority of respondents (58%) had 15 years of experience or more.

Respondents were also asked to indicate their areas of experience. All respondents indicated experience as special education teachers, while three-fourths indicated they had experience teaching students with significant cognitive disabilities. Respondents also included five panelists with experience as special education supervisors (42%), four with experience as general education English language arts teachers (33%), and two panelists with experience teaching students who are English Learners (17%). One respondent indicated experience as a teacher of students with visual impairments (8%), and one had experience as a teacher of students with hearing impairments or who are deaf (8%).

The results of these evaluations reflect high levels of satisfaction with the process and outcomes of the CBR meeting (see Exhibit 70). Notably, there were no statements with which panelists indicated disagreement. In addition, for nine of the ten statements, all panelists indicated strong agreement.

Exhibit 70. ELA CBR Panelist Evaluation Results

Statement	Strongly Agree		Agree Somewhat	
	n	*%*	*n*	*%*
1. The training materials were clear.	12	100.0	0	0.0
2. The provided materials supported my participation in the content, bias, and accessibility review (e.g., Louisiana Student Standards, Louisiana Connectors, Content Review Criteria, Guidelines for Evaluating Bias, Sensitivity, and Accessibility).	12	100.0	0	0.0
3. The review process was appropriate to accomplish the stated goals of the review.	12	100.0	0	0.0
4. I found the directions for today's reviews easy to follow.	12	100.0	0	0.0
5. I was able to contribute to the content review.	12	100.0	0	0.0
6. I felt my comments were considered regarding content issues with the items.	12	100.0	0	0.0
7. I am satisfied with the group consensus for correcting content issues with the items.	11	91.7	1	8.3
8. I was able to contribute to the bias, sensitivity, and accessibility review.	12	100.0	0	0.0
9. I felt my comments were considered regarding bias, sensitivity, and accessibility issues with the items.	12	100.0	0	0.0
10. I am satisfied with the group consensus for correcting bias, sensitivity, and accessibility issues in the items.	12	100.0	0	0.0

Panelists were also provided the opportunity to leave narrative feedback on their impressions of the CBR meeting. All of these comments were positive, expressing enjoyment with participating in the CBR panels. Additional comments included commendations for facilitators and satisfaction with the impact the work completed during the panels will have for students.

Appendix A. Panelists' Virtual Participation Documentation

Exhibit 71. Mathematics and Science CBR Panelists' Virtual Participation Documentation

Committee	Date	First Name	Last Name	Panelist Number	Teams Check-in (1/20/M)	Teams Check-in (1/20/E)	Attended CBR
3-5	1/25/2022	Keith	Scott	1	X		X
		Bryten	Johnson	2	X		X
		Yasma	Jackson	3	X		X
		Kristy	Guidry	4	X		X
		Julissa	Sosa	5			X
		Wendy	Richardson	6	X		X
		Walter	Stockett	7		X	X
		Aimee	Williamson	8	X		X
		Jill	Espinosa	9	X		X
		Alyce	Sehon	10	X		X
6-8	1/26/2022	Keith	Scott	1	X		X
		Bryten	Johnson	2	X		X
		Yasma	Jackson	3	X		X
		Kristy	Guidry	4	X		X
		Carmen	Landry	5	X		X
		Nikolas	Mancuso	7		X	X
		Pamela	Meno	8	X		X
		Emily	Camp	9	X		X

Committee	Date	First Name	Last Name	Panelist Number	Teams Check-in (1/20/M)	Teams Check-in (1/20/E)	Attended CBR
HS	1/27/2022	Keith	Scott	1	X		X
		LaVerne	Traylor	2	X		X
		Roxanne	Moore	3	X		X
		Andrea	Vital-Broussard	4	X		X
		Glenn	Sullivan	5			X
		Lisa	Salles	6		X	X
		Tessa	Jordan	7		X	X
		Brittney	Robins	8	X		X
		Carroll	Carter	9	X		X
		Hollie	Willie	10		X	X

Exhibit 72. ELA CBR Panelists' Virtual Participation Documentation

Committee	Date	First name	Last name	Panelist Number	Teams Check-in (3/21/M)	Teams Check-in (3/21/E)	Attended CBR
3-5	3/24/2022	Julissa	Sosa	1			X
		Tessa	Jordan	2			X
		Kristy	Guidry	4			X
		Keith	Scott	5	X		X
		Leah	Valdez	6	X		X
		Dana	Boockoff	7	X		X
		Sammetria	Martin	8		X	X
6-8, HS	3/23/2022	Carroll	Carter	1	X		X
		Roxanne	Moore	2			X
		Hollie	Willie	3	X		X
		Misti	Fontenot	4	X		X
		Micheal	Glover	5	X		X
		Leah	Valdez	6	X		X
		Dana	Boockoff	7	X		X
		Melinda	Perrodin	8		X	X
		Wanda	Robinson	9			X
		Sheila	Collins	10			X

Appendix B. Content Bias Review Meeting Agendas

LEAP Connect Content and Bias Review
Grades 3-5 English Language Arts Meeting Agenda

March 24, 2022
7:30 a.m. – 12:00 p.m. CT

Grades 3-5 English Language Arts (ELA)

7:30 a.m. – 8:00 a.m.	Participants Join Meeting
8:00 a.m. – 8:15 a.m.	Welcome and Introductions
8:15 a.m. – 8:45 a.m.	Training and Materials Review
8:45 a.m. – 9:45 a.m.	Review and Reconcile Grade 3 ELA Items
9:45 a.m. – 10:00 a.m.	Break
10:00 a.m. – 11:00 a.m.	Review and Reconcile Grade 4 ELA Items
11:00 a.m. – 11:45 a.m.	Review and Reconcile Grade 5 ELA Items
11:45 a.m. – 12:00 p.m.	Wrap-Up

LEAP Connect Content and Bias Review
Grades 6-8 & High School English Language Arts Meeting Agenda

March 23, 2022

7:30 a.m. – 12:30 p.m. CT

Grades 6-8 & High School English Language Arts (ELA)	
7:30 a.m. – 8:00 a.m.	Participants Join Meeting
8:00 a.m. – 8:15 a.m.	Welcome and Introductions
8:15 a.m. – 8:45 a.m.	Training and Materials Review
8:45 a.m. – 10:15 a.m.	Review and Reconcile Grade 6 & 7 ELA Items
10:15 a.m. – 10:30 a.m.	Break
10:30 a.m. – 11:30 a.m.	Review and Reconcile Grade 8 ELA Items
11:30 a.m. – 12:15 p.m.	Review and Reconcile High School ELA Items
12:15 p.m. – 12:30 p.m.	Wrap-Up

LEAP Connect Content and Bias Review
Grades 3-5 Math and Grade 4 Science Meeting Agenda

January 25, 2022

7:30 a.m. – 11:30 a.m. CT

Grades 3-5 Math & Grade 4 Science

7:30 a.m. – 8:00 a.m.	Participants Join Meeting
8:00 a.m. – 8:15 a.m.	Welcome and Introductions
8:15 a.m. – 8:45 a.m.	Training and Materials Review
8:45 a.m. – 9:30 a.m.	Review and Reconcile Grade 3-4 Math Items
9:30 a.m. – 9:45 a.m.	Break
9:45 a.m. – 10:15 a.m.	Review and Reconcile Grade 5 Math Items
10:15 a.m. – 11:15 a.m.	Review and Reconcile Grade 4 Science Items
11:15 a.m. – 11:30 a.m.	Wrap-Up

LEAP Connect Content and Bias Review
Grades 6-8 Math & Grade 8 Science Meeting Agenda

January 26, 2022

7:30 a.m. – 11:30 a.m. CT

Grades 6-8 Math & Grade 8 Science

7:30 a.m. – 8:00 a.m.	Participants Join Meeting
8:00 a.m. – 8:15 a.m.	Welcome and Introductions
8:15 a.m. – 8:45 a.m.	Training and Materials Review
8:45 a.m. – 9:30 a.m.	Review and Reconcile Grade 6-7 Math Items
9:30 a.m. – 9:45 a.m.	Break
9:45 a.m. – 10:15 a.m.	Review and Reconcile Grade 8 Math Items
10:15 a.m. – 11:15 a.m.	Review and Reconcile Grade 8 Science Items
11:15 a.m. – 11:30 a.m.	Wrap-Up

LEAP Connect Content and Bias Review
High School Math & Science Meeting Agenda

January 27, 2022

7:30 a.m. – 11:15 a.m. CT

High School Math & Science	
7:30 a.m. – 8:00 a.m.	Participants Join Meeting
8:00 a.m. – 8:15 a.m.	Welcome and Introductions
8:15 a.m. – 8:45 a.m.	Training and Materials Review
8:45 a.m. – 9:45 a.m.	Review and Reconcile High School Math Items
9:45 a.m. – 10:00 a.m.	Break
10:00 a.m. – 11:00 a.m.	Review and Reconcile High School Science Items
11:00 a.m. – 11:15 a.m.	Wrap-Up

Appendix C. Content Bias Review Training PowerPoints

ELA Grades 3-5

Welcome & Introductions

Introductions

LA Department of Education:
Alissa Kilpatrick– Director of Assessment Content
Michelle McAdams – Assessment Content Supervisor
Tywanna Dushime – Small Populations Assessment Coordinator

Measurement Incorporated: Jami-Jon Pearson

edCount, LLC: Liz Summers
edCount, LLC Facilitators: Jean Clayton and Charlene Turner

Believes 2

SUBSTITUTE TEACHER REIMBURSEMENT INVOICE
VOUCHER Project #22

Instructions for Requesting Substitute Teacher Reimbursement

All participating school systems that are requesting reimbursement must submit an invoice along with this Substitute Teacher Reimbursement Invoice-Voucher within (30) days of the meeting.
If this is the first time working with LDOE, or more than one year has passed since the last reimbursement request, you will need to submit a W-9 Form prior to processing the invoice.

Submit W-9 Form and this Invoice Voucher to:

Antoinette DeChant
423 Morris Street
Durham, NC 27701

Contact Antoinette DeChant at (919) 683-2413 x1163 or Jami-Jon Pearson at (919) 683-2413 x1233 with any questions.

MEETING NAME:	MEETING DATE(S)
2022 LDOE ELA CBR meeting	March 23-24, 2022

Believes 3

SCHOOL SYSTEM REQUESTING REIMBURSEMENT (please submit point of contact and address below)			
TEACHER'S NAME	**NO.# OF DAYS**	**RATE PER-DAY**	**AMOUNT**
		TOTAL	

Please submit the invoice and invoice voucher **no later than April 29, 2022.**

Believes 4

Instructions for Requesting Substitute Teacher Reimbursement

- **Teacher submits form to finance department (Central Office)**
- **School system submits invoice & form by April 29, 2022**
  - 1st time with LDOE or more than a year since the last request, a ***W-9 will need to be submitted with form***.
  - Within SCHOOL SYSTEM REQUESTING REIMBUSREMENT box
    - School system's point of contact and mailing address
  - Teacher's name
- **Submit any questions to:**
  - Antoinette Dechant Adechant@measinc.com (919) 683-2413 x1163
  - Jami-Jon Pearson at jpearson@measinc.com (919) 683-2413 x1233 – (Cell: 832-215-5593)

Believes 5

English Language Arts (ELA) Review

- Content and Bias Review (CBR) Meeting Goals
- Security Reminder
- Grades 3-5 ELA Reviews
  - CBR Training for ELA
  - Ratings and recommendations for Grades 3 -5 ELA
- Wrap-up and Sign-out

Believes 6

Meeting Goals

7

Meeting Goals

Understand:
- Importance of test security
- Purpose and use of LEAP Connect Assessments
- Assessed content for ELA and criteria for recommendations
- Alignment between the Louisiana Connectors for Students with Significant Cognitive Disabilities (LC) and Essential Understanding (EU) and the item
- Item complexity guidelines and item review criteria
- Bias and sensitivity guidelines
- Guidelines for achieving consensus

Evaluate and provide recommendations on:
- ELA items for alignment, content, and bias issues

Believes 8

Test Security Reminder

Your signed nondisclosure agreement indicates your understanding that:

- The test passages and items for ELA are secure materials.
- You may not take pictures/screenshots, print, or save copies of the test items.
- You may not take any notes

You are encouraged to share your experience and the general process with your colleagues, but do not share secure information.

Believes 9

LEAP Connect Assessments

Believes 10

LEAP Connect Assessments

The LEAP Connect Assessments:

- are designed for Students with Significant Cognitive Disabilities;
- meet federal requirements for a summative assessment that measures student progress toward challenging academic content;
- focus on the "big ideas" found in the Louisiana Student Standards (LSS) for ELA, mathematics, and science, and;
- measure student proficiency in the content and skills detailed by the Louisiana Connectors (LCs) for Students with Significant Cognitive Disabilities in ELA, mathematics, and science.

Believes 11

LEAP Connect Assessments

The LEAP Connect Assessments:

- align to the knowledge and skills included in each grade and content-specific LC;
- provide opportunities for students to independently show what they know at varying levels of understanding of the assessed content with the use of scaffolds and supports;
- required to be read aloud to the student by the Text-to-Speech accessibility feature or the Test Administrator; and
- are accessible for students with varying communication abilities and modes which allow students to use their preferred mode of communication;
- provide online tools (i.e., pointer tool, highlighter tool, magnifying tool, line guide, calculator, cross-off tool, sticky note tool, and help tool); and
- provide a printed copy of reference materials and the option of a paper-based test.

Believes 12

LEAP Connect Assessed Content

The LCs provide full-year aligned pathways for students with significant cognitive disabilities to work toward Louisiana Student Standards (LSS) and the basis for the skills and concepts represented on the LEAP Connect assessments.

Louisiana Student Standards (LSS)
Grade-level academic standards

→ **Louisiana Connectors (LC)**
"Big ideas" of LSS

→ **Essential Understandings (EU)**
Foundational skills aligned to LC

↓ **Evidence Statements**
The assessed knowledge and skills aligned to an LC or EU

Believes 13

LEAP Connect Complexity Levels

The approach to passage and item design ensures the availability of a range of supports for students across the passage and item tiers (e.g., providing prompts to listen for needed information, definition of terms).

- Tier 1 and Tier 2 questions reflect the higher level of support needed when students begin to learn a new skill or acquire new knowledge.
- Tier 3 and Tier 4 questions reflect the lower level of support needed as students learn and develop mastery of that skill or knowledge.
- Each passage and associated items are written at a single tier.

Content Area	Tier 1	Tier 2	Tier 3	Tier 4
English Language Arts	• short text with repeated ideas • simple vocabulary words • provides a specific "listen for" statement related to the item	• text with straightforward ideas • provides a brief description of the item topic and simple definitions of terms • provides a "listen for" statement related to the assessed skill.	• text with clear ideas • provides some detail about the item topic and definitions of terms • provides statement reminding students what the item is about	• text with detailed and implied ideas • provides statement reminding students what the item is about

Believes 14

LEAP Connect Assessed Content

- Tiers 4, 3, and 2 assess student mastery of a skill or concept associated with the LC.
- Tier 1 assesses student mastery of an "Essential Understanding" (EU).
  An EU is a fundamental, basic concept, or skill related to the LC that is essential to gain an understanding of the content and is academic and grade-specific. Acquisition of this basic skill is necessary for students to engage in and learn the concept of skill described or identified by the LC.

Content Area	LC	EU
Literature	LC.RL.5.3a Compare characters, settings, events within a story; provide or identify specific details in the text to support the comparison.	Identify characters, setting, and events in a story.

Believes 15

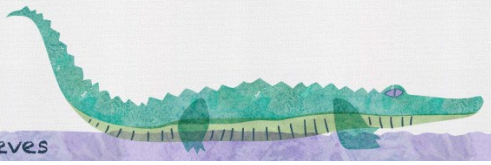
ELA Reading Passage Development

- The reading passage type (literature or informational) and tier (1, 2, or 3) is specified by the test blueprint for each grade.
- Quantitative and qualitative guidelines specified for each tier are followed.
- The passage topic is grade- and age-appropriate and based on possible topics provided by LDOE.
- Each passage includes graphics. Most graphics are included for student engagement. A few, guided by the specified LCs, are included to provide students with additional information (e.g., timeline, chart, diagram).
- Grade 5 includes an LC that assesses the ability to answer a comprehension question based on the presentation of two related passages (i.e., compare/contrast).

Believes 16

ELA Field Test Passage Sets

- Grade 3 – Tier 2 Informational Text
- Grade 4 – Tier 3 Informational Text
- Grade 5 – Tier 3 Literature



Believes 17

Bias, Sensitivity, and Accessibility Guidelines

- Review each item to be sure it is free of bias and sensitivity issues and accessible to ALL populations.
- While reviewing for bias, sensitivity, fairness, and accessibility, consider: *Is the item free of content or language that might…*
  - offend or typecast a gender or ethnic group?
  - unfairly advantage or disadvantage groups of students?
  - portray a group, gender, or belief system in a negative or stereotypic manner?
  - degrade people based on physical appearance or on any physical, cognitive, or emotional challenge?

Believes 18

LEAP Connect Item Review Questions

- Does this item measure the LC or EU?
- Is this item appropriate for the grade level?
- Are the item directives clearly written?
- Is this item free from bias and sensitivity issues?
- Does the language of the stimulus/context, the question, and graphics clearly communicate the task?
- Are the graphics context accurate and sufficient for the item context?
- Are the response options clearly written?
- Does the item have a correct answer?
- Is there a clear, single correct answer to the item?
- Are all incorrect choices clearly incorrect?

Believes 19

LEAP Connect Item Review Criteria

Item review criteria

- Does this item measure the stated LC or EU?
- Is this item free from bias and sensitivity issues?

Upon applying the criteria to an item, an independent recommendation is made by each reviewer. For each item, record a recommendation for each item in the Excel file. Record in the comments:

- Accept, Accept with Revisions, or Reject
- Provide reasons for your decision, especially if Accepting with Revisions or Rejecting.

Believes 21

Guidelines for All Reviewers

To achieve consensus on the recommendation for an item, reviewers are asked to:

- seek clarification and ask questions;
- listen to and collaborate with other panel members;
- support high expectations for task quality and of student ability
- provide honest and constructive feedback; and
- focus on issues in regard to alignment, clarity of language, student expectations, and fairness

Believes 21

Questions and Thoughts

22

ELA Grades 6-8 and High School

LOUISIANA DEPARTMENT OF EDUCATION

Believes

LEAP Connect English Language Arts Content Bias Review Training

March 23, 2022
8:00-12:30 a.m. CT
Grades 6-8 and High School

Welcome & Introductions

Introductions

LA Department of Education:
Alissa Kilpatrick– Director of Assessment Content
Michelle McAdams – Assessment Content Supervisor
Tywanna Dushime – Small Populations Assessment Coordinator

Measurement Incorporated: Jami-Jon Pearson

edCount, LLC: Liz Summers
edCount, LLC Facilitators: Jean Clayton and Charlene Turner

Believes 3

SUBSTITUTE TEACHER REIMBURSEMENT INVOICE VOUCHER Project #22

Instructions for Requesting Substitute Teacher Reimbursement

All participating school systems that are requesting reimbursement must submit an invoice along with this Substitute Teacher Reimbursement Invoice-Voucher within (30) days of the meeting. If this is the first time working with LDOE, or more than one year has passed since the last reimbursement request, you will need to submit a W-9 Form prior to processing the invoice.

Submit W-9 Form and this Invoice Voucher to:

Antoinette DeChant
423 Morris Street
Durham, NC 27701

Contact Antoinette DeChant at (919) 683-2413 x1163 or Jami-Jon Pearson at (919) 683-2413 x1233 with any questions.

MEETING NAME:	MEETING DATE(S)
2022 LDOE ELA CBR meeting	March 23-24, 2022

Believes 4

SCHOOL SYSTEM REQUESTING REIMBURSEMENT (please submit point of contact and address below)			
TEACHER'S NAME	NO.# OF DAYS	RATE PER DAY	AMOUNT
		TOTAL	

Please submit the invoice and invoice voucher **no later than April 29, 2022**.

Believes 5

Instructions for Requesting Substitute Teacher Reimbursement

- **Teacher submits form to finance department (Central Office)**
- **School system submits invoice & form by April 29, 2022**
  - 1st time with LDOE or more than a year since the last request, a ***W-9 will need to be submitted with form***.
  - Within SCHOOL SYSTEM REQUESTING REIMBUSREMENT box
    - School system's point of contact and mailing address
  - Teacher's name
- **Submit any questions to:**
  - Antoinette Dechant Adechant@measinc.com (919) 683-2413 x1163
  - Jami-Jon Pearson at jpearson@measinc.com (919) 683-2413 x1233 – (Cell: 832-215-5593)

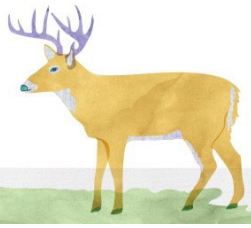
Believes 6

English Language Arts (ELA) Review

- Content and Bias Review (CBR) Meeting Goals
- Security Reminder
- Grades 6-8 & High School ELA Reviews
  - CBR Training for ELA
  - Ratings and recommendations for Grades 6-8 & High School ELA
- Wrap-up and Sign-out

Believes 7

Meeting Goals



8

Meeting Goals

Understand:
- Importance of test security
- Purpose and use of LEAP Connect Assessments
- Assessed content for ELA and criteria for recommendations
- Alignment between the Louisiana Connectors for Students with Significant Cognitive Disabilities (LC) and Essential Understanding (EU) and the item
- Item complexity guidelines and item review criteria
- Bias and sensitivity guidelines
- Guidelines for achieving consensus

Evaluate and provide recommendations on:
- ELA items for alignment, content, and bias issues

Test Security Reminder

Your signed nondisclosure agreement indicates your understanding that:
- The test passages and items for ELA are secure materials.
- You may not take pictures/screenshots, print, or save copies of the test items.
- You may not take any notes

You are encouraged to share your experience and the general process with your colleagues, but do not share secure information.

LEAP Connect Assessments

LEAP Connect Assessments

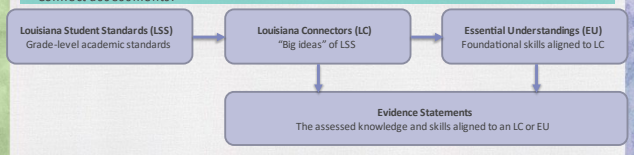
The LEAP Connect Assessments:
- are designed for Students with Significant Cognitive Disabilities;
- meet federal requirements for a summative assessment that measures student progress toward challenging academic content;
- focus on the "big ideas" found in the Louisiana Student Standards (LSS) for ELA, mathematics, and science, and;
- measure student proficiency in the content and skills detailed by the Louisiana Connectors (LCs) for Students with Significant Cognitive Disabilities in ELA, mathematics, and science.

LEAP Connect Assessments

The LEAP Connect Assessments:
- align to the knowledge and skills included in each grade and content-specific LC;
- provide opportunities for students to independently show what they know at varying levels of understanding of the assessed content with the use of scaffolds and supports;
- required to be read aloud to the student by the Text-to-Speech accessibility feature or the Test Administrator; and
- are accessible for students with varying communication abilities and modes which allow students to use their preferred mode of communication;
- provide online tools (i.e., pointer tool, highlighter tool, magnifying tool, line guide, calculator, cross-off tool, sticky note tool, and help tool); and
- provide a printed copy of reference materials and the option of a paper-based test.

LEAP Connect Assessed Content

The LCs provide full-year aligned pathways for students with significant cognitive disabilities to work toward Louisiana Student Standards (LSS) and the basis for the skills and concepts represented on the LEAP Connect assessments.



LEAP Connect Complexity Levels

The approach to passage and item design ensures the availability of a range of supports for students acros the passage and item tiers (e.g., providing prompts to listen for needed information, definition of terms).
- Tier 1 and Tier 2 questions reflect the higher level of support needed when students begin to learn a new skill or acquire new knowledge.
- Tier 3 and Tier 4 questions reflect the lower level of support needed as students learn and develop mastery of that skill or knowledge.
- Each passage and associated items are written at a single tier.

Content Area	Tier 1	Tier 2	Tier 3	Tier 4
English Language Arts	• short text with repeated ideas • simple vocabulary words • provides a specific "listen for" statement related to the item	• text with straightforward ideas • provides a brief description of the item topic and simple definitions of terms • provides a "listen for" statement related to the assessed skill.	• text with clear ideas • provides some detail about the item topic and definitions of terms • provides statement reminding students what the item is about	• text with detailed and implied ideas • provides statement reminding students what the item is about

LEAP Connect Assessed Content

- Tiers 4, 3, and 2 assess student mastery of a skill or concept associated with the LC.
- Tier 1 assesses student mastery of an "Essential Understanding" (EU).
  An EU is a fundamental, basic concept, or skill related to the LC that is essential to gain an understanding of the content and is academic and grade-specific. Acquisition of this basic skill is necessary for students to engage in and learn the concept of skill described or identified by the LC.

Content Area	LC	EU
Informational	LC.RI.7.8b Evaluate the claim or argument to determine if they are supported by evidence.	Identify a claim from the text.

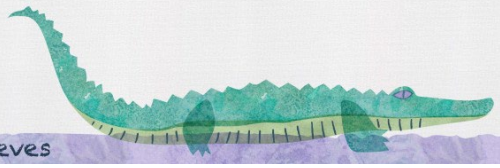
ELA Reading Passage Development

- The reading passage type (literature or informational) and tier (1, 2, or 3) is specified by the test blueprint for each grade.
- Quantitative and qualitative guidelines specified for each tier are followed.
- The passage topic is grade- and age-appropriate and based on possible topics provided by LDOE.
- Each passage includes graphics. Most graphics are included for student engagement. A few, guided by the specified LCs, are included to provide students with additional information (e.g., timeline, chart, diagram).
- Grades 6-8 & HS include an LC that assesses the ability to answer a comprehension question based on the presentation of two related passages (i.e., compare/contrast).

Believes 17

ELA Field Test Passage Sets

- Grade 6 – Tier 3 Informational Text
- Grade 7 – Tier 3 Informational Text (paired passage)
- Grade 8 – Tier 3 Informational Text (paired passage)
- High School – Tier 3 Informational Text (paired passage)



Believes 18

Bias, Sensitivity, and Accessibility Guidelines

- Review each item to be sure it is free of bias and sensitivity issues and accessible to ALL populations.
- While reviewing for bias, sensitivity, fairness, and accessibility, consider: *Is the item free of content or language that might…*
  - offend or typecast a gender or ethnic group?
  - unfairly advantage or disadvantage groups of students?
  - portray a group, gender, or belief system in a negative or stereotypic manner?
  - degrade people based on physical appearance or on any physical, cognitive, or emotional challenge?

Believes 19

LEAP Connect Item Review Questions

- Does this item measure the LC or EU?
- Is this item appropriate for the grade level?
- Are the item directives clearly written?
- Is this item free from bias and sensitivity issues?
- Does the language of the stimulus/context, the question, and graphics clearly communicate the task?
- Are the graphics context accurate and sufficient for the item context?
- Are the response options clearly written?
- Does the item have a correct answer?
- Is there a clear, single correct answer to the item?
- Are all incorrect choices clearly incorrect?

Believes 20

LEAP Connect Item Review Criteria

Item review criteria
- Does this item measure the stated LC or EU?
- Is this item free from bias and sensitivity issues?

Upon applying the criteria to an item, an independent recommendation is made by each reviewer. For each item, record a recommendation for each item in the Excel file. Record in the comments:
- Accept, Accept with Revisions, or Reject
- Provide reasons for your decision, especially if Accepting with Revisions or Rejecting.

Believes 21

Guidelines for All Reviewers

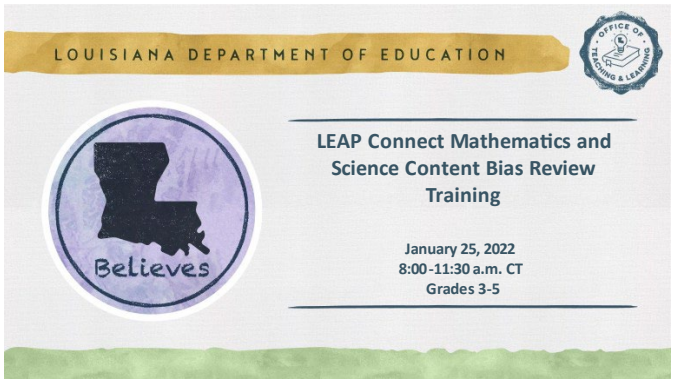
To achieve consensus on the recommendation for an item, reviewers are asked to:
- seek clarification and ask questions;
- listen to and collaborate with other panel members;
- support high expectations for task quality and of student ability
- provide honest and constructive feedback; and
- focus on issues in regard to alignment, clarity of language, student expectations, and fairness

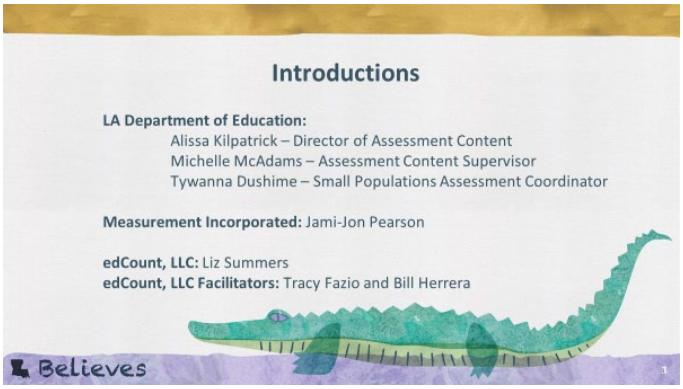
Believes 22

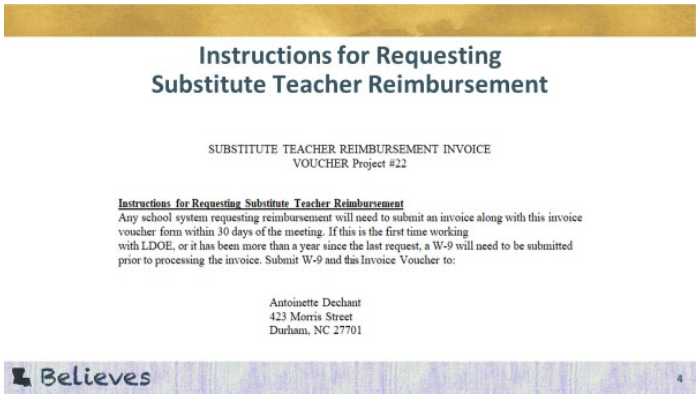
Questions and Thoughts

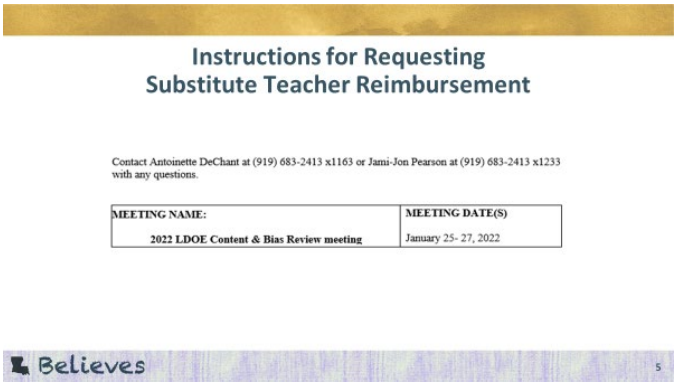
23

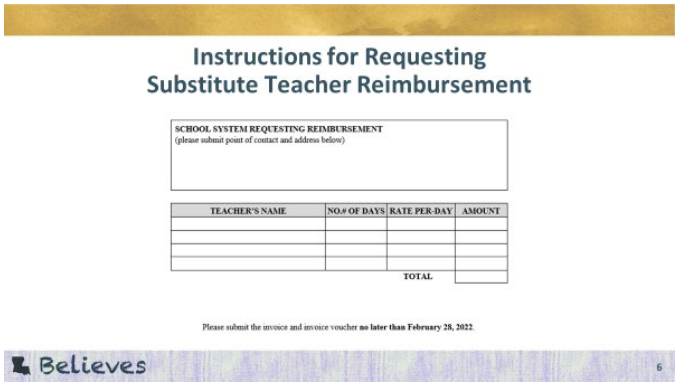
Math and Science Grades 3-5











Instructions for Requesting Substitute Teacher Reimbursement

- Teacher submits form to finance department (Central Office)
- School system submits invoice & form by February 28, 2022 to Antoinette Dechant, 423 Morris Street, Durham, NC, 27701
- **1st time with LDOE or more than one year since the last request, a W-9 will need to be submitted with form**
- Within SCHOOL SYSTEM REQUESTING REIMBURSEMENT box:
  - School system's point of contact and mailing address
- Name of teacher requesting a substitute
- Submit any questions to:
  - Antoinette Dechant at Adeschant@measinc.com (919) 683-2413 x1163
  - Jami-Jon Pearson at jpearson@measinc.com (919) 683-2413 x1233

Believes 7

Mathematics and Science Review

- Content and Bias Review (CBR) Meeting Goals
- Security Reminder
- Grades 3-5 Mathematics and Grade 4 Science Reviews
  - CBR Training for Mathematics and Science
  - Ratings and recommendations for Grades 3-5 Mathematics
  - Ratings and recommendations for Grade 4 Science
- Wrap-up and Sign-out

Believes 8

Meeting Goals

9

Meeting Goals

Understand:

- Importance of test security
- Purpose and use of LEAP Connect Assessments
- Assessed content for math and science and criteria for recommendations
- Alignment between the Louisiana Connectors for Students with Significant Cognitive Disabilities (LC) and Essential Understanding (EU) and the item
- Item complexity guidelines and item review criteria
- Bias and sensitivity guidelines
- Guidelines for achieving consensus

Evaluate and provide recommendations on:

- Math and science items for alignment, content, and bias issues

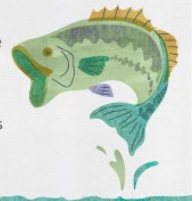
Believes 10

Test Security Reminder

Your signed nondisclosure agreement indicates your understanding that:

- The test passages and items for math and science are secure materials.
- You may not take pictures/screenshots, print, or save copies of the test items.
- You may not take any notes

You are encouraged to share your experience and the general process with your colleagues, but do not share secure information.



Believes 11

LEAP Connect Assessments

12

LEAP Connect Assessments

The LEAP Connect Assessments:

- are designed for Students with Significant Cognitive Disabilities;
- meet federal requirements for a summative assessment that measures student progress toward challenging academic content;
- focus on the "big ideas" found in the Louisiana Student Standards (LSS) for ELA, mathematics, and science, and;
- measure student proficiency in the content and skills detailed by the Louisiana Connectors (LCs) for Students with Significant Cognitive Disabilities in ELA, mathematics, and science.

Believes 13

LEAP Connect Assessments

The LEAP Connect Assessments:

- align to the knowledge and skills included in each grade- and content-specific LC;
- provide opportunities for students to independently show what they know at varying levels of understanding of the assessed content with the use of scaffolds and supports;
- required to be read aloud to the student by the Text-to-Speech accessibility feature or the Test Administrator; and
- are accessible for students with varying communication abilities and modes which allow students to use their preferred mode of communication;
- provide online tools (i.e., pointer tool, highlighter tool, magnifying tool, line guide, calculator, cross-off tool, sticky note tool, and help tool); and
- provide a printed copy of reference materials and the option of a paper-based test.

Believes 14

LEAP Connect Assessed Content

The LCs provide fully-aligned pathways for students with significant cognitive disabilities to work towards Louisiana Student Standards (LSS) and the basis for the skills and concepts represented on the LEAP Connect assessments.

Louisiana Student Standards (LSS) → **Louisiana Connectors (LC)** → **Essential Understandings (EU)**

Grade-level academic standards | "Big ideas" of LSS | Foundational skills aligned to LC

Evidence Statements
The assessed knowledge and skills aligned to an LC or EU

Believes 15

LEAP Connect Complexity Levels

The approach to item design ensures the availability of a range of supports for students across the items tiers (e.g., providing definitions, demonstrations or graphic organizers as applied in instructional materials).

- Tier 1 and Tier 2 questions reflect the higher level of support needed when students begin to learn a new skill or acquire new knowledge.
- Tier 3 and Tier 4 questions reflect the lower level of support needed as students learn and develop mastery of that skill or knowledge.

Content Area	Tier 1	Tier 2	Tier 3	Tier 4
Mathematics	• Supports use of hands-on concrete materials	• Successive model that guides one step at a time • Simplified language and/or visual representations • Few data points • Increase magnitude of numbers	• Model that shows solution to a similar problem • Simplified language • Additional number of data points • Further increase in magnitude of numbers	• Statement reminding student what the item is about

Believes 16

LEAP Connect Assessed Content

- Tiers 4, 3, and 2 assess student mastery of a skill or concept associated with the LC.
- Tier 1 assesses student mastery of an "Essential Understanding" (EU).
  An EU is a fundamental, basic concept, or skill related to the LC that is essential to gain an understanding of the content and is academic and grade-specific. Acquisition of this basic skill is necessary for students to engage in and learn the concept of skill described or identified by the LC.

Content Area	LC	EU
Mathematics	**LC.5.NBT.A.4a** Round decimals to the next whole number.	Identify whole number place value to thousands.
Science	**LC.4.PS3.1b** Demonstrate that objects moving faster possess more energy than objects moving slower.	Identify factors that influence the motion of an object.

Believes 17

Bias, Sensitivity, and Accessibility Guidelines

- Review each item to be sure it is free of bias and sensitivity issues and accessible to ALL populations.
- While reviewing for bias, sensitivity, fairness, and accessibility, consider: *Is the item free of content or language that might…*
  - offend or typecast a gender or ethnic group?
  - unfairly advantage or disadvantage groups of students?
  - portray a group, gender, or belief system in a negative or stereotypic manner?
  - degrade people based on physical appearance or on any physical, cognitive, or emotional challenge?

Believes 18

LEAP Connect Item Review Questions

- Does this item measure the LC or EU?
- Is this item appropriate for the grade level?
- Are the item directives clearly written?
- Is this item free from bias and sensitivity issues?
- Does the language of the stimulus/context, the question, and graphics clearly communicate the task?
- Are the graphics context accurate and sufficient for the item context?
- Are the response options clearly written?
- Does the item have a correct answer?
- Is there a clear, single correct answer to the item?
- Are all incorrect choices clearly incorrect?

Believes

LEAP Connect Item Review Criteria

Item review criteria

- Does this item measure the stated LC or EU?
- Is this item free from bias and sensitivity issues?

Upon applying the criteria to an item, an independent recommendation is made by each reviewer. For each item, record a recommendation for each item in the chat box. Record in the comments:

- Accept, Accept with Revisions, or Reject
- Provide reasons for your decision, especially if Accepting with Revisions or Rejecting.

Believes

Guidelines for All Reviewers

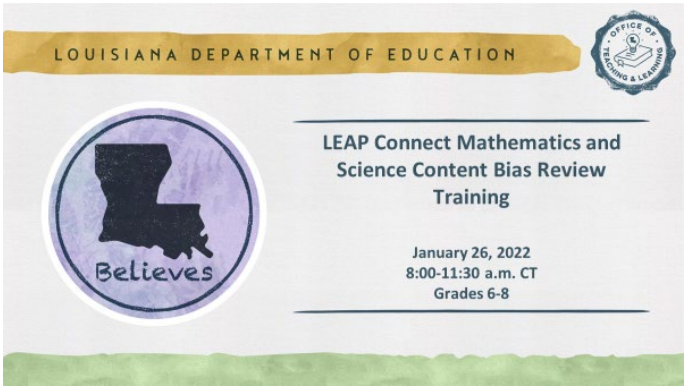
To achieve consensus on the recommendation for an item, reviewers are asked to:

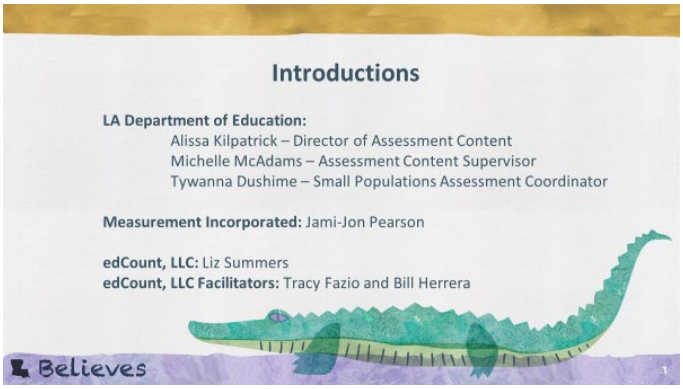
- seek clarification and ask questions;
- listen to and collaborate with other panel members;
- support high expectations for task quality and of student ability
- provide honest and constructive feedback; and
- focus on issues in regard to alignment, clarity of language, student expectations, and fairness

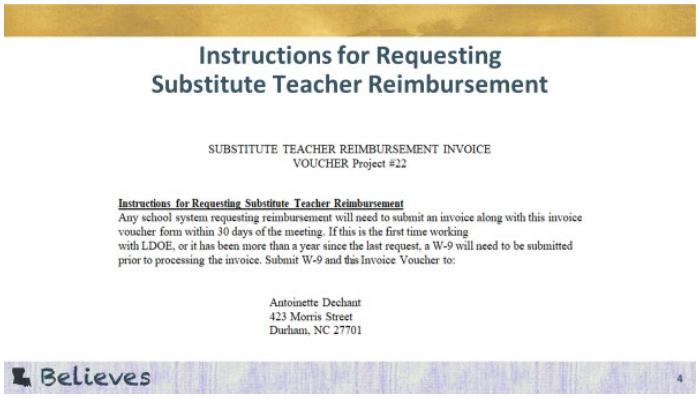
Believes

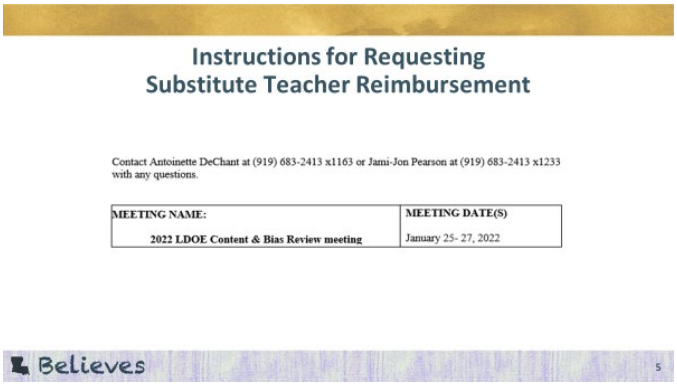
Questions and Thoughts

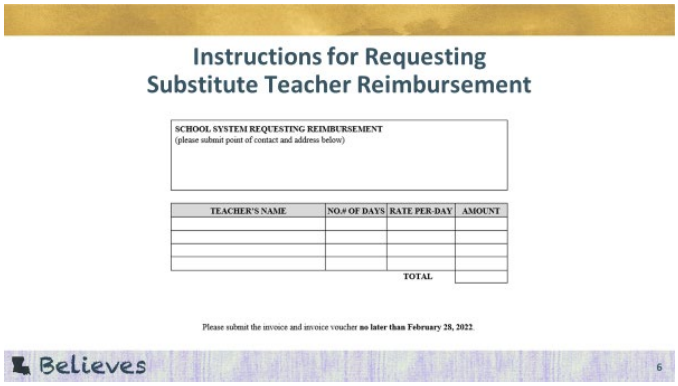
Math and Science Grades 6-8











Instructions for Requesting Substitute Teacher Reimbursement

- Teacher submits form to finance department (Central Office)
- School system submits invoice & form by February 28, 2022 to Antoinette Dechant, 423 Morris Street, Durham, NC, 27701
- **1st time with LDOE or more than one year since the last request, a W-9 will need to be submitted with form**
- Within SCHOOL SYSTEM REQUESTING REIMBURSEMENT box:
  - School system's point of contact and mailing address
- Name of teacher requesting a substitute
- Submit any questions to:
  - Antoinette Dechant at Adeschant@measinc.com (919) 683-2413 x1163
  - Jami-Jon Pearson at jpearson@measinc.com (919) 683-2413 x1233

Believes 7

Mathematics and Science Review

- Content and Bias Review (CBR) Meeting Goals
- Security Reminder
- Grades 6-8 Mathematics and Grade 8 Science Reviews
  - CBR Training for Mathematics and Science
  - Ratings and recommendations for Grades 6-8 Mathematics
  - Ratings and recommendations for Grade 8 Science
- Wrap-up and Sign-out

Believes 8

Meeting Goals

9

Meeting Goals

Understand:

- Importance of test security
- Purpose and use of LEAP Connect Assessments
- Assessed content for math and science and criteria for recommendations
- Alignment between the Louisiana Connectors for Students with Significant Cognitive Disabilities (LC) and Essential Understanding (EU) and the item
- Item complexity guidelines and item review criteria
- Bias and sensitivity guidelines
- Guidelines for achieving consensus

Evaluate and provide recommendations on:

- Math and science items for alignment, content, and bias issues

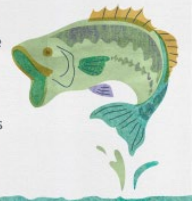
Believes 10

Test Security Reminder

Your signed nondisclosure agreement indicates your understanding that:

- The test passages and items for math and science are secure materials.
- You may not take pictures/screenshots, print, or save copies of the test items.
- You may not take any notes

You are encouraged to share your experience and the general process with your colleagues, but do not share secure information.



Believes 11

LEAP Connect Assessments

12

LEAP Connect Assessments

The LEAP Connect Assessments:

- are designed for Students with Significant Cognitive Disabilities;
- meet federal requirements for a summative assessment that measures student progress toward challenging academic content;
- focus on the "big ideas" found in the Louisiana Student Standards (LSS) for ELA, mathematics, and science, and;
- measure student proficiency in the content and skills detailed by the Louisiana Connectors (LCs) for Students with Significant Cognitive Disabilities in ELA, mathematics, and science.

Believes 13

LEAP Connect Assessments

The LEAP Connect Assessments:

- align to the knowledge and skills included in each grade- and content-specific LC;
- provide opportunities for students to independently show what they know at varying levels of understanding of the assessed content with the use of scaffolds and supports;
- required to be read aloud to the student by the Text-to-Speech accessibility feature or the Test Administrator; and
- are accessible for students with varying communication abilities and modes which allow students to use their preferred mode of communication;
- provide online tools (i.e., pointer tool, highlighter tool, magnifying tool, line guide, calculator, cross-off tool, sticky note tool, and help tool); and
- provide a printed copy of reference materials and the option of a paper-based test.

Believes 14

LEAP Connect Assessed Content

The LCs provide fully-aligned pathways for students with significant cognitive disabilities to work towards Louisiana Student Standards (LSS) and the basis for the skills and concepts represented on the LEAP Connect assessments.

Louisiana Student Standards (LSS) Grade-level academic standards → **Louisiana Connectors (LC)** "Big ideas" of LSS → **Essential Understandings (EU)** Foundational skills aligned to LC

Evidence Statements The assessed knowledge and skills aligned to an LC or EU

Believes 15

LEAP Connect Complexity Levels

The approach to item design ensures the availability of a range of supports for students across the items tiers (e.g., providing definitions, demonstrations or graphic organizers as applied in instructional materials).

- Tier 1 and Tier 2 questions reflect the higher level of support needed when students begin to learn a new skill or acquire new knowledge.
- Tier 3 and Tier 4 questions reflect the lower level of support needed as students learn and develop mastery of that skill or knowledge.

Content Area	Tier 1	Tier 2	Tier 3	Tier 4
Mathematics	• Supports use of hands-on concrete materials	• Successive model that guides one step at a time • Simplified language and/or visual representations • Few data points • Increase magnitude of numbers	• Model that shows solution to a similar problem • Simplified language • Additional number of data points • Further increase in magnitude of numbers	• Statement reminding student what the item is about

Believes 16

LEAP Connect Assessed Content

- Tiers 4, 3, and 2 assess student mastery of a skill or concept associated with the LC.
- Tier 1 assesses student mastery of an "Essential Understanding" (EU).
  An EU is a fundamental, basic concept, or skill related to the LC that is essential to gain an understanding of the content and is academic and grade-specific. Acquisition of this basic skill is necessary for students to engage in and learn the concept of skill described or identified by the LC.

Content Area	LC	EU
Mathematics	**LC.6.NS.C.6d** Locate positive and negative numbers on a number line	Identify a number on the number line as either positive or negative.
Science	**LC.8.MS.PS1.3a** Compare and contrast characteristics of natural and synthetic materials (e.g., fibers) from provided information (e.g., text, media, visual displays, data).	Classify material as a natural resource or as a synthetic material.

Believes 17

Bias, Sensitivity, and Accessibility Guidelines

- Review each item to be sure it is free of bias and sensitivity issues and accessible to ALL populations.
- While reviewing for bias, sensitivity, fairness, and accessibility, consider: *Is the item free of content or language that might…*
  - offend or typecast a gender or ethnic group?
  - unfairly advantage or disadvantage groups of students?
  - portray a group, gender, or belief system in a negative or stereotypic manner?
  - degrade people based on physical appearance or on any physical, cognitive, or emotional challenge?

Believes 18

LEAP Connect Item Review Questions

- Does this item measure the LC or EU?
- Is this item appropriate for the grade level?
- Are the item directives clearly written?
- Is this item free from bias and sensitivity issues?
- Does the language of the stimulus/context, the question, and graphics clearly communicate the task?
- Are the graphics context accurate and sufficient for the item context?
- Are the response options clearly written?
- Does the item have a correct answer?
- Is there a clear, single correct answer to the item?
- Are all incorrect choices clearly incorrect?

Believes

LEAP Connect Item Review Criteria

Item review criteria

- Does this item measure the stated LC or EU?
- Is this item free from bias and sensitivity issues?

Upon applying the criteria to an item, an independent recommendation is made by each reviewer. For each item, record a recommendation for each item in the chat box. Record in the comments:

- Accept, Accept with Revisions, or Reject
- Provide reasons for your decision, especially if Accepting with Revisions or Rejecting.

Believes

Guidelines for All Reviewers

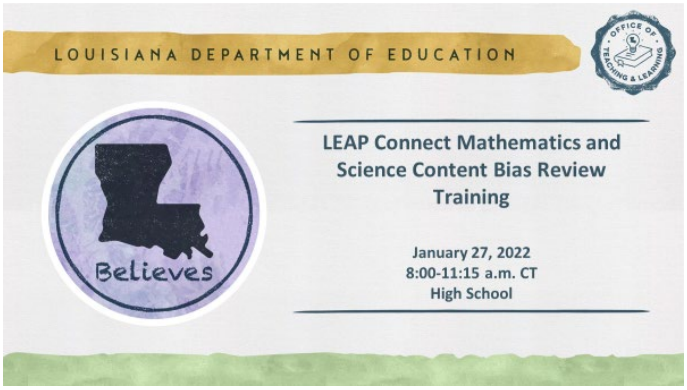
To achieve consensus on the recommendation for an item, reviewers are asked to:

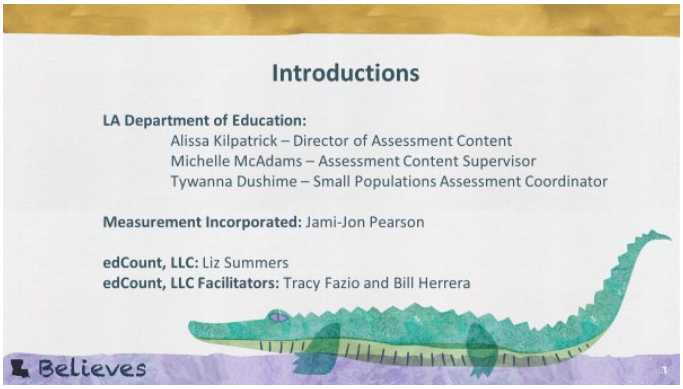
- seek clarification and ask questions;
- listen to and collaborate with other panel members;
- support high expectations for task quality and of student ability
- provide honest and constructive feedback; and
- focus on issues in regard to alignment, clarity of language, student expectations, and fairness

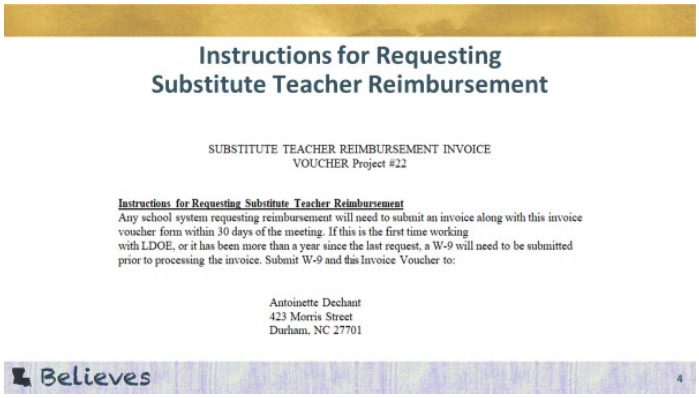
Believes

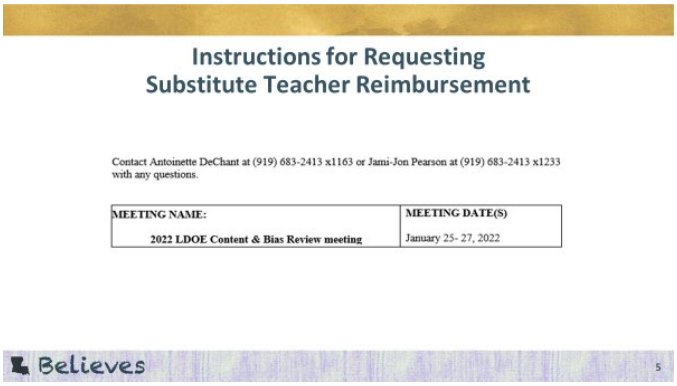
Questions and Thoughts

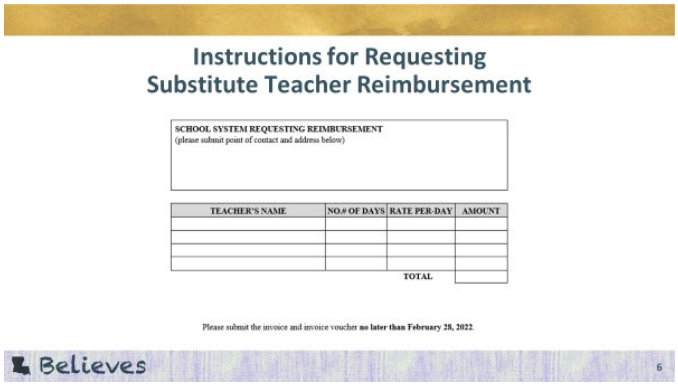
Math and Science High School











Instructions for Requesting Substitute Teacher Reimbursement

- Teacher submits form to finance department (Central Office)
- School system submits invoice & form by February 28, 2022 to Antoinette Dechant, 423 Morris Street, Durham, NC, 27701
- **1st time with LDOE or more than one year since the last request, a W-9 will need to be submitted with form**
- Within SCHOOL SYSTEM REQUESTING REIMBURSEMENT box:
  - School system's point of contact and mailing address
- Name of teacher requesting a substitute
- Submit any questions to:
  - Antoinette Dechant at Adeschant@measinc.com (919) 683-2413 x1163
  - Jami-Jon Pearson at jpearson@measinc.com (919) 683-2413 x1233

Believes 7

Mathematics and Science Review

- Content and Bias Review (CBR) Meeting Goals
- Security Reminder
- High School Mathematics and Science Reviews
  - CBR Training for Mathematics and Science
  - Ratings and recommendations for Mathematics
  - Ratings and recommendations for Science
- Wrap-up and Sign-out

Believes 8

Meeting Goals

9

Meeting Goals

Understand:

- Importance of test security
- Purpose and use of LEAP Connect Assessments
- Assessed content for math and science and criteria for recommendations
- Alignment between the Louisiana Connectors for Students with Significant Cognitive Disabilities (LC) and Essential Understanding (EU) and the item
- Item complexity guidelines and item review criteria
- Bias and sensitivity guidelines
- Guidelines for achieving consensus

Evaluate and provide recommendations on:

- Math and science items for alignment, content, and bias issues

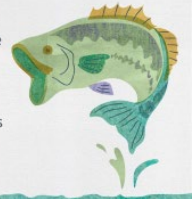
Believes 10

Test Security Reminder

Your signed nondisclosure agreement indicates your understanding that:

- The test passages and items for math and science are secure materials.
- You may not take pictures/screenshots, print, or save copies of the test items.
- You may not take any notes

You are encouraged to share your experience and the general process with your colleagues, but do not share secure information.



Believes 11

LEAP Connect Assessments

12

LEAP Connect Assessments

The LEAP Connect Assessments:

- are designed for Students with Significant Cognitive Disabilities;
- meet federal requirements for a summative assessment that measures student progress toward challenging academic content;
- focus on the "big ideas" found in the Louisiana Student Standards (LSS) for ELA, mathematics, and science, and;
- measure student proficiency in the content and skills detailed by the Louisiana Connectors (LCs) for Students with Significant Cognitive Disabilities in ELA, mathematics, and science.

Believes 13

LEAP Connect Assessments

The LEAP Connect Assessments:

- align to the knowledge and skills included in each grade- and content-specific LC;
- provide opportunities for students to independently show what they know at varying levels of understanding of the assessed content with the use of scaffolds and supports;
- required to be read aloud to the student by the Text-to-Speech accessibility feature or the Test Administrator; and
- are accessible for students with varying communication abilities and modes which allow students to use their preferred mode of communication;
- provide online tools (i.e., pointer tool, highlighter tool, magnifying tool, line guide, calculator, cross-off tool, sticky note tool, and help tool); and
- provide a printed copy of reference materials and the option of a paper-based test.

Believes 14

LEAP Connect Assessed Content

The LCs provide fully-aligned pathways for students with significant cognitive disabilities to work towards Louisiana Student Standards (LSS) and the basis for the skills and concepts represented on the LEAP Connect assessments.

Louisiana Student Standards (LSS) Grade-level academic standards → **Louisiana Connectors (LC)** "Big ideas" of LSS → **Essential Understandings (EU)** Foundational skills aligned to LC

Evidence Statements The assessed knowledge and skills aligned to an LC or EU

Believes 15

LEAP Connect Complexity Levels

The approach to item design ensures the availability of a range of supports for students across the items tiers (e.g., providing definitions, demonstrations or graphic organizers as applied in instructional materials).

- Tier 1 and Tier 2 questions reflect the higher level of support needed when students begin to learn a new skill or acquire new knowledge.
- Tier 3 and Tier 4 questions reflect the lower level of support needed as students learn and develop mastery of that skill or knowledge.

Content Area	Tier 1	Tier 2	Tier 3	Tier 4
Mathematics	• Supports use of hands-on concrete materials	• Successive model that guides one step at a time • Simplified language and/or visual representations • Few data points • Increase magnitude of numbers	• Model that shows solution to a similar problem • Simplified language • Additional number of data points • Further increase in magnitude of numbers	• Statement reminding student what the item is about

Believes 16

LEAP Connect Assessed Content

- Tiers 4, 3, and 2 assess student mastery of a skill or concept associated with the LC.
- Tier 1 assesses student mastery of an "Essential Understanding" (EU).
  An EU is a fundamental, basic concept, or skill related to the LC that is essential to gain an understanding of the content and is academic and grade-specific. Acquisition of this basic skill is necessary for students to engage in and learn the concept of skill described or identified by the LC.

Content Area	LC	EU
Mathematics	**LC.A1: A-CED.A.4** Solve multi-variable formulas or literal equations, for a specific variable.	Identify the unknown quantity when given an equation.
Biology	**LC.HS.LS1.8c** Identify ways to protect against infectious diseases to maintain a body's health (e.g., eat nutritious food, washing hands, rest, exercise, etc.).	Identify various causes of infectious diseases.

Believes 17

Bias, Sensitivity, and Accessibility Guidelines

- Review each item to be sure it is free of bias and sensitivity issues and accessible to ALL populations.
- While reviewing for bias, sensitivity, fairness, and accessibility, consider: *Is the item free of content or language that might…*
  - offend or typecast a gender or ethnic group?
  - unfairly advantage or disadvantage groups of students?
  - portray a group, gender, or belief system in a negative or stereotypic manner?
  - degrade people based on physical appearance or on any physical, cognitive, or emotional challenge?

Believes 18

LEAP Connect Item Review Questions

- Does this item measure the LC or EU?
- Is this item appropriate for the grade level?
- Are the item directives clearly written?
- Is this item free from bias and sensitivity issues?
- Does the language of the stimulus/context, the question, and graphics clearly communicate the task?
- Are the graphics context accurate and sufficient for the item context?
- Are the response options clearly written?
- Does the item have a correct answer?
- Is there a clear, single correct answer to the item?
- Are all incorrect choices clearly incorrect?

Believes

LEAP Connect Item Review Criteria

Item review criteria

- Does this item measure the stated LC or EU?
- Is this item free from bias and sensitivity issues?

Upon applying the criteria to an item, an independent recommendation is made by each reviewer. For each item, record a recommendation for each item in the chat box. Record in the comments:

- Accept, Accept with Revisions, or Reject
- Provide reasons for your decision, especially if Accepting with Revisions or Rejecting.

Believes

Guidelines for All Reviewers

To achieve consensus on the recommendation for an item, reviewers are asked to:

- seek clarification and ask questions;
- listen to and collaborate with other panel members;
- support high expectations for task quality and of student ability
- provide honest and constructive feedback; and
- focus on issues in regard to alignment, clarity of language, student expectations, and fairness

Believes

Questions and Thoughts

Appendix D. Nondisclosure Agreement

The design of the Louisiana Department of Education's assessment program requires that test information remain secure. With the exception of materials and announcements released by the Department for informational purposes, all test materials and planning discussions must be regarded as secure. As a result, such materials and information may not be reproduced, shared, or in any way released or distributed to unauthorized persons.

When reviewing materials and participating in a virtual assessment meeting, you must be in a private room where no one else can view your screen, and you must adhere to the following rules:

- ☐ Do NOT take screenshots
- ☐ Do NOT print any secure materials
- ☐ Do NOT take personal notes regarding items, passages, and/or sources
- ☐ Do NOT disclose item information in any way
- ☐ Delete the computer browser history after the meeting

Violations of the above acts, and any test security violation as defined by Bulletin 118, can result in the revocation of a Teaching, Administrator, or Ancillary Certificate as defined in Bulletin 746.

The undersigned is a committee participant authorized to view secure selected state assessment materials and participate in a committee review meeting. The undersigned hereby agrees to be bound to the terms of this agreement restricting the disclosure of said materials and information.

Printed Name:

Signature:

Date:

Appendix E. Guidelines for Evaluating Bias, Sensitivity, and Accessibility

Guidelines for Evaluating Bias, Sensitivity, and Accessibility

Fairness in educational assessment incudes three categories: cultural sensitivity, bias, and accessibility to special populations. The LEAP Connect mathematics and science assessments provide ways for students with significant cognitive disabilities to demonstrate what they know and can do at varying levels of understanding. Evaluating the fairness of each item requires a review that addresses bias, sensitivity, and accessibility.

Bias and Sensitivity Checklist

Please use the following checklist to help determine if an item demonstrates bias, lack of sensitivity, or does not adhere to fairness for all test takers. The following list contains recommendations and is not exhaustive. While reviewing items, be sure to keep in mind the range of Louisiana students with significant cognitive disabilities participating in the LEAP Connect assessments.

Consider the following guidelines when reviewing both math and science items:

- ✓ Use appropriate vocabulary, phrases, and/or sentence structure for the assessed grade level and tier level;
- ✓ Avoid content and language that may be considered offensive based on:
  - race
  - gender
  - sexual orientation
  - age
  - religion
  - ethnicity
  - socioeconomic status
  - regional location
- ✓ Avoid stereotyping any group;
- ✓ Do not use vocabulary that may be considerably more familiar to some groups than others; and
- ✓ Do not include content that portrays any group of people in a negative or stereotypical manner.

Accessibility Criteria

Accessibility in educational assessment refers to the tools, devices, and accommodations that are allowed so that all students have an equivalent assessment experience. Accessibility features are available for all students participating in the LEAP Connect math and science assessments to independently show what they know and can do at varying levels of understanding with use of structured scaffolds and supports, accommodations (as documented in the IEP), and online testing platform.

The accessibility testing features available for use by the test taker in the online testing platform or externally delivered by a test administrator include:

- Highlighter tool
- Cross-Off tool
- Sticky Note tool
- Magnifying tool
- Line Guide
- Help tool

Consider the following guidelines when reviewing the accessibility of both the math and science items:

- ✓ Accessible to students from Louisiana and will NOT interfere with the student's ability to demonstrate knowledge or understanding;
- ✓ Provide equal opportunities for students to demonstrate their knowledge, skills, and abilities, without giving students an unfair advantage over other students or subvert or invalidate the purpose of the test;
- ✓ Include the information needed for students to answer each question in the passage and does not require the student to have prior knowledge of the content; and
- ✓ Are accessible for students of varying communication abilities and who utilize different modes of communication.

Appendix F. Grade 3 ELA CBR Review

IMSLA Item ID	Item Type	Key	Tier	LC	CBR Recommendations	CBR Feedback	LDOE Reconciliation
6884	MC	C	2	LC.RI.3.2b	Accept	Redacted	Redacted
6885	MC	B	2	LC.RI.3.2b	Accept	Redacted	Redacted
6886	MC	A	2	LC.RI.3.5a	Accept with Revisions	Redacted	Redacted
6887	MC	C	2	LC.RI.3.2a	Accept	Redacted	Redacted
6888	MC	B	2	LC.RI.3.5a	Accept	Redacted	Redacted
6889	MC	C	2	LC.RI.3.5a	Accept	Redacted	Redacted

Appendix G. Grade 4 ELA CBR Review

IMSLA Item ID	Item Type	Key	Tier	LC	CBR Recommendations	CBR Feedback	LDOE Reconciliation
6915	MC	A	3	LC.RI.4.2a	Accept	Redacted	Redacted
6916	MC	B	3	LC.RI.4.7c	Accept	Redacted	Redacted
6917	MC	A	3	LC.RI.4.7c	Accept	Redacted	Redacted
6918	MC	C	3	LC.RI.4.7a	Accept with Revisions	Redacted	Redacted
6919	MC	B	3	LC.RI.4.7a	Accept	Redacted	Redacted

Appendix H. Grade 5 ELA CBR Review

IMSLA Item ID	Item Type	Key	Tier	LC	CBR Recommendations	CBR Feedback	LDOE Reconciliation
6920	MC	B	3	LC.RL.5.2b	Accept with Revisions	Redacted	Redacted
6921	MC	C	3	LC.RL.5.2b	Accept	Redacted	Redacted
6922	MC	A	3	LC.RL.5.2b	Accept	Redacted	Redacted
6923	MC	B	3	LC.RL.5.3a	Accept	Redacted	Redacted
6924	MC	C	3	LC.RL.5.1a	Accept	Redacted	Redacted
6925	MC	C	3	LC.RL.5.3a	Accept	Redacted	Redacted
6926	MC	A	3	LC.RL.5.1a	Accept with Revisions	Redacted	Redacted
6927	MC	C	3	LC.L.5.4a	Accept with Revisions	Redacted	Redacted

Appendix I. Grade 6 ELA CBR Review

IMSLA Item ID	Item Type	Key	Tier	LC	CBR Recommendations	CBR Feedback	LDOE Reconciliation
6904	MC	A	3	LC.RI.6.2	Accept with Revisions	Redacted	Redacted
6905	MC	B	3	LC.RI.6.2	Accept	Redacted	Redacted
6906	MC	B	3	LC.RI.6.3d	Accept	Redacted	Redacted
6907	MC	C	3	LC.RI.6.3d	Accept	Redacted	Redacted
6908	MC	A	3	LC.RI.6.8b	Accept	Redacted	Redacted
6909	MC	C	3	LC.L.6.6a	Accept	Redacted	Redacted

Appendix J. Grade 7 ELA CBR Review

IMSLA Item ID	Item Type	Key	Tier	LC	CBR Recommendations	CBR Feedback	LDOE Reconciliation
6910	MC	C	3	LC.RI.7.1	Accept with Revisions	Redacted	Redacted
6911	MC	C	3	LC.RI.7.1	Accept	Redacted	Redacted
6912	MC	A	3	LC.RI.7.3	Accept	Redacted	Redacted
6913	MC	A	3	LC.RI.7.8b	Accept with Revisions	Redacted	Redacted
6914	MC	C	3	LC.L.7.4a	Accept	Redacted	Redacted

Appendix K. Grade 8 ELA CBR Review

IMSLA Item ID	Item Type	Key	Tier	LC	CBR Recommendations	CBR Feedback	LDOE Reconciliation
6890	MC	B	3	LC.RI.8.9	Accept with Revisions	Redacted	Redacted
6891	MC	C	3	LC.RI.8.5d	Accept with Revisions	Redacted	Redacted
6892	MC	A	3	LC.RI.8.1a	Accept	Redacted	Redacted
6893	MC	C	3	LC.RI.8.1a	Accept	Redacted	Redacted
6895	MC	A	3	LC.RI.8.8a	Accept	Redacted	Redacted
6894	MC	B	3	LC.L.8.6a	Accept	Redacted	Redacted

Appendix L. High School ELA CBR Review

IMSLA Item ID	Item Type	Key	Tier	LC	CBR Recommendation	CBR Feedback	LDOE Reconciliation
6896	MC	A	3	LC.RI.11-12.7	Accept with Revisions	Redacted	Redacted
6897	MC	B	3	LC.RI.11-12.2c	Accept	Redacted	Redacted
6898	MC	B	3	LC.RI.11-12.2c	Accept with Revisions	Redacted	Redacted
6899	MC	C	3	LC.RI.11-12.6a	Accept	Redacted	Redacted
6900	MC	B	3	LC.RI.11-12.1a	Accept with Revisions	Redacted	Redacted
6901	MC	C	3	LC.RI.11-12.1a	Accept	Redacted	Redacted
6902	MC	A	3	LC.RI.11-12.6a	Accept	Redacted	Redacted
6903	MC	C	3	LC.RI.11-12.6d	Accept	Redacted	Redacted

Appendix M. Grade 3 Mathematics CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendation	CBR Feedback	LDOE Reconciliation
6803	MC	C	3	LC.3.OA.D.8b	Accept with Revisions	Redacted	Redacted
6804	MC	A	1	LC.3.OA.D.9c	Accept	Redacted	Redacted
6805	MC	C	3	LC.3.NBT.A.2b	Accept	Redacted	Redacted
6806	MC	B	3	LC.3.NF.A.1c	Accept	Redacted	Redacted
6807	MC	C	2	LC.3.NF.A.3a	Accept	Redacted	Redacted
6808	MC	B	2	LC.3.NBT.A.2b	Accept	Redacted	Redacted
6809	MC	C	4	LC.3.NF.A.3a	Accept	Redacted	Redacted
6810	MC	A	1	LC.3.MD.C.6	Accept	Redacted	Redacted

Appendix N. Grade 4 Mathematics CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendation	CBR Feedback	LDOE Reconciliation
6811	MC	C	2	LC.4.OA.A.2b	Accept	Redacted	Redacted
6812	MC	A	3	LC.4.OA.A.2b	Accept	Redacted	Redacted
6813	MC	B	3	LC.4.OA.A.3a	Accept	Redacted	Redacted
6828	MC	B	3	LC.4.NF.A.1	Accept	Redacted	Redacted
6830	MC	B	1	LC.4.MD.B.4a	Accept	Redacted	Redacted
6831	MC	B	2	LC.4.G.A.2a	Accept	Redacted	Redacted
6832	MC	B	3	LC.4.NF.A. 2a	Accept	Redacted	Redacted
6833	CR	N/A	2	LC.4.MD.B.4a	Accept with Revisions	Redacted	Redacted

Appendix O. Grade 5 Mathematics CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendations	CBR Feedback	LDOE Reconciliation
6814	MC	C	3	LC.5.NF.A.2	Accept	Redacted	Redacted
6815	MC	C	2	LC.5.NBT.A.4a	Accept	Redacted	Redacted
6816	MC	B	1	LC.5.NBT.B.5	Accept	Redacted	Redacted
6817	MC	B	2	LC.5.NBT.B.6a	Accept	Redacted	Redacted
6818	MC	B	3	LC.5.NBT.B.6a	Accept	Redacted	Redacted
6819	MC	A	3	LC.5.NBT.B.7	Accept	Redacted	Redacted
6820	MC	C	3	LC.5.MD.A.1b	Accept	Redacted	Redacted
6821	MC	B	1	LC.5.OA.B.3c	Accept	Redacted	Redacted

Appendix P. Grade 6 Mathematics CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendation	CBR Feedback	LDOE Reconciliation
6834	MC	C	3	LC.6.NS.B.3	Accept	Redacted	Redacted
6835	MC	A	4	LC.6.NS.B.3	Accept	Redacted	Redacted
6836	MC	B	3	LC.6.SP.B.5D	Accept	Redacted	Redacted
6837	MC	A	1	LC.6.SP.B.5D	Accept	Redacted	Redacted
6838	MC	C	2	LC.6.RP.A.1c	Accept	Redacted	Redacted
6839	MC	C	2	LC.6.RP.A.3e	Accept	Redacted	Redacted
6840	MC	A	3	LC.6.NS.C.6d	Accept with Revisions	Redacted	Redacted

Appendix Q. Grade 7 Mathematics CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendation	CBR Feedback	LDOE Reconciliation
6841	MC	B	3	LC.7.G.B.6b	Accept	Redacted	Redacted
6842	MC	C	4	LC.7.G.B.6b	Accept	Redacted	Redacted
6843	MC	A	2	LC.7.RP.A.2a	Accept	Redacted	Redacted
6844	MC	B	3	LC.7.NS.A.2b	Accept	Redacted	Redacted
6845	MC	A	2	LC.7.EE.B.4c	Accept	Redacted	Redacted
6846	MC	B	1	LC.7.RP.A.3d	Accept	Redacted	Redacted
6847	MC	B	1	LC.7.G.B.4	Accept	Redacted	Redacted

Appendix R. Grade 8 Mathematics CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendation	CBR Feedback	LDOE Reconciliation
6855	MC	C	3	LC.8.G.C.9	Accept	Redacted	Redacted
6856	MC	A	2	LC.8.SP.A.1a	Accept	Redacted	Redacted
6857	MC	B	1	LC.8.SP.A.1a	Accept	Redacted	Redacted
6858	MC	B	2	LC.8.SP.A.1c	Accept	Redacted	Redacted
6859	MC	B	1	LC.8.EE.B.5	Accept	Redacted	Redacted
6860	MC	A	3	LC.8.G.A.4b	Accept	Redacted	Redacted
6861	MC	A	2	LC.8.EE.C.7	Accept with Revisions	Redacted	Redacted

Appendix S. High School Mathematics CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendation	CBR Feedback	LDOE Reconciliation
6863	MC	B	4	LC.A1: A-REI.D.10	Accept	Redacted	Redacted
6864	MC	A	1	LC.A1: A-REI.D.10	Accept	Redacted	Redacted
6865	MC	C	4	LC.GM: G-SRT.B.5a	Accept	Redacted	Redacted
6866	MC	C	2	LC.GM: G-SRT.B.5a	Accept	Redacted	Redacted
6867	MC	B	1	LC.A1: S-ID.A.2a	Accept	Redacted	Redacted
6868	MC	C	3	LC.A1: N-Q.A.1b	Accept	Redacted	Redacted

Appendix T. Grade 4 Science CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendations	CBR Feedback	LDOE Reconciliation
6822	MC	B	2	LC-4-LS1-2b	Accept	Redacted	Redacted
6824	MC	A	3	LC-4-PS4-1b	Accept	Redacted	Redacted
6826	MC	A	2	LC-4-ESS2-1b	Accept	Redacted	Redacted
6827	MC	C	3	LC-4-ESS2-2a	Accept with Revisions	Redacted	Redacted
6862	CR	A	2	LC-4-PS3-3a	Accept	Redacted	Redacted

Appendix U. Grade 8 Science CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendation	CBR Feedback	LDOE Reconciliation
6848	MC	B	3	LC-8-PS1-6b	Accept	Redacted	Redacted
6849	MC	A	2	LC-8-ESS2-1a	Accept with Revisions	Redacted	Redacted
6850	MC	C	4	LC-8-ESS2-1a	Accept	Redacted	Redacted
6851	MC	C	4	LC.8.LS4.2a	Accept	Redacted	Redacted
6852	MC	B	1	LC-8-LS3-1a	Accept	Redacted	Redacted
6853	CR	A	4	LC-8-PS1-3a	Accept	Redacted	Redacted
677	CR	A	3	LC-8-LS3-1a	Accept with Revisions	Redacted	Redacted

Appendix V. High School Science CBR Review

IMSLA Item ID	Item Type	Key (MC Items)	Tier	LC	CBR Recommendation	CBR Feedback	LDOE Reconciliation
6870	MC	A	3	LC-HS-LS1-8c	Accept	Redacted	Redacted
6871	MC	B	4	LC-HS-LS1-8c	Accept with Revisions	Redacted	Redacted
6872	MC	B	1	LC-HS-LS1-8d	Accept with Revisions	Redacted	Redacted
6873	MC	C	4	LC-HS-LS3-2a	Accept with Revisions	Redacted	Redacted
6874	MC	A	2	LC-HS-LS3-2a	Accept with Revisions	Redacted	Redacted
6875	MC	C	4	LC-HS-LS1-2a	Accept with Revisions	Redacted	Redacted
6876	MC	A	1	LC-HS-LS3-3a	Accept with Revisions	Redacted	Redacted

Appendix H. 2022-23 LEAP Connect Data Review Report

Introduction

This document describes the process and outcomes of the Louisiana Department of Education (LDOE) stakeholder review of data for the English language arts (ELA), mathematics, and science field-test items that appeared on the spring 2023 LEAP Connect operational assessment. The ELA, math, and science stakeholder review meeting was conducted virtually via Microsoft Teams on June 8, 2023. This document includes a description of the review's purpose and goals, the composition of review panels, the review process by panelists, the evaluation results provided by panelists, and the results of the reconciliation process by the LDOE personnel.

Purpose and Goals

Purpose

The purpose of the stakeholder review was to gain recommendations for accepting, revising, or rejecting flagged field-test items from Louisiana educators on the ELA, mathematics, and science field-test items that appeared on the spring 2023 operational assessment. The meetings provided educators the opportunity to consider the flagging criteria and evaluate the technical quality of the items using guiding questions that covered the following aspects of the items:

- Inappropriate vocabulary for the grade level;
- Ambiguities in the questions or answer options;
- Cluing within the body of the item;
- Keyed answers that were partially or wholly incorrect;
- Distractors that were partially or wholly correct;
- Unclear instructions;
- Factual inaccuracy; and
- Any other concrete or material flaws.

Goals of Review Process

The goals of the review process were to understand (a) the importance of test security, (b) purpose and use of the LEAP Connect Assessments, (c) assessed content for ELA, math, and science, (d) alignment between the Louisiana Connectors for Students with Significant Cognitive Disabilities (LC) or Essential Understanding (EU) and the item, (e) item complexity guidelines (f) data review criteria, and (g) guidelines for achieving consensus, when possible. The panelists used the information to evaluate and provide recommendations regarding operationalizing ELA, mathematics, and science items based on data review criteria.

Stakeholder Review Panel

Three Louisiana Department of Education (LDOE) staff participated in the review meetings including: David Hopkins, Assessment Research Manager, Michelle McAdams, Assessment Content Supervisor, and Tywanna Dushime, Small Populations Assessment Coordinator. edCount staff, Elizabeth Summers, Michelle Shipman, Tracy Fazio, Jean Clayton, and Alice Garcia facilitated the stakeholder meetings. Austin Heitzinger supported technology access for Teams and Box. Measurement, Incorporated (MI) staff member Jami-Jon Pearson facilitated panelist recruitment and reimbursement, and Jie Chen joined the meeting to provide answers to any psychometric questions.

Data Review Panel Composition

The LDOE recruited prospective panelists to serve on a single panel that reviewed the flagged ELA, mathematics, and science items. The LDOE selected panelists based on familiarity with students with significant cognitive disabilities, familiarity with the content across the grade spans, expertise with students with visual and hearing impairments, and demographic representation of the students in the state.

Upon finalization of the participant lists, LDOE provided MI with prospective panelists' names, contact information, and grade-level experience/expertise. MI sent an email to each panelist requesting confirmation of participation and return of a signed nondisclosure agreement. edCount sent an email to each participant that provided meeting logistics information.

A total of four panelists participated in the review (see Appendix A). Three panelists identified as female and one as male. Three were Black or African American and one was white. All panelists have experience working as special education teachers teaching students with significant cognitive disabilities and one was a LEAD teacher. All had experience as professional educators. One panelist indicated experience teaching across grades K through high school, another panelist had teaching experience in grades 6 through high school, and another had high school experience only. One of the panelists indicated experience teaching students who are both deaf and blind. All panelists had at least eleven years of teaching experience.

Review Process

During the panel meeting (see the agenda in Appendix B. Data Review Meeting Agenda), the panelists received an overview training of the LEAP Connect assessment before addressing the review criteria for flagging items. Below is a summary of the training (see Appendix C. LEAP Connect Data Review Training PowerPoint for the training PowerPoint).

Welcome and Introductions

The facilitators welcomed the panelists, gave a high-level overview of the meeting agenda, and discussed the LDOE stipend and honorarium claim voucher. The facilitators introduced themselves, Measurement Incorporated, and LDOE personnel, then participants introduced themselves.

Meetings Goals and Test Security Reminder

The facilitators provided an overview of the goals for the meeting and reminded panelists that they had signed an electronic nondisclosure agreement and reviewed the virtual committee security protocol panelists must follow. The protocol emphasized the security of all testing materials used by panelists and instructed panelists to delete their computer browsing history after the meeting. The panelists were instructed not to take screenshots, print secure materials, take personal notes, or disclose item

information. In addition, the agreement stressed that panelists must log on to the meeting in a private room, where no one else was able to view their screen (see Appendix D. Nondisclosure Agreement for Virtual Meetings).

LEAP Connect Assessments Overview

The panelists received a description of the LEAP Connect English Language Arts (ELA), math, and science assessments. The overview covered the structure of each of the assessments and the content alignment for the items. edCount facilitators described the relationship between the assessment items and the approved prioritized content for assessment in each content area. Panelists also received a brief overview of the item complexity for each of the content areas.

Data Review Criteria

An item that has any statistics with values outside pre-established limits receives an appropriate annotation (flag). Item flagging criteria are based on both item statistics (e.g., p-value, point-biserial correlations), as well as qualitatively observable issues with respect to item presentation, organization of item content, etc. The criteria consist of parameters for item difficulty, item discrimination or point biserial correlation, distractor analysis, and differential item functioning. Due to the structure of the assessment, complexity or tier reversals are also considered.

The following item flagging criteria based on item statistics was applied to the 2022-2023 LEAP Connect ELA, mathematics, and science assessments to identify items to be reviewed by the committee.

9) Difficult item: Low p-value < 0.50, Tier 1 (two answer choice options)
    a. For items at the lowest complexity level, there are only two answer choices. If the p-value is less than 0.50 for this type of item, the item is flagged.
        i. This also includes constructed response (CR) items within math and science (and ELA Foundational Reading items) because they are scored by the test administrator (TA) who selects A or B on the online test platform after the student completes the item and the item is scored by the TA using the provided rubric.
10) Difficult item: Low p-value < 0.33, Tiers 2–4 (three answer choice options)
    a. For items at complexity levels 2–4, there are three answer choices. The value of 0.33 is the chance level and corresponds to the 0.25 criterion the LDOE uses when flagging 4 option items.
11) Easy item: High p-value > 0.90
12) Low point-biserial correlation (item to total) < 0.10 (A low point-biserial correlation means there is little to no relationship between student performance on the item and student performance on the total test score with the item excluded from the total score.)
13) Distractor analysis: Any distractor-total correlation > 0.10 and any distractor-total correlation > key-total correlation.
14) Complexity reversal: Items harder at the lowest level of complexity (Tier 1) than at the highest level of complexity (Tier 4) or items easier at the highest level of complexity (Tier 4) than at the lowest level of complexity (Tier 1).
15) Infit and outfit statistics of Rash parameters are included for review of items. The criterion is if MSQIN ≥ 2, the item is flagged for mis-infit. Similarly, if MSQOUT ≥ 2, the item is flagged for mis-outfit.

16) Differential Item Functioning (DIF) analyses: Gender (F/M), race (African American/White), and economic disadvantage using the Mantel-Haenszel method and conducted when the sample has a sufficient number of students in each group (e.g., at least 100 African American or White students). Items flag at B and C level DIF.

Review Process

The facilitators described the process and criteria panelists would use to review and evaluate the flagged field-test items for each grade and content area.

Outcomes of the Review Process

Panelists reviewed flagged field-test items for ELA, mathematics, and science assessments using the criteria discussed within the training. During the evaluation process, the panelists decided whether to "Accept," "Revise," or "Reject" the test items. Accepting the item meant no changes to the item were necessary and the item would be operationalized and available to appear on the 2024 test form. If panelists selected "Revise" they had to describe the changes requested within the item, whether that included graphic changes, content changes, or other changes within the item. If the item was to be revised, it required field testing again before operationalizing the item. If panelists selected "Reject" they were required to describe why the item could not be accepted or revised. The facilitator led a discussion for items for which the panelists selected "Revise" or "Reject." The discussion led the panelists to a consensus which was recorded for all panelists to review. If consensus could not be reached, the facilitator took all comments and then presented results to LDOE for a final decision during reconciliation. Below is a description of the results from the consensus discussion for each content area and grade with field test items flagged for review.

ELA

The panelists evaluated flagged field-test items in ELA, including both the passage and the associated test items. Only grades 5, 6, and 8 in ELA had flagged field-test items for panel review.

Grade 5

Panelists reviewed two field-test items for grade 5. The committee recommended accepting the items (see Exhibit 1).

Exhibit 1. Grade 5 ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RL.5.2b	1		
LC.L.5.4a	1		

Panelists reviewed one field-test item for grade 6. The committee recommended accepting the item (see Exhibit 2).

.

Exhibit 2. Grade 6 ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RI.6.3d	1		

Panelists reviewed two field-test items for grade 8. The committee recommended accepting the items (see Exhibit 3).

Exhibit 3. Grade 8 ELA Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.RI.8.9	1		
LC.RI.8.1a	1		

Mathematics

The panelists evaluated flagged field-test mathematics items for grades 3, 4, 6, and high school.

Grade 3

For grade 3 mathematics, panelists reviewed one flagged field-test item. The committee recommended accepting the item (see Exhibit 4).

Exhibit 4. Grade 3 Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.3.NF.A.3a	1		

Grade 4

For grade 4 mathematics, panelists reviewed one flagged field-test item. The committee recommended revising the tier of the item but not changing anything within the item content (see Exhibit 5). LDOE agreed with this recommendation during reconciliation.

Exhibit 5. Grade 4 Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.4.MD.B.4a		1	

Grade 6

For grade 6 mathematics, panelists reviewed three flagged field-test items. The committee recommended accepting two items and revising one item (see Exhibit 6). After reconciliation with LDOE, all three items were accepted to move to operational status.

Exhibit 6. Grade 6 Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.6.NS.B.3	1	1	
LC.6.SP.B.5d	1		

High School

For high school mathematics, panelists reviewed one field-test item. The committee recommended accepting the item (see Exhibit 7).

Exhibit 7. High School Mathematics Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.GM: G-SRT.B.5a	1		

Science

The panelists reviewed flagged field-test science items in grades 4, 8, and high school.

Grade 4

For grade 4 science, panelists reviewed two flagged field-test items. The panelists recommended accepting both items (see Exhibit 8).

Exhibit 8. Grade 4 Science Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.4.ESS2.2a	1		
LC.4.PS3.3a	1		

Grade 8

For grade 8 science, panelists reviewed two field-test items. The panelists recommended accepting both items (see Exhibit 9).

Exhibit 9. Grade 8 Science Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.8.PS1.6b	1		
LC.8.PS1.3a	1		

High School

For high school science, panelists reviewed two flagged field-test items. The committee recommended accepting one item and revising one item (see Exhibit 10). Upon reconciliation with LDOE, the item was accepted to move to operational status.

Exhibit 10. High School Science Item Consensus

Louisiana Connector	# of Items:		
	Accept	Revise	Reject
LC.HS.LS1.8c	1		
LC.HS.LS3.2a		1	

Summary

Overall, there were 97 items that were field tested. Of those items, 17 were identified for review based on the parameters listed in the data review criteria above. Five items were identified for review in ELA, six were identified in math, and six were identified in science.

Reviewers recommended accepting all items under review in ELA. Reviewers also recommended accepting four of the six math items. The panelists recommended revision for the other two math items, one in grade 4 and the other in grade 6. LDOE agreed with the need for revision for the grade 4 item and, after reconciliation, moved the grade 6 item to operational status.

Panelists recommended accepting five of the six science items, and the last high school item was recommended for revision. After reconciliation with the LDOE, the item was moved to operational status.

In total, of the 17 items reviewed, panelists recommended accepting 14 of them and recommended revisions on three of them. No item was recommended for rejection. Results are presented by grade level and content area in Exhibit 11 below.

Exhibit 11. Summary of Items Reviewed and Reviewer Actions by Grade Level and Content Area

Grade	# of items field tested	# of items identified for review	# of Items:		
			Accept	Revise	Reject
ELA					
3	6	0	0	0	0
4	5	0	0	0	0
5	8	2	2	0	0
6	6	1	1	0	0
7	5	0	0	0	0
8	6	2	2	0	0
High School	8	0	0	0	0
Mathematics					
3	5	1	1	0	0
4	5	1	0	1	0
5	5	0	0	0	0
6	5	3	2	1	0
7	5	0	0	0	0
8	5	0	0	0	0
High School	5	1	1	0	0
Science					
4	6	2	2	0	0
8	6	2	2	0	0
High School	6	2	1	1	0

Evaluation of the Review Process

Panelist Evaluation Summary for the LEAP Connect Data Review

As part of standard practice, edCount evaluates the quality of our data review process through a panelist evaluation survey intended to collect feedback from all panelists participating in the review. At the conclusion of the review, panelists completed this evaluation using a survey generated through SurveyMonkey. edCount evaluators asked panelists to rate their agreement—strongly agree, somewhat agree, somewhat disagree, or strongly disagree—with a series of statements about their virtual data review experience.

The results of these evaluations reflect high levels of satisfaction with the process and outcomes of the data review meeting (see Exhibit 12). Notably, there were no statements with which panelists indicated

disagreement. For all statements, 100 percent of responding panelists indicated strong agreement with the statements.

Exhibit 12. LEAP Connect ELA, Mathematics, and Science Data Review Panelist Evaluation Results

Statement	Strongly Agree	
	n	*%*
11. The data review training materials were clear.	3	100
12. The provided materials were beneficial to support my participation in the review (e.g., Louisiana Student Standards, Louisiana Connectors, Data Review Checklist).	3	100
13. The process used during data review was appropriate to accomplish the stated goals of the review.	3	100
14. I was able to contribute to the data review.	3	100
15. I felt my comments regarding data review were considered.	3	100
16. I am satisfied with the group consensus recommendation for each item.	3	100

Panelists were also provided the opportunity to leave narrative feedback on their impressions of the data review meeting. Panelists did not provide any additional comments or feedback.

Appendix A. Panelists' Virtual Participation Documentation

ELA, Mathematics, and Science Data Review Panelists' Virtual Participation Documentation

Committee	Date	First Name	Last Name	Panelist Number	Teams Check-in (6/6M or 6/6A)	Attended Data Review	Completed NDA
Data Review	June 8, 2023	Dana	Redlich	1	X	X	X
		Keith	Scott	2	X	X	X
		Roxanne	Moore	3		X	X
		Cherilyn	Andrews	4	X	X	X

Appendix B. Data Review Meeting Agenda

LEAP Connect Data Review Meeting Agenda

June 8, 2023

7:30 a.m. – 2:00 p.m. CT

Mathematics, Science, and ELA Field-Test Items	
7:30 a.m. – 8:00 a.m.	Participants Sign-on to Teams Meeting
8:00 a.m. – 8:15 a.m.	Welcome and Introductions
8:15 a.m. – 9:15 a.m.	Data Review Training and Materials Review
9:15 a.m. – 10:20 a.m.	Review Flagged Items for Mathematics Assessments
10:20 a.m. – 10:35 a.m.	Break
10:35 a.m. – 11:40 a.m.	Review Flagged Items for Science Assessments
11:40 a.m. – 12:40 p.m.	Lunch
12:40 p.m. – 1:45 p.m.	Review Flagged Items for ELA Assessments
1:45 p.m. – 2:00 p.m.	Wrap-Up and Sign-out

Appendix C. LEAP Connect Data Review Training PowerPoint

LOUISIANA DEPARTMENT OF EDUCATION

Believes

LEAP Connect Data Review Training
June 8, 2023
8:00 a.m. – 2:00 p.m. CT

Mathematics, Science, and ELA Field Test Items Appearing on the 2023 Operational Assessment

1

Welcome & Introductions

2

Introductions

LA Department of Education

David Hopkins– Assessment Research Manager
Michelle McAdams– Assessment Content Supervisor
Tywanna Dushime– Small Populations Assessment Coordinator

edCount, LLC

Liz Summers
Austin Heitzinger

Measurement Incorporated

Jami-Jon Pearson

edCount, LLC Facilitators

Tracy Fazio – Mathematics
Michelle Shipman- Science
Alice García – ELA
Jean Clayton – Trainer

Believes

3

Instructions for Requesting Substitute Teacher Reimbursement

Instructions for Requesting Substitute Teacher Reimbursement

All participating school systems that are requesting reimbursement must submit an invoice along with this Substitute Teacher Reimbursement Invoice-Voucher within (30) days of the meeting.
If this is the first time working with LDOE, or more than one year has passed since the last reimbursement request, you will need to submit a W-9 Form prior to processing the invoice.

Submit W-9 Form and this Invoice Voucher to:

Antoinette DeChant
Measurement Incorporated
Imperial Building
215 Morris Street
Durham, NC 27701

MEETING NAME:	MEETING DATE(S)
2023 Data Review Meeting	June 8, 2023

Believes

4

Instructions for Requesting Substitute Teacher Reimbursement

SCHOOL SYSTEM REQUESTING REIMBURSEMENT (please submit point of contact and address below)			
TEACHER'S NAME	NO.# OF DAYS	RATE PER DAY	AMOUNT
		TOTAL	

Please submit the invoice and invoice voucher **no later than July 10, 2023.**

Believes

5

Instructions for Requesting Substitute Teacher Reimbursement

- **Teacher submits form to finance department (Central Office)**
- **School system submits invoice & form by July 10, 2023**
  - 1st time with LDOE ormore than a year since the last request, a ***W-9 will need to be submitted with form.***
  - Within SCHOOL SYSTEM REQUESTING REIMBURSEMENT box
    - School system's point of contact and mailing address
  - Teacher's name
- **Submit any questions to:**
  - Antoinette DechantAdechant@measinc.com(919) 683-2413 x1163
  - Jami-Jon Pearson atjpearson@measinc.com(832) 215-5593

Believes

6

LDOE STIPEND AND HONORARIUM CLAIM VOUCHER

LEAP Connect Data Review Meeting
June 8, 2023

Type of Meeting:	LEAP Connect Data Review Meeting
Name of Attendee:	
Date(s) of Attendance:	June 8, 2023
Signature of Attendee:	
Social Security Number: **We cannot issue payment without SSN.*	
Home Mailing Address:	
City, State, and ZIP:	
Home/Cell Phone:	
Personal Email:	

Stipend

(not on work hours or needing a sub)

Total Amount of Stipend per day $120.00

Send to:
Measurement Incorporated
215 Morris Street | Durham, NC 27701
Attn: Antoinette Dechant

Please return to Measurement Incorporated no later than July 9th, 2023.

Office Use Only (#22)	
MI Approval	Date

****Please note that if you are not an educator employed inside a school but work for the school district or the state in another capacity, you should verify your eligibility for the stipend before submitting this form.*

Believes

7

Agenda

Mathematics, Science, & ELA Field Test Items Review

- Data Review Meeting Goals
- Security Reminder
- Data Review Training
- Review and recommendations for Grades 38 & HS Mathematics
- Review and recommendations for Grades 4, 8, & HS Science
- Review and recommendations for Grades 38 & HS ELA
- Wrap-Up

Believes

8

Meeting Goals

9

Meeting Goals

To understand:

- Importance of test security
- Purpose and use of the LEAP Connect Assessments
- Assessed content for math and science and criteria for recommendations
- Alignment between the Louisiana Connectors for Students with Significant Cognitive Disabilities (LC), Essential Understanding (EU), and the item
- Item complexity guidelines
- Data review criteria and process
- Guidelines for achieving consensus

To evaluate and provide recommendations on:

- Maintaining and operationalizing the mathematics, science, and ELA items based on the data review criteria

Believes

10

Test Security Reminder

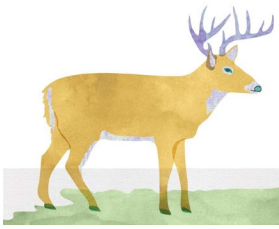
Your signed nondisclosure agreement indicates your understanding that:

- the test passages and items for science, math, and ELA are secure materials;
- you may not take pictures/screenshots, print, or save copies of the test items; and
- you may not take any notes.

You are encouraged to share your experience and the general process with your colleagues, but do not share secure information.

Believes

11



LEAP Connect Assessments

12

The LEAP Connect Assessments:

- are designed for students with significant cognitive disabilities;
- meet federal requirements for a summative assessment that measures student progress toward challenging academic content;
- focus on the "big ideas" found in the Louisiana Student Standards (LSS) for mathematics, science, and ELA; and
- measure student proficiency in the content and skills detailed by the Louisiana Connectors (LCs) for Students with Significant Cognitive Disabilities in mathematics, science, and ELA.

Believes

13

The LEAP Connect Assessments:

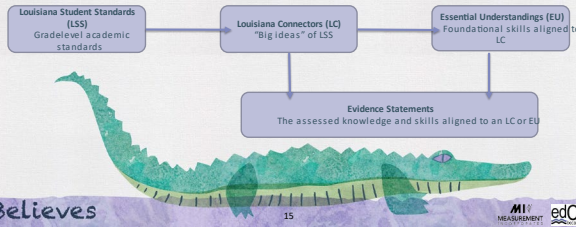
- align to the knowledge and skills included in each grade and content-specific LC;
- provide opportunities for students to independently show what they know at varying levels of understanding of the assessed content with the use of scaffolds and supports;
- are required to be read aloud to the student by the Text-to-Speech (TTS) accessibility feature or the Test Administrator;
- are accessible for students with varying communication abilities and modes which allow students to use their preferred mode of communication;
- provide online tools (i.e., pointer tool, highlighter tool, magnifying tool, line guide, calculator, cross-off tool, sticky note tool, and help tool); and
- provide a printed copy of reference materials and the option of a paper-based test.

Believes

14

LEAP Connect Assessed Content

The LCs provide fully-aligned pathways for students with significant cognitive disabilities to work towards Louisiana Student Standards (LSS) and the basis for the skills and concepts represented on the LEAP Connect assessments.



Believes

15

LEAP Connect Assessed Content

- Tiers 4, 3, and 2 assess student mastery of a skill or concept associated with the LC.
- Tier 1 assesses student mastery of an "Essential Understanding" (EU).
  - An EU is a fundamental, basic concept, or skill related to the LC that is essential to gain an understanding of the content and the referents related to the grade-level learning of concepts and skills.
  - Acquisition of this basic skill is necessary for students to engage in and learn the concept or skill described or identified by the LC.

Content Area	LC	EU
Mathematics	**LC.5.NBT.A.4a** Round decimals to the next whole number.	Identify whole number place value to thousands.
Science	**LC-4-PS3-1b** Demonstrate that objects moving faster possess more energy than objects moving slower.	Identify factors that influence the motion of an object.
Literature	**LC.RL.5.3a** Compare characters, settings, events within a story; provide or identify specific details in the text to support the comparison.	Identify characters, setting, and events in a story.

Believes

16

LEAP Connect Complexity Levels

- The tier approach to passage and item design ensures the availability of a range of supports for students across the passage and item tiers (e.g., providing prompts to listen for needed information, definition of terms).
- Each passage and associated items for ELA are written at a single tier.

Content Area	Tier 1	Tier 2	Tier 3	Tier 4
Mathematics	• supports use of hands-on concrete materials	• successive model that guides one step at a time • simplified language and/or visual representations • few data points • increased magnitude of numbers	• model that shows solution to a similar problem • simplified language • additional number of data points • further increase in magnitude of numbers	• statement reminding student what the item is about
Science	• statement reminding students what the item is about • simplified language and/or visual representations • short answer option often supported with graphics	• statement reminding students what the item is about • simplified language and/or visual representations (e.g., line drawings) • provides definitions of scientific terms • distinct answer options may contain graphics support	• statement reminding students what the item is about • limited use of line drawings • may include charts, tables, maps, graphs, or other visual representations • may include models • do not contain graphic support unless necessary	• statement reminding students what the item is about • may include charts, tables, maps, graphs, or other visual representations • may require inference or prediction • distractors may include misunderstandings of the concept or skill
English Language Arts	• short text with repeated ideas • simple vocabulary words • provides a specific "listen for" statement related to the item	• text with straightforward ideas • provides a brief description of the item topic and simple definitions of terms • provides a "listen for" statement related to the assessed skill.	• text with clear ideas • provides some detail about the item topic and definitions of terms • provides statement reminding students what the item is about	• text with detailed and implied ideas • provides statement reminding students what the item is about

Believes 17

LEAP Connect Review Criteria

Believes 18

LEAP Connect Field-test Item Flagging Criteria

- Field-test items were "flagged" prior to the meeting using the following criteria:
  - Difficult item: Low p-value < 0.50, Tier 1 (two answer choice options).
  - Difficult item: Low p-value < 0.33, Tiers 2-4 (three answer choice options).
  - Easy item: High p-value > 0.90.
  - Low point-biserial correlation < 0.10.
  - Distractor analysis: Any distractor-total correlation > 0.10 and any distractor-total correlation > key-total correlation.

Believes 19

LEAP Connect Field-test Item Flagging Criteria

- Field-test items were "flagged" prior to the meeting using the following criteria:
  - Complexity reversal: items harder at the lowest complexity level than at the highest complexity level
  - Differential Item Functioning (DIF): evaluates whether students in different groups (e.g., gender, ethnicity) *with the same overall achievement* have a different probability of responding correctly to an item

Believes 20

Item Difficulty

- Item Difficulty
  - Analyzes how hard or easy an item is based on student performance.
  - In simplest terms, it is the percentage of students taking the assessment who answered the item correctly (e.g., if 60% of students answer a multiple-choice question correctly, the p-value=0.60).
  - Hard items: Low p-value < 0.50, Tier 1 (two answer choice options).
  - Hard items: Low p-value < 0.33, Tiers 2-4 (three answer choice options).
  - Easy item: High p-value > 0.90.
- You will review items that were flagged as either "hard" OR "easy".

Believes 21

Item Complexity

- The LEAP Connect is composed of items that range from the least complex (Tier 1) to the most complex (Tier 4).
- If an item flags for complexity reversal, this means that items at higher complexity levels were actually easier and items at lower complexity levels were actually harder for students based on student performance.
- You are to review items that were flagged for tier reversal.

Believes 22

Item Differentiation

- In simplest terms, this measure differentiates between students who have mastered the skill in the item and those who have not.
- Relationship of the student's performance on a single item with student's overall score.
- Any item greater than 0.10 was considered a good predictive item.
- Any item less than 0.10 was considered a poorly predictive item and flagged.
- You are to review items that were flagged for being poor predictors of a student's ability on the assessment.

Believes 23

Item Distractor Analysis

- This analysis looks at the number of students choosing the various answer options. A multiple-choice test question for the LEAP Connect has a single, correct answer (the key) and one or two distractor answer options.
- If students tend to choose a distractor versus the correct answer, we want to better understand if that is due to opportunity to learn or possibly the content within the distractor.
- You are to review items that were flagged for the distractor analysis.

Believes 24

Differential Item Functioning (DIF)

- DIF evaluates whether students in different groups (e.g., gender, ethnicity) *with the same overall achievement* have a different probability of responding correctly to an item.
- DIF analyses are conducted when there is a sufficient number of students in each group (e.g., at least 100 Black or White students).
  - When there is insufficient data for this analysis, DIF cannot be calculated.
- If an item is flagged for DIF, it does not necessarily mean it is biased.
  - Items flagged for DIF require review by content and bias experts.

Believes 25

Differential Item Functioning (DIF)

- DIF considers the magnitude of the difference between two groups (the reference or focal group):
  - Reference Groups
    - Male
    - White
  - Focal Groups
    - Female
    - Black
- The group favored is indicated by a negative or positive sign; for example:
  - C-DIF indicates the item favors the reference group
  - C+DIF indicates the item favors the focal group

Believes 26

Differential Item Functioning

- An item may exhibit DIF for various reasons:
  - It has language or other features with which one of the groups being compared is more familiar.
  - It measures a very different aspect of the domain being assessed compared to the rest of the items.
  - It was flagged due to a statistical artifact (false positive).

Believes 27

Process for Reviewing Items

- As a group, we will review the field-test item with the data. We will review:
  - the "flagged" item as it appeared on the LEAP Connect 2022-23 assessment
  - the data associated with the "flagged" item
  - why the item was "flagged"
- Consider the following questions while you review the item:
  - Does the language of the question (including any graphics) clearly communicate the task?
  - Does the assigned tier accurately reflect what is being asked in this item?
  - Is the concept measured appropriate for the grade level and content area?
  - Is there a clear, correct answer to the item?
  - Are all distractor choices clearly incorrect and plausible?

Believes 28

Process for Reviewing Items

- After reviewing an item and considering the questions, enter your recommendation in your Data Review Panelist spreadsheet:
  - I recommend to: "Accept," "Revise," or "Reject" the item.
  - Add a brief comment to explain your decision next to your recommendation.

Believes 29

Guidelines for All Reviewers

- Our goal is to achieve consensus on the recommendation for an item and reviewers are asked to:
  - Seek clarification and ask questions.
  - Listen to and collaborate with other panel members.
  - Support high expectations for task quality and of student ability.
  - Provide honest and constructive feedback.
  - Focus on the data review criteria.
- If we are unable to achieve consensus, we will record everyone's comments and talk with the LDOE after the meeting to finalize steps moving forward.

Believes 30

Questions and Thoughts

31

Appendix D. Nondisclosure Agreement for Virtual Meetings

LDOE Nondisclosure Agreement for Virtual Assessment Committees

When reviewing materials and participating in a virtual assessment meeting, you must be in a private room where no one else can view your screen, and you must adhere to the following rules (please check ALL boxes in acknowledgment of the rules):

- ☐ Do NOT take screenshots
- ☐ Do NOT print any secure materials
- ☐ Do NOT take personal notes regarding items, passages, and/or sources
- ☐ Do NOT disclose item information in any way
- ☐ Delete the computer browser history after the meeting

Violations of the above acts, and any test security violation as defined by Bulletin 118, can result in the revocation of a Teaching, Administrator, or Ancillary Certificate as defined in Bulletin 746. (Please check the box below to confirm you have read this.)

- ☐ I have read the statement above.

The undersigned is a committee participant authorized to view secure selected state assessment materials and participate in a committee review meeting. The undersigned hereby agrees to be bound to the terms of this agreement restricting the disclosure of said materials and information.

Electronic Signature:

Appendix I. Executive Summary of Alignment Evaluation Report

Introduction

The Louisiana Department of Education (LDOE) sought an independent evaluation of the alignment of their alternate assessment in English language arts (ELA), mathematics, and science in grades 3-8 and HS (only 4, 8, and high school for science) to the Louisiana Connectors for Students with Significant Cognitive Disabilities (Louisiana Connectors) in these same content areas. ACS Ventures, LLC (ACS) was selected to lead this alignment evaluation supported by edCount, LLC who managed the study logistics and provided support for the expert panelists. The report details the alignment methodology, process, and results by content area and grade level.

Evaluation Methodology

The approach to evaluating alignment quality within the LEAP Connect assessment system encompasses the collection and evaluation of a comprehensive body of evidence that itself aligns with the demands of both the federal peer review criteria for alignment and, even more importantly, *The Standards for Educational and Psychological Testing* which describes industry standards for assessment development and validation (*The Standards*; AERA, APA, & NCME, 2014). The evaluation criteria include elements of the *Links for Academic Learning (LAL)* supplemented by a review of the achievement level descriptors (ALDs) as recommended by Forte (2017). Each is briefly described below:

Links for Academic Learning (LAL) Criteria (Flowers et al., 2007)

- **Criterion 3: Fidelity with Grade Level Content and Performance.** ACS used panelist judgments to evaluate the alignment between the content and performance requirements of the LEAP Connect items/tasks and those specified in the aligned Louisiana Connectors.
- **Criterion 4: Content Differs in Range, Balance, and Complexity**. ACS used panelist judgments to evaluate the extent to which the content of each LEAP Connect assessment aligns to the domains/inclusive Louisiana Connectors and represents the expectations outlined in the blueprint.
- **Criterion 5: Differentiation Across Grade Levels**. ACS used subject matter expert judgments to evaluate how the content of the exam (i.e., knowledge and skills measured) is differentiated across grades.
- **Criterion 7: Barriers to Performance**. ACS used panelist judgments to evaluate the accessibility of the LEAP Connect assessments for students with varying levels of communicative competence.

ALD Criterion (Forte, 2017)

- **Relationship Fidelity Between Items and ALDs.** ACS used panelist judgments to evaluate how the set of items on each LEAP Connect assessment reflect the expectations outlined in the draft ALDs.

To complete these evaluations, ACS and edCount worked with LDOE to recruit and organize eight panels of subject matter experts from Louisiana including content experts and special education teachers. Each panel met for 2-3 days to review select LEAP Connect assessments and make judgments relative to each criterion through independent work and panel-level collaboration. ACS consolidated their judgments following the meeting to develop this report.

Evaluation Findings and Recommendations

This report details the specific results by content area, grade level, and alignment criteria. Overall, the results show a strong degree of alignment between the LEAP Connect assessments and the Louisiana Connectors with some variance among subject areas:

- For ELA, there was a reasonable level of alignment across criteria for each grade level. The only exception was for grades 4, 5, and high school Criterion 4 – domain concurrence, where the panel found that a number of items fit better with grade-level connectors than the intended Prioritized Connectors. Further review of these findings found that in these cases, the aligned grade-level connector was very similar to the Prioritized Connector.
- For mathematics, there was a reasonable level of alignment across criteria for each grade level. The exceptions to this are for several grade levels, Criterion 4 – domain concurrence, where the panel found 1-3 items per grade level that were aligned to something other than the grade-level connectors (i.e., off grade level connectors, Louisiana Student Standards, no connector match). In addition, the panel found that the LEAP Connect assessment at grade 8 did not fully represent all four of the draft ALDs. However, these descriptors are still under review and therefore this finding should be provided to LDOE for feedback during the process and not taken as a final conclusion.
- For science, there was a reasonable level of alignment across criteria for each grade level. The exception to this is for grade 8, Criterion 4 – domain concurrence, where the panel found three items not aligned to the Prioritized or grade-level connectors.

Across subject areas and grade levels, the panel identified options for students with varying levels of communicative competence to access the LEAP Connect assessments (as designed, with available accommodations or modifications). In addition, review by subject matter experts determined that the LEAP Connect assessment system is sufficiently differentiated across grade levels within each content area.

Alignment Evaluation Conclusions

Overall, the panel came to consensus on the item-level and assessment-level alignment rating tasks. In addition, the panelists indicated via the evaluation survey that they had confidence in the judgmental process and results. Overall, there was a strong degree of alignment across content areas and grade levels between the Prioritized Connectors and draft ALDs and the LEAP Connect content (items, tasks) and the Louisiana Connectors. In addition, this study produced evidence that the LEAP Connect assessment system includes differentiated expectations across grade levels and is accessible to students with varying levels of communicative competence.

Background

Evaluation Purpose

The purpose of this document is to detail the data collection and analysis for evaluating the alignment quality of the Louisiana Educational Assessment Program (LEAP) Connect assessments in English language arts (ELA) and mathematics for grades 3 – 8 and high school, as well as in science for grades 4, 8, and high school. This report includes explanations of the translation points between the assessment and evaluation questions and outlines how the data was collected and analyzed to provide evidence of alignment quality.

Key Terminology

The following key terminology from LDOE's academic content standards and assessment system are central to understanding evaluation's methodologies and findings.

The LDOE defines a **Louisiana Connector** (connector) as an extended content standard that provides developmentally appropriate content for a specific grade level and course, while maintaining high expectations for all students. The connectors are intended to accentuate the "big ideas" found in the Louisiana Student Standards and provide students with significant cognitive disabilities fully aligned pathways to work toward the Louisiana Student Standards for English Language Arts, Mathematics, and Science. The **Prioritized Connectors** for each content area and grade level (ranging from 7-12 across content areas and grade levels) are the targets for assessment.

The LEAP Connect assessments organize the Louisiana Connectors based on common content themes or domains found in the connectors. These **domains** are the primary units of analysis in this evaluation. Domains reflect the key ideas that are found across the connectors.

For each content area and grade level, LDOE created a test **blueprint** to represent the specific test content that will contribute to the total score of the assessments. The blueprints for the LEAP Connect assessments indicate the overall content distribution for the operational test. Each blueprint includes the domains that are to be assessed, as well as the Prioritized Connectors and overall scoring weights for each domain. The blueprints also list the item types and score-point ranges for the assessments.

The LDOE created a framework of **tiers** for classifying and describing item and task complexity along with the level of support provided to examinees during the test administration. This framework includes four tiers with the first two (Tier 1 and Tier 2) reflecting higher levels of support and the latter two (Tier 3 and Tier 4) representing less support for students who are developing mastery of the specific skill or knowledge. The system of tiers is detailed for each content area in the appropriate *LEAP Connect Assessment Guide*.

To interpret student performance, the LDOE is developing a set of **achievement level descriptors (ALDs)** for each content area and grade level that describes the knowledge, skills, and abilities generally demonstrated by students at each performance level. These descriptors were constructed from the Prioritized Connectors to facilitate interpretation of student performance on the LEAP Connect assessments. The details within each descriptor are further differentiated by text complexity for ELA or task complexity for mathematics and science (low, moderate, and high).

The **items** and **tasks** on each LEAP Connect assessment provide students with the opportunity to demonstrate their knowledge and skills in relation to the Louisiana Connectors across the four achievement levels.

LEAP Connect Assessments

The LEAP Connect assessments were designed to assess knowledge and skills of students with significant cognitive disabilities in ELA, mathematics, and science. Specifically, these assessments are intended to be aligned with the Louisiana Connectors and include items and tasks. Each assessment includes a series of scored and unscored items and tasks as outlined in Exhibit 1 below. These unscored items are items that the LDOE is field testing to collect data that can be used in future forms construction. In addition, the ELA assessments at grades 3 and 4 include alternate versions of some items to allow for responses from nonverbal students.

Exhibit 1. LEAP Connect Assessments: Number and Type of Items and Tasks, Domain

Content Area & Grade Level	Scored Items	Unscored Items	Alternate Items[6]	Writing Tasks	Domain
ELA					
3	41	7	10	1 [3 Scoring Domains]	Reading: Literature Reading: Informational Language Writing Foundational Reading
4	39	6	10		
5	32	6	--		Reading: Literature Reading: Informational Language Writing
6	33	6	--		
7	34	6	--		
8	34	6	--		
HS	33	6	--		
Math					
3	34	6	--	--	Operations & Algebraic Thinking Numbers and Operations in Base 10 Numbers and Operations - Fractions Measurement and Data Geometry
4	34	6	--	--	
5	35	5	--	--	
6	35	5	--	--	Ratios and Proportional Relationships Expressions and Equations Number System Statistics and Probability Geometry
7	35	5	--	--	
8	35	5	--	--	Functions Expressions and Equations Number System Statistics and Probability Geometry
HS	35	6*	--	--	Algebra Statistics and Probability Number and Quantity Geometry
Science					
4	30	6*	--	--	Physical Science Life Science Earth and Space Science
8	30	6*	--	--	
HS	30	6*	--	--	LS1: Molecules to Organisms LS2: Ecosystems LS3: Heredity LS4: Biological Evolution

***** The materials for these assessments included an additional 6 unscored items from an alternate form.

[6] Alternate Items refers to the items that are used on alternate versions of the assessments. These items specifically are used on the non-verbal version of the grades 3 and 4 ELA assessments and provide students who are non-verbal an opportunity to be assessed on the content. These sets of items are also scored together so that five items are worth one point.

Appendix J. LDOE Response to LEAP Connect Alignment Evaluation Findings

LDOE Response to LEAP Connect Alignment Evaluation Findings

The Louisiana Department of Education (LDOE) sought an independent evaluation of the alignment of their alternate assessment in grades 3-8 and high school in English language arts (ELA) and mathematics and grades 4, 8, and high school in science to the Louisiana Connectors for Students with Significant Cognitive Disabilities (Louisiana Connectors) in these same content areas. ACS Ventures, LLC (ACS) was selected to lead the alignment evaluation and provided a summary report along with specific item findings to the LDOE.

The LDOE and their content development vendor for the LEAP Connect, edCount, LLC (edCount) have carefully considered the findings of the alignment evaluation and have documented below how we will address these findings in item and forms development. LDOE has a long-term goal of creating three unique test forms with 51-67 percent unique content on each form. LDOE will field test enough items to support two field test versions in each grade and content area for the 2023-24, 2024-25, 2025-26, and 2026-27 assessment administrations to create multiple, comparable forms by 2026-27.

ELA

Alignment evaluation findings: For the LEAP Connect ELA assessment in grades 3-8 and high school, the results of the alignment evaluation indicated there was a reasonable level of alignment across criteria for each grade level. The only exceptions were in grades 4, 5, and high school for Criterion 4 – domain concurrence, where the panel found that the item(s) aligned more closely with another Louisiana connector(s) at the same grade level than the intended prioritized Louisiana Connector(s).

Response to the LEAP Connect Alignment Evaluation findings: Further review found that in these cases for grades 4, 5, and high school, the same grade level Louisiana Connector was very similar in content to the prioritized Louisiana Connector. These findings support the alignment of current passages and items on the ELA LEAP Connect assessment. edCount will work to expand the ELA LEAP Connect item bank with passage sets and items that are carefully aligned to the Louisiana Connectors and to support the creation of three unique forms in each grade in ELA by 2026-27.

Math

Alignment evaluation findings: For mathematics, there was a reasonable level of alignment across criteria for each grade level. The exceptions to this were in several grade levels (4, 6, 8, and high school) for Criterion 4 – domain concurrence, where the panel found a small number of items per grade level that were aligned to something other than the intended prioritized Louisiana Connectors.

Response to the LEAP Connect Alignment Evaluation findings: As noted in the 2022-23 Assessment Frameworks for the LEAP Connect ELA and Mathematics Assessment, the LEAP Connect assessments use two item design features to measure student performance: (1) levels of content complexity, and (2) degrees and types of scaffolds and supports applied through the concept of tiers. The LEAP Connect assessment items each represent one of four levels of complexity (Tiers 1–4), designed to follow instructional practices. Tier 1 and Tier 2 questions reflect the higher level of support needed when

students begin to learn a new skill or acquire new knowledge. Tier 3 and Tier 4 questions reflect the lower level of support needed as students learn and develop mastery of that skill or knowledge.

In addition, the Louisiana Connectors are designed to provide fully aligned pathways for students with significant disabilities to work toward the Louisiana Student Standards. The LEAP Connect Mathematics Assessments also incorporate items that represent the full range of difficulty and complexity levels. The most complex items are written to the knowledge, skills, and abilities represented in the Louisiana Connectors. Conversely, items designed as the least complex allow students who are just beginning to interact with the academic content to demonstrate what they know through simplified mathematics concepts linked to the Essential Understanding.

Grade 4

Upon further review of the grade 4 items with the LDOE, edCount and LDOE content experts confirmed all but two items aligned closely with the Essential Understanding which is a prerequisite skill to the knowledge, skills, and abilities contained within the intended prioritized Louisiana Connectors. For the two items that the panel indicated did not align to a grade level Louisiana Connector, edCount developed items to be field tested on the Spring 2023 assessment to strengthen the alignment of items that should contain line plots instead of bar graphs.

Grades 6, 8, and High School

Upon further review of the grades 6, 8, and high school items with the LDOE, edCount and LDOE content experts confirmed these items aligned closely with the Essential Understanding which is a prerequisite skill to the knowledge, skills, and abilities contained within the intended prioritized Louisiana Connectors.

As with ELA, edCount will work to expand the mathematics item bank with items that are carefully aligned to the Louisiana Connectors and to support the creation of three unique forms in each grade by 2026-27.

Science

Alignment evaluation findings: For the LEAP Connect Science assessment in grades 4, 8, and high school, the results of the alignment evaluation indicated there was a reasonable level of alignment across criteria for each grade level. The exception to this was in grade 8 for Criterion 4 – domain concurrence, where the panel recommended the evaluation of three items not aligned to the prioritized Louisiana Connectors or same grade level Louisiana Connectors in science.

Response to the LEAP Connect Alignment Evaluation findings: As noted in the 2022-23 Assessment Frameworks for the LEAP Connect Science Assessment, the LEAP Connect assessments use two item design features to measure student performance: (1) levels of content complexity, and (2) degrees and types of scaffolds and supports applied through the concept of tiers. The LEAP Connect assessment items each represent one of four levels of complexity (Tiers 1–4), designed to follow instructional practices. Tier 1 and Tier 2 questions reflect the higher level of support needed when students begin to learn a new skill or acquire new knowledge. Tier 3 and Tier 4 questions reflect the lower level of support needed as students learn and develop mastery of that skill or knowledge.

In addition, the Louisiana Connectors are designed to provide fully aligned pathways for students with significant disabilities to work toward the Louisiana Student Standards. The LEAP Connect Science Assessments also incorporate items that represent the full range of difficulty and complexity levels. The

most complex items are written to the knowledge, skills, and abilities represented in the Louisiana Connectors. Conversely, items designed as the least complex allow students who are just beginning to interact with the academic content to demonstrate what they know through simplified scientific concepts linked to the Essential Understanding.

Upon further review of these items with the LDOE, edCount and LDOE content experts confirmed these items aligned closely with the Essential Understanding which is a prerequisite skill to the knowledge, skills, and abilities contained within the intended prioritized Louisiana Connectors. In all three grades in science, edCount will continue to expand the item bank to support the creation of three unique forms in each of grades 4, 8, and high school by 2026-27.

Appendix K. Accessibility for Students who are Visually Impaired

Accessibility and fairness are relevant for valid score interpretations for all individuals and subgroups in the intended population of test takers (NRC, 2014, p. 4). The *LEAP Connect Procedures for Assessing Students Who Are Visually Impaired, Deaf, or Deaf-Blind* (Procedures manual) includes accommodations that the Test Administrator (TA) can provide for a student who has a visual impairment and includes directions for creating tactile graphics and symbols, and considerations for object replacement. Accessibility features, built into the assessments for all students, and accommodations, as described in the Procedures manual, allow students who are visually impaired to access the LEAP Connect tests for all content areas and grade levels. To allow opportunities for more support during testing, the Procedures manual provides recommendations on which test graphics to enhance for students with visual impairment.

Using a principled design approach, the LEAP Connect assessments minimize accessibility challenges by taking into consideration test characteristics, such as the choice of content and topics, response processes, and administration procedures that may impede test takers' access to the construct. Specifically, the assessments are read aloud to all students through DRC's INSIGHT online text-to-speech (TTS) or by the TA. All directions, passages, items, and answer options are read aloud using standardized descriptive statements for tables, charts, graphs, and timelines. This includes providing a sign language interpreter or tactile sign language intervener, as necessary for a student to access the tests.

Graphics needed to respond to items include graphic descriptions that are read to students and describe the critical components of the graphic without clueing the correct response. Three state education agencies studied the use of graphic descriptions for students with a visual impairment (Gould, B. et. al., 2012) and significant findings concluded that braille readers were more likely to select the correct answers when given image description without tactile graphics and that image description is an unbiased accessibility feature. The American Printing House (Allman, 2009) states that for some individuals the reading process using braille is not efficient and that a test should use the appropriate accommodations for the assessed skill.

Currently, the LEAP Connect assessments include braille cards as an accommodation for students who use braille in instruction for the Foundational Reading items on the English Language Arts tests for grades 3 and 4. The assessed construct in Foundational Reading items is the ability to read or identify words; and therefore, they are not read aloud to students.

In accordance with the noted research, the Louisiana Department of Education (LDOE) believes that students with visual impairments may be more successful on the LEAP Connect assessments given auditory supports rather than braille, and so, does not provide complete braille test forms. Furthermore, the LEAP Connect assessments measure students' skills and abilities with grade-level academic content knowledge, and not students' varying abilities to read braille.

The use of read aloud and graphic descriptions paired with the additional accommodations provided in the *Procedures for Assessing Students who are Visually Impaired, Deaf, or Deaf-Blind* aligns with multiple states' accessibility policies for alternate assessments as evidenced in the *Multi-State Alternate Assessment 2021-2022 Test Administrator Manual* (MSAA, 2022).

REFERENCES

Allman, C. B. (2009, July 06). Test Access: Making Tests Accessible for Students with Visual Impairments. Retrieved from American Printing House: https://sites.aph.org/wp-content/uploads/2017/09/Test-Access-Making-Tests-Accessible-2009.pdf

Almond, P., Winter, P., Cameto, R., Russell, M., Sato, E., Clarke-Midura, J., Torres, C., Haertel, G., Dolan, R., Beddow, P., & Lazarus, S. (2010). Technology-Enabled and universally designed assessment: Considering access in measuring the achievement of students with disabilities—A foundation for research. *Journal of Technology, Learning, and Assessment*, *10*. Retrieved July 9, 2021, from http://www.jtla.org.

American Educational Research Association (AERA), the American Psychological Association (APA), and the National Council on Measurement in Education (NCME) Joint Committee on Standards for Educational and Psychological Testing. (2014). Standards for educational and psychological testing. Washington DC: AERA.

Balow, J. & Miller, C. M. (2020). *Restart & recovery: Assessments in Spring 2021.* Washington, DC: Council of Chief State School Officers.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*, 245-276.

Code of Fair Testing Practices in Education. (2004). Washington, DC: Joint Committee on Testing Practices.

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*(1), 37-46.

Council of Chief State School Officers (CCSSO). (2014). *CCSSO criteria for procuring and evaluating high-quality assessments*. Washington, DC: Author.

Council of Chief State School Officers (CCSSO). (2015). *Comprehensive statewide assessment systems: A framework for the role of the state education agency in improving quality and reducing burden*. Washington, DC: Author.

Council of Chief State School Officers (CCSSO) and the Association of Test Publishers (ATP). (2013). *Operational best practices for statewide large-scale assessment programs*. Washington, DC: Author.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*, 297–334.

Cronbach, L. J. (1971). *Test validation*. In R. L. Thorndike (Ed.), *Educational measurement*, pp. 443–507.

Dorans, N. J., & Schmitt, A. P. (1991). Constructed response and differential item functioning: A pragmatic approach (ETS RR-91-47). Princeton, NJ: ETS.

Flowers, C., Wakeman, S., Browder, D., & Karvonen, M. (2007). *Links for Academic Learning: An alignment protocol for alternate assessments based on alternate achievement standards*. Charlotte, NC: University of North Carolina at Charlotte.

Gould, B., Carver, W., Correa-Torres, S. M., Johnson Howell, J., & Ferrell, K. A. (2012). Describing Images for Enhanced Assessments. Retrieved July 7, 2022, from NCAM National Center for Accessible Media: http://ncamftp.wgbh.org/ncam-old-site/experience_learn/educational_media/describing-images-for-enhanced.html.

Holland, P. W., & Thayer, D. T. (1988). Differential item performance and the Mantel-Haenszel procedure. In H. Wainer & H. I. Braun (Eds.), Test validity (pp. 129–145). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Kearns, J., Kleinert, H., Kleinert, J., & Towles-Reeves, E. (2006). *Learner characteristics inventory.* Lexington, Kentucky: University of Kentucky, National Alternate Assessment Center.

Kolen M. J., Brennan R. L. (2004). *Test Equating, Scaling, and Linking: Methods and Practices.* Berlin: Springer Science & Business Media. National Center and State Collaborative (NCSC, 2016, March). *2015 Operational Assessment Technical Manual*. Minneapolis, MN.

Lane, S. and Stone, C. A. (2002). Strategies for examining the consequences of assessment and accountability programs. *Educational Measurement: Issues and Practice*, *21*, 23-30.

Linacre, J. M. (2012). *Winsteps® Rasch measurement computer program*. Beaverton, Oregon: Winsteps.com

Livingston, S. A., & Lewis, C. (1995). Estimating the consistency and accuracy of classifications based on test scores. *Journal of Educational Measurement*, *32*, 179–197.

Messick, S. (1989). *Validity*. In R. L. Linn (Ed.), *Educational measurement* (3rd ed., pp. 13– 103). New York, NY: Macmillan.

Multi-State Alternate Assessment. (2022). Test Administration Manual.

National Center and State Collaborative (2016). *National Center and State Collaborative 2015 Operational Assessment Technical Manual.*

National Council on Measurement in Education (2012). *Testing and data integrity in the administration of statewide student assessment programs*. Madison, WI: Author.

Thurlow, M. L., Wu, Y., Quenemoen, R. F., & Towles, E. (2016, January). Characteristics of students with significant cognitive disabilities (NCSC Brief #8). Minneapolis, MN: University of Minnesota, National Center and State Collaborative. Wright, B. D., & Linacre, J. M. (1994). Reasonable mean-square fit values. Rasch Measurement Transactions, 8, 370-371.

Wright, B. D., & Masters, G. N. (1982). *Rating scale analysis: Rasch measurement*. Chicago: Mesa Press.

Yen, W. M., & Fitzpatrick, R. R. (2006). *Item response theory*. In R. L. Brennan (Ed.), *Educational measurement* (4th ed., pp. 111–153). Westport, CT: American Council on Education and Praeger Publishers.

Zieky, M. (1993). Practical questions in the use of DIF statistics in test development.. In P. W. Holland & H. Wainer (Eds.), Differential item functioning (pp. 337–347). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Zwick, R., Thayer, D. T., & Mazzeo, J. (1997). Describing and categorizing DIF in polytomous items (ETS RR-97-05). Princeton, NJ: ETS.

Zwick, R. (2012). A review of ETS differential item functioning assessment procedures: Flagging rules, minimum sample size requirements, and criterion refinement (ETS RR-12-08). Princeton, NJ: ETS.

Zwick, R., & Kadriye, E. (1989). Analysis of differential item functioning in the NAEP History Assessment. Journal of Educational Measurement, 26, 55–66.

Appendix L. Classical Item Analysis Results – Operational Items[7]

Exhibit L-1. ELA Grade 3 Form 3

Item	Item Type	Max Score Point	N	*p*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 410	.78	.38	.00		.78	.22	
2	MC	1	≥ 410	.91	.32	.00		.09	.91	
3	MC	1	≥ 410	.73	.32	.00		.73	.27	
4	MC	1	≥ 410	.85	.37	.00		.14	.85	
5	RFS	1	≥ 410	.34	.35		.66	.34		
6	RFS	1	≥ 410	.36	.34		.64	.36		
7	WS	2	≥ 410	.91	.44		.00	.17	.82	
8	MC	1	≥ 410	.74	.30	.00		.10	.17	.74
9	MC	1	≥ 410	.80	.35	.00		.09	.11	.80
10	MC	1	≥ 410	.65	.41	.00		.15	.65	.20
11	MC	1	≥ 410	.54	.41	.01		.54	.12	.33
12	MC	1	≥ 410	.70	.19	.00		.21	.08	.70
13	MC	1	≥ 410	.51	.11	.01		.25	.24	.51
14	MC	1	≥ 410	.72	.36	.00		.06	.72	.23
15	MC	1	≥ 410	.72	.29	.00		.12	.16	.72
16	MC	1	≥ 410	.68	.51	.01		.10	.68	.21
17	MC	1	≥ 410	.39	.25	.01		.19	.39	.41
18	MC	1	≥ 410	.48	.35	.00		.48	.2	.31
19	MC	1	≥ 410	.61	.09	.00		.16	.23	.61
2	MC	1	≥ 410	.68	.49	.00		.68	.12	.19
21	MC	1	≥ 410	.53	.41	.00		.18	.53	.28
22	MC	1	≥ 410	.46	.32	.00		.23	.46	.31
23	MC	1	≥ 410	.84	.36	.00		.07	.09	.84
24	MC	1	≥ 410	.55	.38	.01		.55	.21	.23
25	MC	1	≥ 410	.36	.13	.01		.25	.36	.38
26	MC	1	≥ 410	.82	.40	.00		.82	.05	.13
27	MC	1	≥ 410	.90	.30	.00		.10	.90	
28	MC	1	≥ 410	.62	.33	.00		.21	.17	.62
29	CR	3	≥ 410	.62	.69		.18	.17	.29	.37
30	CR	3	≥ 410	.58	.66		.29	.10	.20	.42
31	CR	3	≥ 410	.52	.65		.22	.35	.06	.37

[7] In the tables, MC stands for multiple choice; RFS stands for reading foundational set; WS stands for writing set; and CR stands for constructed response. In the table header, Pb refers to point-biserial correlation; 0/0 refers to proportion of students receiving a score of 0 on a non-MC item; and C/3 is applicable for polytomously scored items with a maximum score point of 3 or for MC items with three response options, i.e., A, B, and C.

Exhibit L-2. ELA Grade 3 Form 3NV

Item	Item Type	Max Score Point	N	*p*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 230	.62	.31	.04		.62	.34	
2	MC	1	≥ 230	.77	.40	.04		.19	.77	
3	MC	1	≥ 230	.56	.31	.04		.56	.40	
4	MC	1	≥ 230	.71	.40	.06		.23	.71	
5	RFS	1	≥ 230	.29	.47		.71	.29		
6	RFS	1	≥ 230	.30	.47		.70	.30		
7	WS	2	≥ 230	.79	.52		.09	.25	.67	
8	MC	1	≥ 230	.55	.31	.06		.17	.22	.55
9	MC	1	≥ 230	.59	.49	.08		.16	.17	.59
10	MC	1	≥ 230	.47	.38	.06		.14	.47	.33
11	MC	1	≥ 230	.34	.37	.08		.34	.22	.36
12	MC	1	≥ 230	.54	.42	.08		.19	.19	.54
13	MC	1	≥ 230	.54	.29	.09		.17	.20	.54
14	MC	1	≥ 230	.47	.35	.05		.14	.47	.34
15	MC	1	≥ 230	.55	.38	.06		.14	.25	.55
16	MC	1	≥ 230	.45	.38	.07		.17	.45	.31
17	MC	1	≥ 230	.26	.13	. 80		.19	.26	.47
18	MC	1	≥ 230	.43	.27	.06		.43	.23	.29
19	MC	1	≥ 230	.53	.29	.05		.17	.25	.53
20	MC	1	≥ 230	.39	.34	.08		.39	.23	.30
21	MC	1	≥ 230	.44	.35	.07		.16	.44	.33
22	MC	1	≥ 230	.35	.32	.07		.26	.35	.31
23	MC	1	≥ 230	.61	.48	.07		.11	.20	.61
24	MC	1	≥ 230	.39	.38	.07		.39	.28	.26
25	MC	1	≥ 230	.39	.36	.08		.25	.39	.28
26	MC	1	≥ 230	.55	.41	.05		.55	.17	.23
27	MC	1	≥ 230	.77	.44	.04		.19	.77	
28	MC	1	≥ 230	.54	.39	.05		.24	.17	.54
29	CR	3	≥ 230	.30	.54		.48	.27	.11	.14
30	CR	3	≥ 230	.20	.53		.71	.08	.11	.10
31	CR	3	≥ 230	.23	.56		.58	.27	.03	.11

Exhibit L-3. ELA Grade 4 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 440	.92	.29	.00		.07	.92	
2	MC	1	≥ 440	.92	.33	.00		.08	.92	
3	MC	1	≥ 440	.72	.35	.00		.72	.27	
4	MC	1	≥ 440	.85	.39	.00		.85	.15	
5	MC	1	≥ 440	.87	.36	.00		.87	.13	
6	RFS	1	≥ 440	.44	.34		.56	.44		
7	RFS	1	≥ 440	.41	.34		.59	.41		
8	WS	2	≥ 440	.87	.53		.01	.23	.75	
9	MC	1	≥ 440	.59	.22	.00		.27	.13	.59
10	MC	1	≥ 440	.51	.29	.00		.20	.51	.29
11	MC	1	≥ 440	.74	.47	.01		.11	.74	.15
12	MC	1	≥ 440	.68	.45	.01		.11	.68	.21
13	MC	1	≥ 440	.47	.11	.00		.24	.28	.47
14	MC	1	≥ 440	.51	.36	.01		.23	.51	.26
15	MC	1	≥ 440	.60	.35	.01		.60	.16	.24
16	MC	1	≥ 440	.64	.39	.01		.20	.15	.64
17	MC	1	≥ 440	.56	.30	.00		.56	.18	.25
18	MC	1	≥ 440	.58	.30	.01		.58	.16	.25
19	MC	1	≥ 440	.59	.14	.01		.09	.31	.59
20	MC	1	≥ 440	.62	.22	.01		.23	.14	.62
21	MC	1	≥ 440	.68	.45	.00		.14	.68	.18
22	MC	1	≥ 440	.64	.30	.01		.23	.12	.64
23	MC	1	≥ 440	.86	.34	.00		.86	.14	
24	MC	1	≥ 440	.50	.34	.00		.17	.50	.33
25	MC	1	≥ 440	.71	.28	.00		.11	.17	.71
26	MC	1	≥ 440	.65	.39	.00		.65	.09	.26
27	MC	1	≥ 440	.50	.21	.00		.16	.50	.33
28	MC	1	≥ 440	.54	.33	.00		.13	.54	.32
29	MC	1	≥ 440	.77	.39	.00		.11	.77	.11
30	CR	3	≥ 440	.66	.58		.11	.17	.34	.38
31	CR	3	≥ 440	.49	.57		.33	.11	.30	.26
32	CR	3	≥ 440	.61	.52		.16	.31	.07	.45

Exhibit L-4. ELA Grade 4 Form 3NV

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 220	.78	.23	.04		.18	.78	
2	MC	1	≥ 220	.76	.42	.05		.19	.76	
3	MC	1	≥ 220	.47	.29	.04		.47	.49	
4	MC	1	≥ 220	.54	.25	.05		.54	.41	
5	MC	1	≥ 220	.58	.41	.04		.58	.38	
6	RFS	1	≥ 220	.33	.34		.67	.33		
7	RFS	1	≥ 220	.30	.38		.70	.30		
8	WS	2	≥ 220	.69	.62		.08	.46	.46	
9	MC	1	≥ 220	.50	.27	.08		.25	.17	.50
10	MC	1	≥ 220	.41	.35	.07		.26	.41	.26
11	MC	1	≥ 220	.42	.48	.09		.20	.42	.30
12	MC	1	≥ 220	.45	.32	.08		.15	.45	.33
13	MC	1	≥ 220	.43	.14	.07		.25	.25	.43
14	MC	1	≥ 220	.34	.34	.08		.25	.34	.33
15	MC	1	≥ 220	.39	.26	.08		.39	.23	.29
16	MC	1	≥ 220	.52	.29	.08		.21	.19	.52
17	MC	1	≥ 220	.43	.33	.07		.43	.20	.30
18	MC	1	≥ 220	.31	.23	.08		.31	.25	.36
19	MC	1	≥ 220	.56	.24	.07		.17	.20	.56
20	MC	1	≥ 220	.51	.33	.08		.22	.18	.51
21	MC	1	≥ 220	.55	.43	.06		.17	.55	.21
22	MC	1	≥ 220	.53	.33	.05		.26	.16	.53
23	MC	1	≥ 220	.65	.34	.05		.65	.29	
24	MC	1	≥ 220	.32	.22	.05		.22	.32	.40
25	MC	1	≥ 220	.55	.38	.07		.21	.17	.55
26	MC	1	≥ 220	.43	.40	.06		.43	.22	.29
27	MC	1	≥ 220	.40	.27	.06		.16	.40	.38
28	MC	1	≥ 220	.42	.28	.08		.16	.42	.34
29	MC	1	≥ 220	.49	.40	.06		.17	.49	.29
30	CR	3	≥ 220	.33	.61		.41	.31	.16	.12
31	CR	3	≥ 220	.18	.48		.75	.06	.10	.09
32	CR	3	≥ 220	.28	.60		.53	.25	.07	.15

Exhibit L-5. ELA Grade 5 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 650	.76	.41	.01		.76	.24	
2	MC	1	≥ 650	.78	.40	.01		.20	.78	
3	MC	1	≥ 650	.82	.40	.02		.17	.82	
4	MC	1	≥ 650	.73	.40	.01		.73	.26	
5	MC	1	≥ 650	.75	.34	.01		.23	.75	
6	MC	1	≥ 650	.46	.13	.02		.17	.35	.46
7	WS	2	≥ 650	.82	.55		.03	.30	.67	
8	MC	1	≥ 650	.55	.36	.02		.55	.17	.26
9	MC	1	≥ 650	.53	.17	.02		.11	.34	.53
10	MC	1	≥ 650	.62	.35	.02		.22	.14	.62
11	MC	1	≥ 650	.71	.35	.02		.10	.17	.71
12	MC	1	≥ 650	.53	.37	.02		.22	.53	.23
13	MC	1	≥ 650	.56	.40	.02		.18	.56	.24
14	MC	1	≥ 650	.49	.38	.02		.49	.21	.28
15	MC	1	≥ 650	.63	.34	.02		.12	.23	.63
16	MC	1	≥ 650	.69	.41	.02		.11	.18	.69
17	MC	1	≥ 650	.58	.35	.02		.16	.24	.58
18	MC	1	≥ 650	.33	.16	.03		.21	.33	.43
19	MC	1	≥ 650	.43	.27	.02		.24	.43	.31
20	MC	1	≥ 650	.44	.23	.02		.44	.16	.37
21	MC	1	≥ 650	.48	.31	.02		.48	.20	.30
22	MC	1	≥ 650	.65	.33	.02		.14	.19	.65
23	MC	1	≥ 650	.75	.41	.02		.15	.08	.75
24	MC	1	≥ 650	.47	.27	.02		.15	.47	.36
25	MC	1	≥ 650	.73	.42	.02		.12	.13	.73
26	MC	1	≥ 650	.53	.21	.02		.19	.26	.53
27	MC	1	≥ 650	.45	.43	.02		.19	.45	.34
28	MC	1	≥ 650	.87	.43	.01		.11	.87	
29	MC	1	≥ 650	.57	.29	.02		.25	.16	.57
30	CR	3	≥ 650	.56	.60		.20	.24	.24	.32
31	CR	3	≥ 650	.51	.63		.26	.21	.29	.24
32	CR	3	≥ 650	.51	.60		.26	.31	.06	.37

Exhibit L-6. ELA Grade 6 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 880	.87	.46	.02		.11	.87	
2	WS	2	≥ 880	.90	.54		.02	.16	.82	
3	MC	1	≥ 880	.63	.42	.02		.19	.63	.16
4	MC	1	≥ 880	.70	.43	.02		.12	.16	.70
5	MC	1	≥ 880	.60	.44	.02		.09	.6	.29
6	MC	1	≥ 880	.45	.07	.02		.16	.37	.45
7	MC	1	≥ 880	.77	.52	.02		.77	.21	
8	MC	1	≥ 880	.52	.37	.02		.52	.12	.34
9	MC	1	≥ 880	.91	.44	.01		.08	.91	
10	MC	1	≥ 880	.53	.31	.02		.53	.19	.25
11	MC	1	≥ 880	.85	.53	.02		.85	.13	
12	MC	1	≥ 880	.85	.53	.02		.85	.13	
13	MC	1	≥ 880	.89	.48	.02		.10	.89	
14	MC	1	≥ 880	.66	.29	.02		.14	.18	.66
15	MC	1	≥ 880	.62	.28	.02		.18	.18	.62
16	MC	1	≥ 880	.59	.48	.02		.12	.59	.27
17	MC	1	≥ 880	.76	.51	.02		.76	.08	.13
18	MC	1	≥ 880	.70	.52	.02		.08	.70	.20
19	MC	1	≥ 880	.76	.49	.02		.11	.11	.76
20	MC	1	≥ 880	.64	.25	.02		.14	.20	.64
21	MC	1	≥ 880	.63	.48	.02		.63	.15	.19
22	CR	3	≥ 880	.61	.67		.14	.22	.31	.33
23	CR	3	≥ 880	.69	.63		.21	.04	.25	.51
24	CR	3	≥ 880	.61	.62		.20	.25	.06	.49
25	MC	1	≥ 880	.51	.43	.02		.19	.51	.27
26	MC	1	≥ 880	.58	.43	.02		.58	.13	.26
27	MC	1	≥ 880	.68	.35	.02		.07	.23	.68
28	MC	1	≥ 880	.67	.32	.02		.09	.22	.67
29	MC	1	≥ 880	.74	.42	.02		.74	.24	
30	MC	1	≥ 880	.70	.53	.02		.10	.70	.18
31	MC	1	≥ 880	.53	.32	.02		.53	.22	.24
32	MC	1	≥ 880	.51	.30	.02		.51	.19	.28

Exhibit L-7. ELA Grade 7 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	WS	2	≥ 950	.95	.46		.01	.07	.92	
2	MC	1	≥ 950	.65	.20	.02		.33	.65	
3	MC	1	≥ 950	.88	.46	.01		.88	.11	
4	MC	1	≥ 950	.77	.50	.02		.77	.21	
5	MC	1	≥ 950	.86	.47	.02		.12	.86	
6	MC	1	≥ 950	.66	.30	.02		.66	.32	
7	MC	1	≥ 950	.81	.47	.01		.81	.18	
8	MC	1	≥ 950	.82	.45	.01		.17	.82	
9	MC	1	≥ 950	.67	.48	.02		.13	.67	.19
10	MC	1	≥ 950	.75	.55	.02		.75	.09	.15
11	MC	1	≥ 950	.72	.48	.02		.08	.72	.18
12	MC	1	≥ 950	.69	.51	.02		.10	.69	.19
13	MC	1	≥ 950	.59	.22	.02		.16	.23	.59
14	MC	1	≥ 950	.44	.24	.02		.33	.44	.21
15	MC	1	≥ 950	.59	.33	.02		.17	.22	.59
16	MC	1	≥ 950	.52	.19	.02		.52	.3	.16
17	MC	1	≥ 950	.52	.29	.02		.25	.52	.21
18	MC	1	≥ 950	.63	.27	.02		.12	.23	.63
19	MC	1	≥ 950	.62	.33	.02		.22	.14	.62
20	MC	1	≥ 950	.68	.46	.02		.68	.12	.18
21	MC	1	≥ 950	.57	.42	.02		.22	.57	.20
22	MC	1	≥ 950	.62	.42	.02		.14	.62	.23
23	MC	1	≥ 950	.69	.39	.02		.13	.16	.69
24	MC	1	≥ 950	.68	.35	.02		.18	.13	.68
25	MC	1	≥ 950	.71	.52	.02		.13	.71	.14
26	MC	1	≥ 950	.72	.28	.01		.06	.21	.72
27	MC	1	≥ 950	.87	.49	.01		.87	.12	
28	MC	1	≥ 950	.58	.20	.02		.24	.17	.58
29	MC	1	≥ 950	.48	.27	.01		.20	.48	.30
30	CR	3	≥ 950	.61	.65		.16	.21	.28	.35
31	CR	3	≥ 950	.67	.62		.18	.03	.37	.42
32	CR	3	≥ 950	.63	.63		.16	.26	.12	.46

Exhibit L-8. ELA Grade 8 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 1050	.90	.45	.01		.09	.90	
2	MC	1	≥ 1050	.89	.45	.01		.10	.89	
3	MC	1	≥ 1050	.55	.23	.01		.55	.44	
4	MC	1	≥ 1050	.88	.40	.01		.10	.88	
5	MC	1	≥ 1050	.83	.42	.01		.16	.83	
6	MC	1	≥ 1050	.83	.55	.02		.83	.15	
7	MC	1	≥ 1050	.69	.43	.02		.69	.29	
8	WS	2	≥ 1050	.96	.45		.02	.05	.93	
9	CR	3	≥ 1050	.59	.70		.16	.19	.37	.29
10	CR	3	≥ 1050	.59	.66		.19	.14	.39	.28
11	CR	3	≥ 1050	.67	.66		.15	.22	.09	.53
12	MC	1	≥ 1050	.62	.34	.02		.22	.14	.62
13	MC	1	≥ 1050	.55	.34	.02		.55	.08	.35
14	MC	1	≥ 1050	.59	.40	.02		.19	.59	.19
15	MC	1	≥ 1050	.40	.29	.02		.40	.29	.29
16	MC	1	≥ 1050	.41	.27	.02		.12	.41	.45
17	MC	1	≥ 1050	.48	.34	.02		.15	.48	.35
18	MC	1	≥ 1050	.58	.39	.02		.58	.17	.24
19	MC	1	≥ 1050	.63	.26	.02		.15	.19	.63
20	MC	1	≥ 1050	.61	.28	.03		.24	.12	.61
21	MC	1	≥ 1050	.74	.40	.02		.14	.09	.74
22	MC	1	≥ 1050	.74	.49	.02		.74	.10	.14
23	MC	1	≥ 1050	.67	.37	.02		.67	.10	.22
24	MC	1	≥ 1050	.75	.54	.02		.75	.09	.15
25	MC	1	≥ 1050	.54	.30	.02		.54	.11	.33
26	MC	1	≥ 1050	.74	.46	.02		.08	.74	.16
27	MC	1	≥ 1050	.72	.58	.02		.72	.1	.17
28	MC	1	≥ 1050	.81	.39	.02		.08	.09	.81
29	MC	1	≥ 1050	.67	.46	.01		.67	.15	.16
30	MC	1	≥ 1050	.43	.11	.02		.41	.14	.43
31	MC	1	≥ 1050	.72	.30	.02		.19	.07	.72
32	MC	1	≥ 1050	.92	.40	.01		.07	.92	

Exhibit L-9. ELA High School Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 990	.87	.50	.02		.87	.12	
2	MC	1	≥ 990	.90	.45	.02		.08	.90	
3	MC	1	≥ 990	.88	.49	.02		.88	.10	
4	MC	1	≥ 990	.88	.49	.02		.10	.88	
5	MC	1	≥ 990	.31	-.06	.02		.45	.21	.31
6	WS	2	≥ 990	.95	.51		.02	.05	.93	
7	MC	1	≥ 990	.33	.11	.02		.33	.32	.32
8	MC	1	≥ 990	.55	.26	.02		.18	.24	.55
9	MC	1	≥ 990	.72	.52	.03		.72	.09	.16
10	MC	1	≥ 990	.74	.44	.03		.10	.13	.74
11	MC	1	≥ 990	.41	.10	.02		.30	.26	.41
12	MC	1	≥ 990	.26	.10	.03		.26	.32	.40
13	MC	1	≥ 990	.75	.41	.02		.75	.23	
14	MC	1	≥ 990	.79	.43	.02		.19	.79	
15	MC	1	≥ 990	.74	.40	.02		.24	.74	
16	MC	1	≥ 990	.87	.36	.01		.87	.11	
17	MC	1	≥ 990	.86	.47	.02		.86	.12	
18	MC	1	≥ 990	.90	.44	.02		.90	.09	
19	MC	1	≥ 990	.91	.47	.02		.07	.91	
20	MC	1	≥ 990	.85	.47	.02		.85	.13	
21	MC	1	≥ 990	.75	.53	.03		.11	.75	.11
22	MC	1	≥ 990	.75	.55	.02		.08	.75	.14
23	MC	1	≥ 990	.73	.57	.03		.73	.06	.18
24	MC	1	≥ 990	.74	.42	.02		.15	.09	.74
25	MC	1	≥ 990	.80	.49	.02		.09	.09	.80
26	MC	1	≥ 990	.71	.24	.02		.27	.71	
27	MC	1	≥ 990	.79	.49	.02		.07	.79	.12
28	MC	1	≥ 990	.58	.43	.02		.12	.58	.28
29	CR	3	≥ 990	.58	.61		.22	.10	.42	.26
30	CR	3	≥ 990	.46	.58		.26	.40	.02	.32
31	CR	3	≥ 990	.51	.61		.33	.21	.06	.40

Exhibit L-10. Math Grade 3 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 640	.62	.40	.02		.62	.35	
2	MC	1	≥ 640	.75	.37	.01		.75	.24	
3	MC	1	≥ 640	.57	.36	.03		.57	.17	.22
4	MC	1	≥ 640	.53	.44	.04		.53	.20	.24
5	MC	1	≥ 640	.50	.47	.03		.21	.50	.26
6	MC	1	≥ 640	.49	.56	.04		.49	.47	
7	MC	1	≥ 640	.58	.40	.03		.58	.17	.22
8	MC	1	≥ 640	.55	.40	.03		.23	.19	.55
9	MC	1	≥ 640	.60	.44	.03		.20	.16	.60
10	MC	1	≥ 640	.48	.40	.03		.21	.48	.28
11	MC	1	≥ 640	.44	.51	.02		.44	.54	
12	MC	1	≥ 640	.68	.32	.02		.30	.68	
13	MC	1	≥ 640	.51	.46	.03		.17	.51	.29
14	MC	1	≥ 640	.43	.37	.03		.31	.43	.23
15	MC	1	≥ 640	.67	.36	.02		.67	.31	
16	MC	1	≥ 640	.55	.41	.04		.24	.18	.55
17	MC	1	≥ 640	.55	.37	.03		.19	.22	.55
18	MC	1	≥ 640	.57	.28	.03		.22	.19	.57
19	MC	1	≥ 640	.49	.31	.03		.28	.20	.49
20	MC	1	≥ 640	.42	.39	.04		.25	.42	.30
21	MC	1	≥ 640	.40	.32	.02		.29	.40	.30
22	MC	1	≥ 640	.33	.28	.03		.29	.33	.35
23	MC	1	≥ 640	.65	.49	.02		.65	.15	.17
24	MC	1	≥ 640	.50	.18	.04		.23	.23	.50
25	MC	1	≥ 640	.70	.36	.01		.70	.28	
26	MC	1	≥ 640	.44	.45	.04		.24	.44	.29
27	MC	1	≥ 640	.52	.21	.04		.16	.29	.52
28	MC	1	≥ 640	.63	.31	.03		.17	.17	.63
29	MC	1	≥ 640	.63	.36	.02		.62	.35	
30	MC	1	≥ 640	.75	.40	.02		.75	.23	
31	MC	1	≥ 640	.65	.51	.03		.19	.13	.65
32	MC	1	≥ 640	.47	.29	.03		.26	.23	.47
33	MC	1	≥ 640	.57	.30	.03		.57	.40	
34	MC	1	≥ 640	.40	.26	.02		.27	.40	.31
35	MC	1	≥ 640	.70	.43	.02		.16	.11	.70

Exhibit L-11. Math Grade 4 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 670	.35	.25	.01		.27	.35	.37
2	MC	1	≥ 670	.45	.43	.02		.31	.21	.45
3	MC	1	≥ 670	.53	.29	.02		.53	.19	.25
4	MC	1	≥ 670	.39	.23	.02		.27	.39	.31
5	MC	1	≥ 670	.45	.36	.02		.32	.21	.45
6	MC	1	≥ 670	.39	.47	.02		.39	.59	
7	MC	1	≥ 670	.38	.44	.02		.38	.60	
8	MC	1	≥ 670	.51	.42	.03		.28	.18	.51
9	MC	1	≥ 670	.47	.33	.02		.23	.29	.47
10	MC	1	≥ 670	.50	.43	.02		.26	.21	.50
11	MC	1	≥ 670	.27	.25	.02		.27	.71	
12	MC	1	≥ 670	.60	.22	.02		.60	.39	
13	MC	1	≥ 670	.76	.31	.01		.76	.24	
14	MC	1	≥ 670	.67	.20	.01		.67	.32	
15	MC	1	≥ 670	.72	.42	.03		.72	.26	
16	MC	1	≥ 670	.50	.26	.03		.50	.18	.30
17	MC	1	≥ 670	.52	.36	.03		.23	.22	.52
18	MC	1	≥ 670	.55	.49	.02		.27	.16	.55
19	MC	1	≥ 670	.56	.52	.02		.22	.19	.56
20	MC	1	≥ 670	.49	.37	.02		.23	.26	.49
21	MC	1	≥ 670	.53	.48	.02		.24	.21	.53
22	MC	1	≥ 670	.66	.47	.02		.17	.14	.66
23	MC	1	≥ 670	.41	.29	.02		.41	.20	.37
24	MC	1	≥ 670	.57	.42	.02		.23	.18	.57
25	MC	1	≥ 670	.60	.49	.02		.19	.18	.60
26	MC	1	≥ 670	.50	.30	.02		.50	.16	.32
27	MC	1	≥ 670	.73	.24	.01		.73	.26	
28	MC	1	≥ 670	.45	.17	.02		.45	.23	.30
29	MC	1	≥ 670	.56	.17	.01		.56	.44	
30	MC	1	≥ 670	.39	.08	.02		.39	.28	.31
31	MC	1	≥ 670	.40	.16	.02		.19	.40	.39
32	MC	1	≥ 670	.67	.30	.01		.32	.67	
33	MC	1	≥ 670	.50	.38	.02		.31	.16	.50
34	MC	1	≥ 670	.54	.44	.02		.26	.17	.54
35	MC	1	≥ 670	.76	.40	.01		.22	.76	

Exhibit L-12. Math Grade 5 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 650	.48	.19	.02		.28	.21	.48
2	MC	1	≥ 650	.25	.43	.02		.25	.73	
3	MC	1	≥ 650	.58	.40	.02		.17	.23	.58
4	MC	1	≥ 650	.46	.29	.02		.27	.25	.46
5	MC	1	≥ 650	.72	.36	.01		.26	.72	
6	MC	1	≥ 650	.65	.33	.02		.65	.33	
7	MC	1	≥ 650	.25	.35	.02		.25	.74	
8	MC	1	≥ 650	.71	.33	.01		.71	.28	
9	MC	1	≥ 650	.54	.33	.02		.54	.20	.24
10	MC	1	≥ 650	.41	.20	.02		.23	.41	.34
11	MC	1	≥ 650	.48	.42	.01		.21	.48	.30
12	MC	1	≥ 650	.45	.24	.02		.45	.18	.35
13	MC	1	≥ 650	.45	.18	.02		.32	.21	.45
14	MC	1	≥ 650	.69	.44	.02		.69	.29	
15	MC	1	≥ 650	.66	.26	.02		.18	.15	.66
16	MC	1	≥ 650	.53	.42	.02		.53	.16	.29
17	MC	1	≥ 650	.52	.21	.02		.22	.24	.52
18	MC	1	≥ 650	.58	.33	.02		.20	.20	.58
19	MC	1	≥ 650	.45	.25	.02		.45	.21	.32
20	MC	1	≥ 650	.80	.35	.01		.80	.20	
21	MC	1	≥ 650	.50	.37	.02		.18	.50	.30
22	MC	1	≥ 650	.54	.24	.02		.24	.20	.54
23	MC	1	≥ 650	.72	.25	.02		.26	.72	
24	MC	1	≥ 650	.49	.25	.02		.29	.20	.49
25	MC	1	≥ 650	.58	.37	.02		.24	.17	.58
26	MC	1	≥ 650	.33	.24	.02		.28	.33	.36
27	MC	1	≥ 650	.37	.24	.02		.24	.37	.37
28	MC	1	≥ 650	.59	.21	.01		.20	.19	.59
29	MC	1	≥ 650	.44	.40	.02		.23	.44	.31
30	MC	1	≥ 650	.31	.07	.02		.31	.35	.33
31	MC	1	≥ 650	.35	.28	.01		.19	.35	.45
32	MC	1	≥ 650	.53	.19	.02		.26	.20	.53
33	MC	1	≥ 650	.46	.31	.02		.46	.22	.29
34	MC	1	≥ 650	.62	.29	.01		.62	.37	
35	MC	1	≥ 650	.49	.25	.02		.49	.22	.26

Exhibit L-13. Math Grade 6 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 870	.71	.48	.01		.16	.12	.71
2	MC	1	≥ 870	.55	.49	.01		.13	.55	.31
3	MC	1	≥ 870	.51	.40	.01		.51	.21	.28
4	MC	1	≥ 870	.76	.39	.01		.76	.23	
5	MC	1	≥ 870	.63	.28	.01		.19	.16	.63
6	MC	1	≥ 870	.61	.44	.01		.23	.15	.61
7	MC	1	≥ 870	.55	.48	.01		.23	.55	.21
8	MC	1	≥ 870	.79	.27	.00		.20	.79	
9	MC	1	≥ 870	.69	.43	.01		.14	.16	.69
10	MC	1	≥ 870	.73	.33	.01		.26	.73	
11	MC	1	≥ 870	.54	.32	.01		.54	.19	.26
12	MC	1	≥ 870	.55	.44	.01		.25	.55	.18
13	MC	1	≥ 870	.78	.40	.00		.78	.22	
14	MC	1	≥ 870	.62	.34	.01		.17	.20	.62
15	MC	1	≥ 870	.56	.38	.01		.56	.15	.28
16	MC	1	≥ 870	.52	.16	.01		.29	.18	.52
17	MC	1	≥ 870	.73	.48	.01		.17	.09	.73
18	MC	1	≥ 870	.72	.48	.01		.13	.14	.72
19	MC	1	≥ 870	.55	.31	.01		.23	.21	.55
20	MC	1	≥ 870	.54	.29	.01		.54	.25	.21
21	MC	1	≥ 870	.44	.27	.01		.44	.28	.27
22	MC	1	≥ 870	.57	.46	.01		.19	.57	.22
23	MC	1	≥ 870	.67	.34	.01		.67	.33	
24	MC	1	≥ 870	.60	.46	.01		.19	.60	.20
25	MC	1	≥ 870	.37	.23	.01		.37	.22	.41
26	MC	1	≥ 870	.77	.31	.00		.23	.77	
27	MC	1	≥ 870	.68	.42	.01		.14	.18	.68
28	MC	1	≥ 870	.59	.52	.01		.59	.16	.24
29	MC	1	≥ 870	.52	.35	.01		.52	.25	.21
30	MC	1	≥ 870	.61	.52	.01		.19	.61	.19
31	MC	1	≥ 870	.70	.59	.01		.11	.70	.19
32	MC	1	≥ 870	.55	.51	.01		.24	.55	.20
33	MC	1	≥ 870	.56	.44	.01		.56	.23	.20
34	MC	1	≥ 870	.85	.37	.01		.14	.85	
35	MC	1	≥ 870	.84	.37	.01		.15	.84	

Exhibit L-14. Math Grade 7 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 940	.51	.37	.01		.28	.20	.51
2	MC	1	≥ 940	.78	.32	.01		.21	.78	
3	MC	1	≥ 940	.68	.45	.01		.13	.68	.18
4	MC	1	≥ 940	.66	.48	.01		.66	.15	.18
5	MC	1	≥ 940	.32	.20	.02		.32	.41	.25
6	MC	1	≥ 940	.92	.27	.00		.08	.92	
7	MC	1	≥ 940	.68	.52	.01		.68	.14	.17
8	MC	1	≥ 940	.77	.39	.01		.10	.12	.77
9	MC	1	≥ 940	.72	.38	.01		.09	.18	.72
10	MC	1	≥ 940	.51	.38	.01		.23	.25	.51
11	MC	1	≥ 940	.82	.21	.00		.82	.18	
12	MC	1	≥ 940	.59	.35	.01		.20	.20	.59
13	MC	1	≥ 940	.65	.47	.01		.65	.13	.21
14	MC	1	≥ 940	.57	.41	.01		.19	.57	.24
15	MC	1	≥ 940	.62	.39	.01		.20	.16	.62
16	MC	1	≥ 940	.36	.25	.01		.36	.40	.22
17	MC	1	≥ 940	.56	.44	.02		.24	.18	.56
18	MC	1	≥ 940	.85	.37	.00		.85	.15	
19	MC	1	≥ 940	.84	.42	.01		.84	.15	
20	MC	1	≥ 940	.45	.47	.01		.45	.26	.28
21	MC	1	≥ 940	.53	.45	.02		.21	.53	.24
22	MC	1	≥ 940	.47	.24	.01		.26	.25	.47
23	MC	1	≥ 940	.52	.35	.01		.52	.21	.26
24	MC	1	≥ 940	.40	.36	.02		.40	.23	.35
25	MC	1	≥ 940	.51	.45	.02		.28	.51	.18
26	MC	1	≥ 940	.51	.48	.01		.51	.15	.33
27	MC	1	≥ 940	.57	.42	.01		.24	.18	.57
28	MC	1	≥ 940	.72	.36	.01		.72	.28	
29	MC	1	≥ 940	.57	.41	.01		.19	.57	.24
30	MC	1	≥ 940	.42	.27	.02		.42	.28	.28
31	MC	1	≥ 940	.68	.34	.01		.68	.31	
32	MC	1	≥ 940	.45	.26	.01		.30	.25	.45
33	MC	1	≥ 940	.25	-.01	.01		.21	.25	.52
34	MC	1	≥ 940	.59	.36	.01		.22	.59	.18
35	MC	1	≥ 940	.61	.44	.01		.61	.24	.14

Exhibit L-15. Math Grade 8 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 1050	.66	.40	.02		.14	.66	.18
2	MC	1	≥ 1050	.47	.39	.02		.21	.30	.47
3	MC	1	≥ 1050	.45	.09	.02		.15	.39	.45
4	MC	1	≥ 1050	.55	.40	.02		.17	.27	.55
5	MC	1	≥ 1050	.47	.29	.02		.20	.31	.47
6	MC	1	≥ 1050	.70	.22	.01		.29	.70	
7	MC	1	≥ 1050	.33	.24	.02		.33	.21	.44
8	MC	1	≥ 1050	.63	.35	.02		.19	.16	.63
9	MC	1	≥ 1050	.80	.37	.01		.20	.80	
10	MC	1	≥ 1050	.66	.47	.02		.66	.14	.19
11	MC	1	≥ 1050	.67	.42	.02		.15	.17	.67
12	MC	1	≥ 1050	.60	.48	.01		.60	.39	
13	MC	1	≥ 1050	.57	.46	.02		.23	.57	.18
14	MC	1	≥ 1050	.59	.18	.01		.40	.59	
15	MC	1	≥ 1050	.54	.40	.02		.54	.44	
16	MC	1	≥ 1050	.72	.50	.02		.06	.72	.21
17	MC	1	≥ 1050	.59	.48	.02		.59	.20	.19
18	MC	1	≥ 1050	.72	.45	.02		.11	.15	.72
19	MC	1	≥ 1050	.53	.44	.02		.53	.46	
20	MC	1	≥ 1050	.67	.35	.02		.15	.17	.67
21	MC	1	≥ 1050	.71	.49	.02		.09	.71	.18
22	MC	1	≥ 1050	.51	.35	.01		.51	.27	.21
23	MC	1	≥ 1050	.63	.50	.02		.63	.18	.18
24	MC	1	≥ 1050	.65	.48	.01		.65	.34	
25	MC	1	≥ 1050	.63	.36	.01		.63	.36	
26	MC	1	≥ 1050	.60	.37	.02		.60	.21	.17
27	MC	1	≥ 1050	.86	.38	.02		.12	.86	
28	MC	1	≥ 1050	.50	.40	.02		.50	.23	.25
29	MC	1	≥ 1050	.57	.53	.01		.57	.20	.22
30	MC	1	≥ 1050	.52	.38	.02		.17	.52	.29
31	MC	1	≥ 1050	.41	.39	.02		.41	.32	.25
32	MC	1	≥ 1050	.62	.48	.02		.20	.62	.17
33	MC	1	≥ 1050	.61	.51	.02		.61	.20	.18
34	MC	1	≥ 1050	.56	.42	.02		.17	.56	.25
35	MC	1	≥ 1050	.57	.46	.02		.21	.57	.21

Exhibit L-16. Math High School Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 1000	.64	.45	.02		.17	.64	.17
2	MC	1	≥ 1000	.67	.50	.01		.19	.67	.13
3	MC	1	≥ 1000	.54	.43	.02		.21	.23	.54
4	MC	1	≥ 1000	.60	.45	.02		.21	.17	.60
5	MC	1	≥ 1000	.59	.30	.01		.59	.27	.12
6	MC	1	≥ 1000	.64	.15	.02		.34	.64	
7	MC	1	≥ 1000	.53	.42	.02		.53	.18	.27
8	MC	1	≥ 1000	.43	.24	.02		.43	.38	.17
9	MC	1	≥ 1000	.57	.45	.02		.21	.21	.57
10	MC	1	≥ 1000	.59	.43	.01		.17	.23	.59
11	MC	1	≥ 1000	.61	.49	.01		.15	.61	.23
12	MC	1	≥ 1000	.62	.50	.02		.21	.62	.16
13	MC	1	≥ 1000	.70	.29	.01		.70	.30	
14	MC	1	≥ 1000	.59	.28	.02		.59	.16	.23
15	MC	1	≥ 1000	.49	.31	.02		.49	.14	.35
16	MC	1	≥ 1000	.81	.40	.01		.81	.18	
17	MC	1	≥ 1000	.39	.37	.02		.14	.39	.46
18	MC	1	≥ 1000	.84	.29	.00		.15	.84	
19	MC	1	≥ 1000	.40	.23	.01		.17	.40	.42
20	MC	1	≥ 1000	.36	.33	.02		.33	.36	.29
21	MC	1	≥ 1000	.57	.50	.02		.13	.57	.28
22	MC	1	≥ 1000	.56	.49	.01		.56	.21	.22
23	MC	1	≥ 1000	.59	.46	.02		.21	.18	.59
24	MC	1	≥ 1000	.48	.34	.02		.20	.48	.29
25	MC	1	≥ 1000	.60	.39	.02		.22	.17	.60
26	MC	1	≥ 1000	.79	.34	.01		.79	.20	
27	MC	1	≥ 1000	.47	.27	.02		.28	.47	.24
28	MC	1	≥ 1000	.83	.41	.02		.83	.16	
29	MC	1	≥ 1000	.52	.48	.02		.17	.52	.29
30	MC	1	≥ 1000	.55	.38	.02		.25	.18	.55
31	MC	1	≥ 1000	.82	.34	.00		.82	.17	
32	MC	1	≥ 1000	.53	.49	.01		.28	.53	.18
33	MC	1	≥ 1000	.82	.35	.01		.17	.82	
34	MC	1	≥ 1000	.46	.44	.02		.25	.46	.28
35	MC	1	≥ 1000	.47	.19	.02		.47	.30	.20

Exhibit L-17. Science Grade 4 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 670	.72	.36	.02		.26	.72	
2	MC	1	≥ 670	.52	.27	.02		.27	.19	.52
3	MC	1	≥ 670	.63	.29	.01		.63	.36	
4	MC	1	≥ 670	.53	.16	.02		.19	.25	.53
5	MC	1	≥ 670	.53	.46	.02		.20	.53	.25
6	MC	1	≥ 670	.44	.25	.02		.44	.19	.35
7	MC	1	≥ 670	.57	.37	.02		.24	.17	.57
8	MC	1	≥ 670	.54	.32	.02		.26	.18	.54
9	MC	1	≥ 670	.79	.34	.01		.20	.79	
10	MC	1	≥ 670	.57	.29	.02		.21	.19	.57
11	MC	1	≥ 670	.68	.31	.01		.31	.68	
12	MC	1	≥ 670	.61	.42	.02		.61	.36	
13	MC	1	≥ 670	.39	.16	.02		.37	.22	.39
14	MC	1	≥ 670	.66	.24	.02		.32	.66	
15	MC	1	≥ 670	.47	.25	.02		.25	.47	.26
16	MC	1	≥ 670	.37	.29	.02		.25	.37	.36
17	MC	1	≥ 670	.70	.38	.02		.28	.70	
18	MC	1	≥ 670	.34	.07	.02		.34	.27	.37
19	MC	1	≥ 670	.44	.23	.02		.44	.24	.30
20	MC	1	≥ 670	.50	.36	.02		.20	.50	.27
21	MC	1	≥ 670	.80	.32	.02		.80	.18	
22	MC	1	≥ 670	.60	.37	.02		.60	.16	.21
23	MC	1	≥ 670	.50	.26	.02		.28	.19	.50
24	MC	1	≥ 670	.42	.36	.02		.26	.42	.29
25	MC	1	≥ 670	.64	.40	.02		.17	.17	.64
26	MC	1	≥ 670	.43	.34	.02		.25	.43	.31
27	MC	1	≥ 670	.42	.15	.02		.42	.27	.29
28	MC	1	≥ 670	.53	.38	.02		.53	.19	.27
29	MC	1	≥ 670	.69	.41	.02		.69	.30	
30	MC	1	≥ 670	.36	.23	.02		.28	.36	.34

Exhibit L-18. Science Grade 8 Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 1040	.75	.40	.01		.75	.25	
2	MC	1	≥ 1040	.54	.43	.01		.54	.21	.24
3	MC	1	≥ 1040	.60	.42	.01		.23	.60	.16
4	MC	1	≥ 1040	.65	.18	.01		.34	.65	
5	MC	1	≥ 1040	.57	.29	.01		.19	.24	.57
6	MC	1	≥ 1040	.54	.19	.01		.32	.13	.54
7	MC	1	≥ 1040	.91	.36	.00		.91	.09	
8	MC	1	≥ 1040	.54	.32	.01		.22	.54	.23
9	MC	1	≥ 1040	.59	.43	.01		.59	.17	.23
10	MC	1	≥ 1040	.80	.41	.01		.18	.80	
11	MC	1	≥ 1040	.52	.31	.01		.52	.25	.22
12	MC	1	≥ 1040	.70	.36	.01		.09	.20	.70
13	MC	1	≥ 1040	.75	.44	.01		.11	.13	.75
14	MC	1	≥ 1040	.88	.42	.01		.05	.07	.88
15	MC	1	≥ 1040	.56	.36	.01		.18	.56	.25
16	MC	1	≥ 1040	.87	.36	.01		.12	.87	
17	MC	1	≥ 1040	.47	.30	.01		.20	.33	.47
18	MC	1	≥ 1040	.54	.21	.01		.20	.25	.54
19	MC	1	≥ 1040	.76	.42	.01		.76	.23	
20	MC	1	≥ 1040	.36	.08	.01		.26	.36	.37
21	MC	1	≥ 1040	.91	.34	.01		.08	.91	
22	MC	1	≥ 1040	.54	.41	.02		.54	.44	
23	MC	1	≥ 1040	.51	.36	.02		.51	.47	
24	MC	1	≥ 1040	.33	.11	.01		.33	.39	.26
25	MC	1	≥ 1040	.55	.28	.01		.17	.26	.55
26	MC	1	≥ 1040	.61	.28	.01		.15	.23	.61
27	MC	1	≥ 1040	.67	.40	.01		.13	.67	.19
28	MC	1	≥ 1040	.63	.26	.01		.63	.36	
29	MC	1	≥ 1040	.40	.20	.01		.19	.40	.40
30	MC	1	≥ 1040	.86	.43	.01		.86	.05	.08

Exhibit L-19. Science High School Form 3

Item	Item Type	Max Score Point	N	*P*-value	Pb	Omit	0/0	A/1	B/2	C/3
1	MC	1	≥ 970	.86	.44	.01		.86	.13	
2	MC	1	≥ 970	.81	.41	.01		.11	.08	.81
3	MC	1	≥ 970	.83	.52	.01		.05	.83	.11
4	MC	1	≥ 970	.75	.45	.01		.75	.13	.12
5	MC	1	≥ 970	.69	.44	.01		.69	.30	
6	MC	1	≥ 970	.86	.42	.01		.86	.14	
7	MC	1	≥ 970	.60	.24	.01		.18	.21	.60
8	MC	1	≥ 970	.60	.35	.01		.60	.14	.25
9	MC	1	≥ 970	.85	.41	.01		.09	.85	.06
10	MC	1	≥ 970	.70	.28	.01		.70	.29	
11	MC	1	≥ 970	.45	.14	.01		.28	.27	.45
12	MC	1	≥ 970	.63	.40	.01		.63	.20	.16
13	MC	1	≥ 970	.61	.46	.01		.19	.61	.19
14	MC	1	≥ 970	.50	.25	.01		.29	.19	.50
15	MC	1	≥ 970	.59	.30	.01		.19	.21	.59
16	MC	1	≥ 970	.63	.41	.01		.63	.20	.16
17	MC	1	≥ 970	.72	.34	.01		.72	.27	
18	MC	1	≥ 970	.80	.31	.02		.18	.80	
19	MC	1	≥ 970	.53	.22	.01		.25	.21	.53
20	MC	1	≥ 970	.42	.21	.01		.28	.42	.28
21	MC	1	≥ 970	.39	.23	.01		.34	.39	.25
22	MC	1	≥ 970	.36	.14	.01		.44	.36	.19
23	MC	1	≥ 970	.36	.15	.01		.32	.36	.30
24	MC	1	≥ 970	.63	.46	.02		.63	.35	
25	MC	1	≥ 970	.47	.24	.02		.26	.25	.47
26	MC	1	≥ 970	.52	.32	.02		.52	.47	
27	MC	1	≥ 970	.48	.18	.01		.48	.35	.16
28	MC	1	≥ 970	.63	.46	.01		.21	.63	.15
29	MC	1	≥ 970	.76	.45	.02		.76	.22	
30	MC	1	≥ 970	.34	.26	.01		.25	.34	.40

Appendix M. Scale Score and Percent of Students per Achievement level by Population Categories[8]

Exhibit M-1. ELA Grade 3

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 640	29	20	37	14	1240.85	16.62
Gender	Male	≥ 460	28	20	39	14	1241.35	16.38
	Female	≥ 180	31	21	35	14	1239.58	17.19
Ethnicity	Hispanic/Latino	≥ 40	40	23	31	6	1236.83	13.15
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	< 10	NR	NR	NR	NR	NR	NR
	Black or African American	≥ 360	30	19	37	15	1240.74	17.39
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 200	24	22	39	16	1242.78	16.00
	Two or more races	≥ 20	14	24	57	≤ 5	1240.81	11.77
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 640	28	20	38	14	1240.91	16.63
Economic Status	Not Economically Disadvantaged	≥ 180	33	22	36	9	1237.99	16.10
	Economically Disadvantaged	≥ 410	26	19	39	17	1242.70	16.60
EL Status	Not EL	≥ 600	29	20	38	14	1240.69	16.60
	EL	≥ 30	30	19	35	16	1243.49	16.98

[8] Note. The sum of percentages by achievement level may not equal 100 due to rounding. The sum of student counts from economic status groups does not equal the total count of students because economic status was not available for all students.

Exhibit M-2. ELA Grade 4

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 670	26	19	32	23	1241.13	15.65
Gender	Male	≥ 440	26	18	33	23	1241.18	15.50
	Female	≥ 220	25	21	30	24	1241.04	15.99
Ethnicity	Hispanic/Latino	≥ 50	38	29	17	15	1236.56	14.74
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	33	8	50	8	1235.67	17.13
	Black or African American	≥ 360	23	17	33	27	1242.74	16.07
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 220	27	19	33	20	1239.86	14.92
	Two or more races	≥ 10	33	13	27	27	1240.27	14.87
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 670	26	19	32	23	1241.13	15.65
Economic Status	Not Economically Disadvantaged	≥ 210	30	17	35	18	1238.62	16.03
	Economically Disadvantaged	≥ 430	24	19	31	26	1242.38	15.42
EL Status	Not EL	≥ 640	26	19	32	23	1241.21	15.81
	EL	≥ 20	23	23	35	19	1239.35	11.08

Exhibit M-3. ELA Grade 5

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 650	16	24	39	20	1243.20	13.60
Gender	Male	≥ 440	16	24	39	21	1243.51	13.67
	Female	≥ 210	17	25	40	18	1242.54	13.48
Ethnicity	Hispanic/Latino	≥ 50	22	31	33	14	1240.65	12.94
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	18	64	18	0	1236.82	5.10
	Black or African American	≥ 360	12	21	42	25	1245.55	13.56
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 190	23	24	39	15	1240.48	13.41
	Two or more races	≥ 20	18	45	23	14	1238.23	13.60
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 650	16	24	39	20	1243.20	13.60
Economic Status	Not Economically Disadvantaged	≥ 190	21	25	41	13	1240.51	14.01
	Economically Disadvantaged	≥ 440	15	24	38	23	1244.27	13.18
EL Status	Not EL	≥ 630	16	24	40	20	1243.31	13.65
	EL	≥ 10	31	31	25	13	1238.81	10.95

Exhibit M-4. ELA Grade 6

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 880	21	23	35	22	1240.88	12.97
Gender	Male	≥ 560	20	23	35	22	1240.94	12.55
	Female	≥ 310	22	22	35	21	1240.77	13.71
Ethnicity	Hispanic/Latino	≥ 60	18	37	23	22	1241.02	14.19
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	36	18	18	27	1237.73	18.39
	Black or African American	≥ 520	18	21	37	24	1241.98	11.94
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 260	25	23	34	18	1238.81	14.08
	Two or more races	≥ 16	25	19	25	31	1240.31	15.15
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 880	21	23	35	22	1240.88	12.98
Economic Status	Not Economically Disadvantaged	≥ 250	24	23	35	18	1239.57	12.85
	Economically Disadvantaged	≥ 590	20	23	33	23	1241.09	13.17
EL Status	Not EL	≥ 840	21	23	34	22	1240.80	12.99
	EL	≥ 30	17	22	39	22	1242.61	12.47

Exhibit M-5. ELA Grade 7

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 950	22	18	21	39	1243.32	15.18
Gender	Male	≥ 630	21	20	21	37	1242.92	15.35
	Female	≥ 320	22	15	21	42	1244.10	14.83
Ethnicity	Hispanic/Latino	≥ 70	22	14	27	38	1242.29	16.08
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	> 10	45	18	18	18	1235.64	13.87
	Black or African American	≥ 530	20	20	22	38	1243.52	15.16
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 300	22	17	19	41	1243.76	15.13
	Two or more races	≥ 20	38	10	14	38	1239.95	13.92
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 950	22	18	21	39	1243.32	15.18
Economic Status	Not Economically Disadvantaged	≥ 270	26	22	20	32	1240.91	14.82
	Economically Disadvantaged	≥ 640	20	17	22	42	1244.36	15.39
EL Status	Not EL	≥ 920	22	19	21	38	1243.17	15.22
	EL	≥ 20	15	7	30	48	1248.33	13.19

Exhibit M-6. ELA Grade 8

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 1050	14	26	19	42	1241.23	9.63
Gender	Male	≥ 680	13	25	19	43	1241.23	9.20
	Female	≥ 370	14	27	19	39	1241.23	10.38
Ethnicity	Hispanic/Latino	≥ 60	18	22	20	40	1240.52	11.69
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	27	40	13	20	1236.40	6.76
	Black or African American	≥ 620	11	26	20	43	1241.72	8.91
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 330	16	25	16	42	1240.86	10.52
	Two or more races	≥ 10	26	21	16	37	1239.47	9.14
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 1050	14	26	19	42	1241.23	9.63
Economic Status	Not Economically Disadvantaged	≥ 310	18	27	19	35	1239.85	10.59
	Economically Disadvantaged	≥ 710	11	25	18	45	1241.89	9.24
EL Status	Not EL	≥ 1020	13	26	19	41	1241.14	9.55
	EL	≥ 30	15	12	15	58	1243.91	11.55

Exhibit M-7. ELA High School

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 990	11	15	54	21	1247.98	14.54
Gender	Male	≥ 640	11	17	54	18	1247.33	14.34
	Female	≥ 340	10	12	53	25	1249.21	14.85
Ethnicity	Hispanic/Latino	≥ 50	19	13	54	13	1244.42	12.57
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	24	12	53	12	1242.76	17.03
	Black or African American	≥ 580	10	15	55	19	1247.78	14.27
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 310	10	15	53	22	1248.95	15.13
	Two or more races	≥ 10	6	12	29	53	1253.47	14.28
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 990	11	15	54	21	1247.98	14.54
Economic Status	Not Economically Disadvantaged	≥ 280	10	13	60	16	1247.68	13.52
	Economically Disadvantaged	≥ 580	8	15	53	24	1249.52	13.87
EL Status	Not EL	≥ 960	11	15	54	21	1248.08	14.58
	EL	≥ 20	20	16	52	12	1244.08	12.54

Exhibit M-8. Math Grade 3

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 640	28	11	37	23	1249.24	27.98
Gender	Male	≥ 450	27	11	38	25	1250.58	28.11
	Female	≥ 180	33	12	36	18	1245.85	27.45
Ethnicity	Hispanic/Latino	≥ 50	38	14	28	20	1243.00	28.36
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	< 10	NR	NR	NR	NR	NR	NR
	Black or African American	≥ 350	27	12	38	23	1250.27	27.82
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 200	28	10	39	24	1249.65	28.13
	Two or more races	≥ 20	24	10	48	19	1250.52	26.82
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 630	28	11	37	23	1249.35	27.98
Economic Status	Not Economically Disadvantaged	≥ 180	34	13	32	21	1245.68	28.27
	Economically Disadvantaged	≥ 410	25	10	41	24	1251.83	27.39
EL Status	Not EL	≥ 600	28	11	38	22	1249.05	27.78
	EL	≥ 30	31	10	23	36	1252.21	31.19

Exhibit M-9. Math Grade 4

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 670	25	17	27	32	1243.99	17.67
Gender	Male	≥ 450	23	17	27	33	1244.16	17.62
	Female	≥ 210	28	16	26	30	1243.63	17.80
Ethnicity	Hispanic/Latino	≥ 50	35	19	25	21	1240.73	18.71
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	33	≤ 5	50	17	1240.67	15.91
	Black or African American	≥ 360	23	18	24	35	1245.26	18.22
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 220	26	14	30	30	1242.74	16.89
	Two or more races	≥ 10	13	27	27	33	1245.67	12.57
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 670	25	17	27	32	1243.99	17.67
Economic Status	Not Economically Disadvantaged	≥ 210	27	16	27	31	1241.95	17.45
	Economically Disadvantaged	≥ 430	24	17	27	32	1245.01	17.81
EL Status	Not EL	≥ 640	25	16	26	32	1244.09	17.91
	EL	≥ 20	19	23	42	15	1241.38	9.78

Exhibit M-10. Math Grade 5

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 650	24	20	33	23	1243.81	17.62
Gender	Male	≥ 440	23	18	34	24	1244.18	17.74
	Female	≥ 210	25	24	31	20	1243.04	17.38
Ethnicity	Hispanic/Latino	≥ 50	18	29	33	20	1242.98	15.81
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	27	9	45	18	1240.91	14.12
	Black or African American	≥ 360	20	19	33	27	1245.86	18.11
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 190	31	20	33	16	1240.57	16.88
	Two or more races	≥ 20	29	19	33	19	1242.57	18.25
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 650	24	20	33	23	1243.81	17.62
Economic Status	Not Economically Disadvantaged	≥ 190	28	24	30	18	1240.74	16.34
	Economically Disadvantaged	≥ 440	22	19	34	24	1244.99	17.92
EL Status	Not EL	≥ 630	24	20	33	23	1243.82	17.68
	EL	≥ 10	19	25	31	25	1243.69	15.51

Exhibit M-11. Math Grade 6

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 870	25	19	13	43	1244.81	16.06
Gender	Male	≥ 550	24	20	14	42	1244.99	16.32
	Female	≥ 310	27	17	12	44	1244.49	15.62
Ethnicity	Hispanic/Latino	≥ 60	27	22	17	35	1241.70	14.26
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	36	18	≤ 5	45	1245.64	26.52
	Black or African American	≥ 520	26	18	14	43	1245.48	16.60
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 250	23	22	12	43	1244.22	14.95
	Two or more races	≥ 10	27	27	7	40	1242.93	13.82
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 870	25	19	13	43	1244.80	16.07
Economic Status	Not Economically Disadvantaged	≥ 240	25	17	16	41	1244.41	15.78
	Economically Disadvantaged	≥ 580	26	21	11	42	1244.55	16.20
EL Status	Not EL	≥ 830	25	19	13	42	1244.77	16.15
	EL	≥30	14	25	14	47	1245.86	14.02

Exhibit M-12. Math Grade 7

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 940	12	14	37	37	1251.71	18.61
Gender	Male	≥ 620	11	14	37	38	1252.00	18.44
	Female	≥ 320	14	15	37	34	1251.13	18.95
Ethnicity	Hispanic/Latino	≥ 70	8	12	39	41	1254.09	18.97
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	27	18	36	18	1241.64	19.79
	Black or African American	≥ 520	12	14	38	36	1251.19	18.70
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 300	12	15	34	39	1252.39	18.30
	Two or more races	≥ 20	10	10	48	33	1251.14	18.33
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 940	12	14	37	37	1251.71	18.61
Economic Status	Not Economically Disadvantaged	≥ 270	13	14	39	34	1250.23	17.41
	Economically Disadvantaged	≥ 630	12	14	36	38	1252.31	19.14
EL Status	Not EL	≥ 910	12	14	37	37	1251.45	18.52
	EL	≥ 20	≤ 5	11	37	48	1260.30	19.78

Exhibit M-13. Math Grade 8

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 1050	19	15	20	47	1253.49	23.71
Gender	Male	≥ 670	17	15	20	48	1254.51	23.50
	Female	≥ 370	22	16	19	44	1251.62	24.02
Ethnicity	Hispanic/Latino	≥ 60	20	15	11	54	1255.72	25.76
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	20	33	27	20	1244.07	20.58
	Black or African American	≥ 620	19	16	19	47	1253.50	23.65
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 330	19	13	22	46	1253.51	23.66
	Two or more races	≥ 10	16	11	32	42	1254.58	21.74
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 1050	19	15	20	46	1253.45	23.70
Economic Status	Not Economically Disadvantaged	≥ 300	21	17	18	45	1251.94	24.32
	Economically Disadvantaged	≥ 710	18	15	20	48	1254.26	23.55
EL Status	Not EL	≥ 1010	19	15	20	46	1253.33	23.66
	EL	≥ 30	19	6	16	59	1258.47	25.42

Exhibit M-14. Math High School

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 1000	21	23	21	35	1245.36	18.08
Gender	Male	≥ 650	23	24	19	35	1245.22	18.08
	Female	≥ 340	19	23	23	35	1245.61	18.09
Ethnicity	Hispanic/Latino	≥ 50	23	25	25	27	1241.52	14.24
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	13	19	19	50	1250.50	19.15
	Black or African American	≥ 590	23	21	22	35	1244.49	17.55
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 320	18	27	19	36	1247.22	19.37
	Two or more races	≥ 10	24	18	6	53	1248.12	17.99
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 1000	21	23	21	35	1245.36	18.08
Economic Status	Not Economically Disadvantaged	≥ 280	20	26	20	34	1244.60	16.69
	Economically Disadvantaged	≥ 580	20	22	22	36	1246.50	18.58
EL Status	Not EL	≥ 980	21	23	21	35	1245.45	18.16
	EL	≥ 20	30	17	22	30	1241.39	13.82

Exhibit M-15. Science Grade 4

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 670	17	36	11	36	1240.45	11.61
Gender	Male	≥ 450	16	37	10	37	1240.88	11.58
	Female	≥ 210	21	32	14	33	1239.56	11.67
Ethnicity	Hispanic/Latino	≥ 50	27	37	8	27	1238.45	10.04
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	17	25	33	25	1238.67	12.28
	Black or African American	≥ 360	16	34	12	37	1241.09	11.59
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 220	17	38	10	35	1240.00	12.07
	Two or more races	≥ 10	13	47	≤ 5	40	1240.87	10.04
Migrant Status	Migrant							
	Non-migrant	≥ 670	17	36	11	36	1240.45	11.61
Economic Status	Not Economically Disadvantaged	≥ 210	21	37	10	32	1238.37	12.66
	Economically Disadvantaged	≥ 430	16	35	12	37	1241.47	11.04
EL Status	Not EL	≥ 640	17	36	12	35	1240.52	11.72
	EL	≥ 20	19	38	≤ 5	42	1238.62	8.41

Exhibit M-16. Science Grade 8

Category	Group	N	Percent by achievement level				Scale score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 1040	12	22	11	55	1245.32	12.33
Gender	Male	≥ 670	11	21	11	57	1245.86	12.07
	Female	≥ 360	14	24	10	52	1244.34	12.74
Ethnicity	Hispanic/Latino	≥ 60	10	23	13	55	1245.11	12.24
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	20	33	13	33	1240.87	10.27
	Black or African American	≥ 610	13	22	10	55	1245.26	11.76
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 320	11	22	11	56	1245.69	13.21
	Two or more races	≥ 10	21	16	11	53	1246.68	16.47
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 1040	12	22	11	55	1245.32	12.33
Economic Status	Not Economically Disadvantaged	≥ 300	12	25	10	54	1245.11	12.70
	Economically Disadvantaged	≥ 710	13	21	11	56	1245.47	12.25
EL Status	Not EL	≥ 1010	12	22	10	55	1245.32	12.39
	EL	≥ 30	12	12	21	55	1245.58	10.59

Exhibit M-17. Science High School

Category	Group	N	Percent by achievement level				Scale Score	
			Below Goal	Near Goal	At Goal	Above Goal	Mean	SD
Overall	-	≥ 970	16	21	20	43	1243.86	13.13
Gender	Male	≥ 630	17	22	18	43	1243.74	13.45
	Female	≥ 330	14	18	24	44	1244.10	12.51
Ethnicity	Hispanic/Latino	≥ 50	31	14	14	41	1240.33	12.67
	American Indian or Alaska Native	< 10	NR	NR	NR	NR	NR	NR
	Asian	≥ 10	13	19	31	38	1243.44	9.21
	Black or African American	≥ 580	15	24	21	41	1243.29	12.33
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR	NR	NR
	White	≥ 310	15	17	20	47	1245.21	14.39
	Two or more races	≥ 10	12	24	6	59	1250.12	17.09
Migrant Status	Migrant	< 10	NR	NR	NR	NR	NR	NR
	Non-migrant	≥ 970	16	21	20	43	1243.86	13.13
Economic Status	Not Economically Disadvantaged	≥ 280	17	22	21	40	1242.70	12.20
	Economically Disadvantaged	≥ 580	14	20	20	46	1244.79	13.23
EL Status	Not EL	≥ 950	16	21	20	43	1243.95	13.16
	EL	≥ 20	21	29	13	38	1240.42	11.58

Appendix N. Classical Item Analysis Results – Field Test Items

Content area	Grade	Form	N	Min *P*-value	Max *P*-value	Min pb	Max pb	Min omit	Max omit	N of flagged item
ELA	3	3	≥ 410	.44	.73	.18	.30	.00	.01	0
		3NV	≥ 230	.36	.59	.20	.46	.04	.07	0
	4	3	≥ 440	.52	.64	.27	.42	.00	.00	0
		3NV	≥ 220	.31	.50	.23	.38	.04	.06	0
	5	3	≥ 650	.35	.72	.06	.47	.02	.02	2
	6	3	≥ 880	.38	.76	.04	.52	.01	.02	1
	7	3	≥ 950	.57	.66	.30	.46	.01	.02	0
	8	3	≥ 1050	.33	.62	.02	.47	.02	.02	2
	HS	3	≥ 990	.41	.59	.13	.43	.03	.03	0
Math	3	3	≥ 640	.43	.63	.17	.44	.02	.03	1
	4	3	≥ 670	.24	.54	.22	.36	.01	.03	1
	5	3	≥ 650	.36	.55	.20	.44	.01	.02	0
	6	3	≥ 870	.26	.75	.00	.43	.00	.01	3
	7	3	≥ 940	.47	.86	.20	.40	.01	.02	0
	8	3	≥ 1050	.38	.75	.29	.51	.01	.02	0
	HS	3	≥ 1000	.29	.78	.01	.45	.01	.02	1
Science	4	3	≥ 670	.34	.64	.16	.44	.02	.02	2
	8	3	≥ 1040	.43	.76	.27	.47	.01	.02	2
	HS	3	≥ 970	.67	.85	.29	.48	.01	.01	2

Note. HS = high school; pb = point-biserial.

Appendix O. Reliability and Raw Score Summary by Population Categories[9]

Exhibit O-1. ELA Grade 3 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 410	.85	2.87	24.25	7.42
Gender	Male	≥ 290	.84	2.94	24.44	7.34
	Female	≥ 110	.86	2.86	23.77	7.64
Ethnicity	Hispanic/Latino	≥ 20	.79	2.96	21.73	6.47
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	< 10	NR	NR	NR	NR
	Black or African American	≥ 250	.86	2.87	23.99	7.68
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 110	.83	2.84	25.97	6.89
	Two or More Races	≥ 10	.74	2.92	22.43	5.73
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 410	.85	2.88	24.27	7.43
Economic Status	Not Economically Disadvantaged	≥ 90	.84	3.03	22.59	7.58
	Economically Disadvantaged	≥ 280	.85	2.83	25.06	7.31
EL Status	Non-EL	≥ 380	.85	2.86	24.18	7.39
	EL	≥ 20	.88	2.80	25.48	8.08

Note. SEM = standard error of measurement; SD = standard deviation.

[9] Subgroup counts for economic status in tables may not equal the total count at the grade level because economic status data was not available for all students.

Exhibit O-2. ELA Grade 3 Form 3NV

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 230	.86	2.91	17.13	7.77
Gender	Male	≥ 160	.86	2.87	17.45	7.66
	Female	≥ 60	.87	2.91	16.34	8.06
Ethnicity	Hispanic/Latino	≥ 20	.81	2.98	17.18	6.83
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	< 10	NR	NR	NR	NR
	Black or African American	≥ 100	.88	2.78	15.95	8.02
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 80	.84	2.95	18.49	7.38
	Two or More Races	< 10	NR	NR	NR	NR
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 220	.86	2.91	17.17	7.79
Economic Status	Not Economically Disadvantaged	≥ 80	.87	2.90	17.75	8.04
	Economically Disadvantaged	≥ 130	.85	2.89	17.20	7.46
EL Status	Non-EL	≥ 210	.87	2.85	17.13	7.91
	EL	≥ 10	.69	2.64	17.08	4.74

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-3. ELA Grade 4 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 440	.84	2.91	25.09	7.27
Gender	Male	≥ 300	.85	2.87	25.05	7.42
	Female	≥ 140	.82	2.96	25.19	6.97
Ethnicity	Hispanic/Latino	≥ 30	.84	3.03	22.09	7.58
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	< 10	NR	NR	NR	NR
	Black or African American	≥ 270	.85	2.86	25.48	7.39
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 120	.82	2.88	25.10	6.79
	Two or More Races	< 10	NR	NR	NR	NR
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 440	.84	2.91	25.09	7.27
Economic Status	Not Economically Disadvantaged	≥ 100	.84	2.98	24.71	7.45
	Economically Disadvantaged	≥ 320	.84	2.88	25.33	7.20
EL Status	Non-EL	≥ 420	.84	2.92	25.20	7.29
	EL	≥ 20	.78	3.11	22.85	6.64

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-4. ELA Grade 4 Form 3NV

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 220	.85	2.94	17.15	7.59
Gender	Male	≥ 140	.82	3.00	17.26	7.06
	Female	≥ 70	.88	2.97	16.95	8.58
Ethnicity	Hispanic/Latino	≥ 20	.71	3.00	15.70	5.57
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	< 10	NR	NR	NR	NR
	Black or African American	≥ 90	.86	2.87	16.53	7.66
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 100	.86	2.93	17.98	7.82
	Two or More Races	< 10	NR	NR	NR	NR
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 220	.85	2.94	17.15	7.59
Economic Status	Not Economically Disadvantaged	≥ 100	.86	3.07	17.66	8.21
	Economically Disadvantaged	≥ 110	.83	2.90	16.71	7.03
EL Status	Non-EL	≥ 210	.85	2.96	17.14	7.64
	EL	< 10	NR	NR	NR	NR

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-5. ELA Grade 5 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 650	.85	3.01	23.25	7.77
Gender	Male	≥ 440	.85	3.01	23.41	7.77
	Female	≥ 210	.85	3.01	22.90	7.78
Ethnicity	Hispanic/Latino	≥ 50	.85	2.97	21.69	7.66
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.26	3.11	19.27	3.61
	Black or African American	≥ 360	.84	3	24.61	7.51
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 190	.86	2.97	21.73	7.93
	Two or More Races	≥ 20	.86	3.08	20.32	8.23
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 650	.85	3.01	23.25	7.77
Economic Status	Not Economically Disadvantaged	≥ 190	.86	2.95	21.69	7.89
	Economically Disadvantaged	≥ 440	.84	3.04	23.87	7.59
EL Status	Non-EL	≥ 630	.85	3.01	23.32	7.78
	EL	≥ 10	.82	3.11	20.50	7.32

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-6. ELA Grade 6 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 880	.88	2.88	26.38	8.32
Gender	Male	≥ 560	.88	2.84	26.52	8.19
	Female	≥ 310	.89	2.84	26.12	8.56
Ethnicity	Hispanic/Latino	≥ 60	.87	2.87	25.80	7.97
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.93	2.92	23.55	11.03
	Black or African American	≥ 520	.87	2.78	27.17	7.70
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 260	.90	2.91	25.04	9.20
	Two or More Races	≥ 10	.92	2.78	26.19	9.83
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 880	.88	2.89	26.38	8.33
Economic Status	Not Economically Disadvantaged	≥ 250	.88	2.89	25.47	8.33
	Economically Disadvantaged	≥ 590	.89	2.79	26.49	8.40
EL Status	Non-EL	≥ 840	.89	2.78	26.33	8.37
	EL	≥ 30	.84	2.80	27.36	6.99

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-7. ELA Grade 7 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 950	.87	2.84	26.38	8.32
Gender	Male	≥ 630	.87	2.88	26.17	7.99
	Female	≥ 320	.87	2.75	26.85	7.62
Ethnicity	Hispanic/Latino	≥ 70	.91	2.64	26.01	8.80
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.86	3.09	22.45	8.27
	Black or African American	≥ 530	.87	2.79	26.47	7.75
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 300	.87	2.82	26.64	7.82
	Two or More Races	≥ 20	.87	2.91	24.71	8.07
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 950	.87	2.84	26.40	7.87
Economic Status	Not Economically Disadvantaged	≥ 270	.87	2.87	25.16	7.96
	Economically Disadvantaged	≥ 640	.87	2.83	26.91	7.85
EL Status	Non-EL	≥ 920	.87	2.85	26.32	7.90
	EL	≥ 20	.85	2.45	29.15	6.33

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-8. ELA Grade 8 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw mean	SD
Overall	-	≥ 1050	.88	2.70	26.35	7.78
Gender	Male	≥ 680	.87	2.78	26.49	7.71
	Female	≥ 370	.88	2.75	26.07	7.93
Ethnicity	Hispanic/Latino	≥ 60	.90	2.77	25.71	8.77
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.83	2.89	22.00	7.02
	Black or African American	≥ 620	.86	2.74	26.86	7.32
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 330	.89	2.75	25.91	8.28
	Two or More Races	≥ 10	.89	2.89	24.47	8.70
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 1050	.88	2.70	26.34	7.79
Economic Status	Not Economically Disadvantaged	≥ 310	.89	2.83	25.10	8.54
	Economically Disadvantaged	≥ 710	.87	2.68	26.93	7.43
EL Status	Non-EL	≥ 1020	.87	2.81	26.29	7.78
	EL	≥ 30	.89	2.62	28.06	7.91

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-9. ELA High School Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 990	.86	2.75	25.93	7.36
Gender	Male	≥ 640	.86	2.75	25.63	7.34
	Female	≥ 340	.87	2.66	26.51	7.38
Ethnicity	Hispanic/Latino	≥ 50	.82	2.89	24.13	6.81
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.92	2.54	23.12	8.99
	Black or African American	≥ 580	.86	2.74	25.90	7.31
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 310	.87	2.67	26.30	7.41
	Two or More Races	≥ 10	.88	2.56	28.76	7.40
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 990	.86	2.75	25.93	7.36
Economic Status	Not Economically Disadvantaged	≥ 280	.84	2.75	25.85	6.88
	Economically Disadvantaged	≥ 580	.85	2.70	26.73	6.96
EL Status	Non-EL	≥ 960	.86	2.76	25.98	7.37
	EL	≥ 20	.82	2.89	24.00	6.82

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-10. Math Grade 3 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 640	.87	2.65	19.32	7.35
Gender	Male	≥ 450	.88	2.57	19.66	7.41
	Female	≥ 180	.86	2.68	18.47	7.16
Ethnicity	Hispanic/Latino	≥ 50	.87	2.68	17.70	7.42
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	< 10	NR	NR	NR	NR
	Black or African American	≥ 350	.87	2.62	19.63	7.28
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 200	.88	2.58	19.37	7.44
	Two or More Races	≥ 20	.83	2.77	19.67	6.71
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 630	.87	2.65	19.35	7.36
Economic Status	Not Economically Disadvantaged	≥ 180	.88	2.62	18.38	7.57
	Economically Disadvantaged	≥ 410	.86	2.63	20.06	7.04
EL Status	Non-EL	≥ 600	.87	2.62	19.26	7.26
	EL	≥ 30	.92	2.46	20.31	8.68

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-11. Math Grade 4 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 670	.85	2.64	18.33	6.81
Gender	Male	≥ 450	.85	2.64	18.42	6.81
	Female	≥ 210	.85	2.64	18.13	6.81
Ethnicity	Hispanic/Latino	≥ 50	.85	2.70	16.94	6.97
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.81	2.73	17.33	6.27
	Black or African American	≥ 360	.85	2.70	18.80	6.96
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 220	.84	2.66	17.87	6.65
	Two or More Races	≥ 10	.73	2.76	19.13	5.32
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 670	.85	2.64	18.33	6.81
Economic Status	Not Economically Disadvantaged	≥ 210	.85	2.65	17.62	6.83
	Economically Disadvantaged	≥ 430	.85	2.63	18.67	6.80
EL Status	Non-EL	≥ 640	.85	2.67	18.36	6.89
	EL	≥ 20	.56	2.77	17.50	4.18

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-12. Math Grade 5 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 650	.81	2.67	17.97	6.13
Gender	Male	≥ 440	.81	2.69	18.10	6.17
	Female	≥ 210	.80	2.70	17.70	6.03
Ethnicity	Hispanic/Latino	≥ 50	.77	2.74	17.67	5.71
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.68	2.88	17.09	5.09
	Black or African American	≥ 360	.81	2.71	18.69	6.22
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 190	.80	2.68	16.84	5.99
	Two or More Races	≥ 20	.80	2.68	17.43	6.00
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 650	.81	2.67	17.97	6.13
Economic Status	Not Economically Disadvantaged	≥ 190	.78	2.71	16.92	5.78
	Economically Disadvantaged	≥ 440	.81	2.69	18.38	6.18
EL Status	Non-EL	≥ 630	.81	2.68	17.97	6.14
	EL	≥ 10	.74	2.82	18.00	5.54

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-13. Math Grade 6 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 870	.88	2.54	21.97	7.34
Gender	Male	≥ 550	.88	2.55	22.02	7.36
	Female	≥ 310	.88	2.54	21.87	7.32
Ethnicity	Hispanic/Latino	≥ 60	.84	2.64	20.57	6.59
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.95	2.38	21.27	10.64
	Black or African American	≥ 520	.89	2.49	22.20	7.50
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 250	.87	2.55	21.87	7.06
	Two or More Races	≥ 10	.86	2.68	21.33	7.16
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 870	.88	2.54	21.97	7.34
Economic Status	Not Economically Disadvantaged	≥ 240	.87	2.59	21.86	7.19
	Economically Disadvantaged	≥ 580	.88	2.58	21.80	7.44
EL Status	Non-EL	≥ 830	.88	2.56	21.94	7.38
	EL	≥ 30	.84	2.56	22.75	6.39

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-14. Math Grade 7 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 940	.86	2.58	20.68	6.89
Gender	Male	≥ 620	.86	2.56	20.79	6.84
	Female	≥ 320	.87	2.52	20.45	6.98
Ethnicity	Hispanic/Latino	≥ 70	.86	2.56	21.56	6.84
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.88	2.61	16.91	7.52
	Black or African American	≥ 520	.86	2.59	20.47	6.93
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 300	.86	2.54	20.96	6.80
	Two or More Races	≥ 20	.86	2.55	20.48	6.81
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 940	.86	2.58	20.68	6.89
Economic Status	Not Economically Disadvantaged	≥ 270	.84	2.64	20.16	6.59
	Economically Disadvantaged	≥ 630	.87	2.54	20.89	7.04
EL Status	Non-EL	≥ 910	.86	2.57	20.59	6.88
	EL	≥ 20	.88	2.37	23.59	6.84

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-15. Math Grade 8 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 1050	.88	2.61	20.82	7.52
Gender	Male	≥ 670	.88	2.58	21.17	7.46
	Female	≥ 370	.88	2.64	20.19	7.61
Ethnicity	Hispanic/Latino	≥ 60	.90	2.49	21.43	7.87
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.83	2.76	18.00	6.70
	Black or African American	≥ 620	.88	2.60	20.83	7.50
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 330	.89	2.51	20.84	7.58
	Two or More Races	≥ 10	.85	2.60	21.11	6.72
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 1050	.88	2.61	20.82	7.52
Economic Status	Not Economically Disadvantaged	≥ 300	.89	2.59	20.29	7.82
	Economically Disadvantaged	≥ 710	.88	2.57	21.08	7.42
EL Status	Non-EL	≥ 1010	.88	2.60	20.78	7.51
	EL	≥ 30	.90	2.50	22.34	7.91

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-16. Math High School Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 1000	.87	2.59	20.66	7.17
Gender	Male	≥ 650	.87	2.61	20.61	7.23
	Female	≥ 340	.87	2.56	20.76	7.09
Ethnicity	Hispanic/Latino	≥ 50	.83	2.67	19.38	6.47
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.89	2.47	22.75	7.46
	Black or African American	≥ 590	.87	2.57	20.38	7.13
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 320	.88	2.53	21.25	7.31
	Two or More Races	≥ 10	.89	2.51	21.94	7.58
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 1000	.87	2.59	20.66	7.17
Economic Status	Not Economically Disadvantaged	≥ 280	.85	2.61	20.46	6.74
	Economically Disadvantaged	≥ 580	.88	2.52	21.09	7.28
EL Status	Non-EL	≥ 980	.87	2.59	20.69	7.19
	EL	≥ 20	.82	2.68	19.30	6.32

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-17. Science Grade 4 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 670	.79	2.52	16.39	5.49
Gender	Male	≥ 450	.79	2.50	16.59	5.45
	Female	≥ 210	.80	2.49	15.98	5.56
Ethnicity	Hispanic/Latino	≥ 50	.75	2.54	15.20	5.08
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.82	2.43	15.83	5.72
	Black or African American	≥ 360	.80	2.46	16.71	5.50
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 220	.80	2.48	16.19	5.55
	Two or More Races	≥ 10	.75	2.61	16.60	5.22
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 670	.79	2.52	16.39	5.49
Economic Status	Not Economically Disadvantaged	≥ 210	.82	2.47	15.53	5.83
	Economically Disadvantaged	≥ 430	.78	2.49	16.81	5.30
EL Status	Non-EL	≥ 640	.80	2.47	16.43	5.52
	EL	≥ 20	.69	2.52	15.46	4.53

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-18. Science Grade 8 Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 1040	.81	2.35	18.90	5.38
Gender	Male	≥ 670	.80	2.34	19.14	5.23
	Female	≥ 360	.83	2.32	18.47	5.63
Ethnicity	Hispanic/Latino	≥ 60	.81	2.38	18.85	5.45
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.74	2.42	16.80	4.75
	Black or African American	≥ 610	.80	2.35	18.91	5.26
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 320	.83	2.30	19.02	5.57
	Two or More Races	≥ 10	.86	2.34	18.89	6.26
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 1040	.81	2.35	18.90	5.38
Economic Status	Not Economically Disadvantaged	≥ 300	.82	2.34	18.79	5.51
	Economically Disadvantaged	≥ 710	.81	2.33	18.97	5.35
EL Status	Non-EL	≥ 1010	.81	2.35	18.90	5.40
	EL	≥ 30	.77	2.36	19.12	4.92

Note. SEM = standard error of measurement; SD = standard deviation.

Exhibit O-19. Science High School Form 3

Category	Group	N	Cronbach's Alpha	SEM	Raw score mean	SD
Overall	-	≥ 970	.81	2.38	18.39	5.46
Gender	Male	≥ 630	.82	2.37	18.29	5.58
	Female	≥ 330	.80	2.34	18.57	5.23
Ethnicity	Hispanic/Latino	≥ 50	.82	2.43	16.92	5.73
	American Indian or AK Native	< 10	NR	NR	NR	NR
	Asian	≥ 10	.64	2.49	18.44	4.15
	Black or African American	≥ 580	.79	2.40	18.20	5.23
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR	NR	NR
	White	≥ 310	.84	2.31	18.87	5.78
	Two or More Races	≥ 10	.89	2.21	20.53	6.66
Migrant Status	Migrant	< 10	NR	NR	NR	NR
	Non-migrant	≥ 970	.81	2.38	18.39	5.46
Economic Status	Not Economically Disadvantaged	≥ 280	.79	2.41	17.97	5.25
	Economically Disadvantaged	≥ 580	.81	2.36	18.75	5.41
EL Status	Non-EL	≥ 950	.81	2.38	18.42	5.46
	EL	≥ 20	.78	2.47	17.04	5.26

Note. SEM = standard error of measurement; SD = standard deviation.

Appendix P. Correlations between Student Scale Scores and Teacher Evaluation by Student Group

Subgroup counts for economic status in tables may not equal the total count at the grade level because economic status data was not available for all students. Only groups having at least 15 students were kept for analysis.

Exhibit P-1. ELA Grade 3

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 630	.41	.67
Gender	Male	≥ 450	.40	.63
	Female	≥ 170	.43	.75
Ethnicity	Hispanic/Latino	≥ 40	.29	.64
	American Indian or AK Native	< 10	NR	NR
	Asian	< 10	NR	NR
	Black or African American	≥ 350	.44	.67
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 200	.36	.66
	Two or More Races	≥ 20	.57	.55
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 620	.41	.66
Economic Status	Not Economically Disadvantaged	≥ 170	.44	.68
	Economically Disadvantaged	≥ 400	.39	.66
EL Status	Non-EL	≥ 590	.40	.66
	EL	≥ 30	.59	.77

Exhibit P-2. ELA Grade 4

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 650	.49	.67
Gender	Male	≥ 430	.50	.69
	Female	≥ 210	.48	.61
Ethnicity	Hispanic/Latino	≥ 40	.45	.57
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 350	.47	.63
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 210	.49	.74
	Two or More Races	≥ 10	.79	.76
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 650	.49	.67
Economic Status	Not Economically Disadvantaged	≥ 210	.51	.70
	Economically Disadvantaged	≥ 420	.48	.64
EL Status	Non-EL	≥ 620	.50	.67
	EL	≥ 20	.43	.52

Exhibit P-3. ELA Grade 5

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 620	.49	.65
Gender	Male	≥ 420	.47	.65
	Female	≥ 190	.54	.66
Ethnicity	Hispanic/Latino	≥ 40	.34	.62
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 350	.51	.64
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 190	.45	.64
	Two or More Races	≥ 20	.51	.76
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 620	.49	.65
Economic Status	Not Economically Disadvantaged	≥ 180	.46	.61
	Economically Disadvantaged	≥ 420	.48	.66
EL Status	Non-EL	≥ 610	.50	.65
	EL	≥ 10	NR	NR

Exhibit P-4. ELA Grade 6

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 860	.45	.62
Gender	Male	≥ 550	.46	.60
	Female	≥ 310	.44	.66
Ethnicity	Hispanic/Latino	≥ 50	.42	.40
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 510	.45	.64
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 260	.49	.62
	Two or More Races	≥ 10	.38	.8
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 860	.45	.62
Economic Status	Not Economically Disadvantaged	≥ 240	.42	.63
	Economically Disadvantaged	≥ 580	.45	.62
EL Status	Non-EL	≥ 830	.45	.62
	EL	≥ 30	.55	.61

Exhibit P-5. ELA Grade 7

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 930	.41	.57
Gender	Male	≥ 620	.40	.57
	Female	≥ 310	.44	.58
Ethnicity	Hispanic/Latino	≥ 70	.45	.57
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 520	.43	.58
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 300	.39	.57
	Two or More Races	≥ 20	.40	.52
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 930	.41	.57
Economic Status	Not Economically Disadvantaged	≥ 270	.43	.58
	Economically Disadvantaged	≥ 630	.40	.57
EL Status	Non-EL	≥ 910	.42	.58
	EL	≥ 20	.19	.22

Exhibit P-6. ELA Grade 8

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 1040	.52	.67
Gender	Male	≥ 670	.51	.66
	Female	≥ 360	.55	.67
Ethnicity	Hispanic/Latino	≥ 60	.61	.69
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	.27	.74
	Black or African American	≥ 610	.52	.66
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 320	.53	.69
	Two or More Races	≥ 10	.39	.59
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 1040	.52	.67
Economic Status	Not Economically Disadvantaged	≥ 300	.54	.70
	Economically Disadvantaged	≥ 700	.51	.65
EL Status	Non-EL	≥ 1010	.52	.67
	EL	≥ 30	.68	.65

Exhibit P-7. ELA High School

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 930	.54	.59
Gender	Male	≥ 600	.56	.58
	Female	≥ 320	.51	.59
Ethnicity	Hispanic/Latino	≥ 40	.50	.60
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	.28	.57
	Black or African American	≥ 540	.49	.55
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 300	.66	.66
	Two or More Races	≥ 10	.37	.34
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 930	.54	.59
Economic Status	Not Economically Disadvantaged	≥ 270	.53	.61
	Economically Disadvantaged	≥ 560	.53	.55
EL Status	Non-EL	≥ 910	.54	.58
	EL	≥ 20	.58	.66

Exhibit P-8. Math Grade 3

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 620	.47	.64
Gender	Male	≥ 440	.46	.63
	Female	≥ 170	.48	.66
Ethnicity	Hispanic/Latino	≥ 40	.40	.49
	American Indian or AK Native	< 10	NR	NR
	Asian	< 10	NR	NR
	Black or African American	≥ 340	.49	.68
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 200	.48	.62
	Two or More Races	≥ 20	.18	.45
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 620	.47	.65
Economic Status	Not Economically Disadvantaged	≥ 170	.48	.63
	Economically Disadvantaged	≥ 390	.45	.63
EL Status	Non-EL	≥ 580	.45	.63
	EL	≥ 30	.70	.83

Exhibit P-9. Math Grade 4

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 650	.44	.61
Gender	Male	≥ 430	.45	.61
	Female	≥ 210	.41	.63
Ethnicity	Hispanic/Latino	≥ 40	.58	.63
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 350	.41	.59
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 210	.46	.64
	Two or More Races	≥ 10	.61	.73
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 650	.44	.61
Economic Status	Not Economically Disadvantaged	≥ 200	.44	.62
	Economically Disadvantaged	≥ 420	.43	.61

EL Status	Non-EL	≥ 620	.45	.62
	EL	≥ 20	.28	.30

Exhibit P-10. Math Grade 5

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 620	.50	.63
Gender	Male	≥ 420	.47	.62
	Female	≥ 190	.56	.66
Ethnicity	Hispanic/Latino	≥ 40	.41	.46
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 350	.52	.65
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 190	.47	.61
	Two or More Races	≥ 10	.60	.84
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 620	.50	.63
Economic Status	Not Economically Disadvantaged	≥ 180	.48	.61
	Economically Disadvantaged	≥ 420	.50	.63
EL Status	Non-EL	≥ 610	.50	.63
	EL	≥ 10	NR	NR

Exhibit P-11. Math Grade 6

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 850	.48	.61
Gender	Male	≥ 540	.51	.61
	Female	≥ 310	.43	.61
Ethnicity	Hispanic/Latino	≥ 50	.39	.46
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 510	.50	.67
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 250	.46	.51
	Two or More Races	≥ 10	.67	.72
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 850	.48	.61
	Not Economically Disadvantaged	≥ 240	.45	.59

Economic Status	Economically Disadvantaged	≥ 570	.48	.62
EL Status	Non-EL	≥ 820	.47	.61
	EL	≥ 30	.61	.68

Exhibit P-12. Math Grade 7

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 920	.41	.55
Gender	Male	≥ 610	.42	.56
	Female	≥ 310	.39	.52
Ethnicity	Hispanic/Latino	≥ 70	.27	.46
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 520	.42	.53
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 290	.43	.58
	Two or More Races	≥ 20	.33	.56
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 920	.41	.55
Economic Status	Not Economically Disadvantaged	≥ 260	.37	.48
	Economically Disadvantaged	≥ 620	.43	.58
EL Status	Non-EL	≥ 890	.41	.55
	EL	≥ 20	.42	.40

Exhibit P-13. Math Grade 8

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 1030	.53	.64
Gender	Male	≥ 660	.54	.65
	Female	≥ 360	.52	.63
Ethnicity	Hispanic/Latino	≥ 60	.73	.71
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 600	.49	.61
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 320	.58	.69
	Two or More Races	≥ 10	.66	.48

Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 1020	.54	.64
Economic Status	Not Economically Disadvantaged	≥ 300	.60	.67
	Economically Disadvantaged	≥ 690	.50	.63
EL Status	Non-EL	≥ 990	.53	.64
	EL	≥ 30	.69	.62

Exhibit P-14. Math High School

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 920	.47	.52
Gender	Male	≥ 590	.48	.53
	Female	≥ 320	.46	.49
Ethnicity	Hispanic/Latino	≥ 40	.55	.56
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	.40	.39
	Black or African American	≥ 530	.38	.47
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 300	.60	.60
	Two or More Races	≥ 10	.52	.42
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 920	.47	.52
Economic Status	Not Economically Disadvantaged	≥ 270	.46	.53
	Economically Disadvantaged	≥ 550	.46	.52
EL Status	Non-EL	≥ 890	.47	.53
	EL	≥ 20	.36	.22

Exhibit P-15. Science Grade 4

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 640	.40	.59
Gender	Male	≥ 430	.39	.57
	Female	≥ 210	.42	.62
Ethnicity	Hispanic/Latino	≥ 40	.25	.46
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 350	.38	.56
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 210	.43	.65

	Two or More Races	≥ 10	.38	.53
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 640	.40	.59
Economic Status	Not Economically Disadvantaged	≥ 210	.38	.58
	Economically Disadvantaged	≥ 410	.39	.59
EL Status	Non-EL	≥ 620	.41	.59
	EL	≥ 20	.16	.42

Exhibit P-16. Science Grade 8

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 1020	.49	.61
Gender	Male	≥ 660	.49	.59
	Female	≥ 360	.49	.63
Ethnicity	Hispanic/Latino	≥ 60	.58	.65
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	NR	NR
	Black or African American	≥ 600	.48	.58
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR
	White	≥ 320	.50	.64
	Two or More Races	≥ 10	.45	.70
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 1020	.49	.61
Economic Status	Not Economically Disadvantaged	≥ 290	.51	.64
	Economically Disadvantaged	≥ 690	.47	.59
EL Status	Non-EL	≥990	.49	.61
	EL	≥ 30	.44	.47

Exhibit P-17. Science High School

Category	Group	N	Scale score and knowledge & skills	Scale score and anticipated achievement
Overall	-	≥ 930	.52	.57
Gender	Male	≥ 610	.56	.61
	Female	≥ 320	.43	.49
Ethnicity	Hispanic/Latino	≥ 40	.48	.51
	American Indian or AK Native	< 10	NR	NR
	Asian	≥ 10	.34	.36
	Black or African American	≥ 550	.46	.53
	Native Hawaiian or Other Pacific Islander	< 10	NR	NR

	White	≥ 300	.62	.65
	Two or More Races	≥ 10	.67	.55
Migrant Status	Migrant	< 10	NR	NR
	Non-migrant	≥ 930	.52	.57
Economic Status	Not Economically Disadvantaged	≥ 270	.52	.56
	Economically Disadvantaged	≥ 550	.52	.57
EL Status	Non-EL	≥ 910	.52	.57
	EL	≥ 20	.55	.49