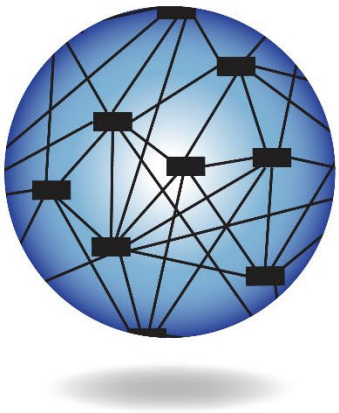

DYNAMIC®
LEARNING MAPS

ACCESSIBILITY BY DESIGN: DYNAMIC LEARNING MAPS ASSESSMENTS APPROACH TO ACCESSIBILITY

Technical Report #26-01

6/10/2026

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EXECUTIVE SUMMARY

Dynamic Learning Maps® (DLM®) alternate assessments measure the knowledge, skills, and understandings of students with the most significant cognitive disabilities in grades 3–8 and high school in English language arts, mathematics, and science. The DLM Alternate Assessment System is grounded in the belief that high academic expectations, combined with appropriate supports and fine-grained reporting, can improve educational experiences and outcomes for these students. We adopt a principle *of accessibility by design*, whereby the assessment system is intentionally designed to account for and remove potential access barriers so that all students, regardless of their disability, can fully demonstrate their knowledge and skills on academic content. This approach is essential to supporting valid inferences from assessment results and ensuring results accurately reflect what students know and can do.

This report describes our approach to accessibility across three main areas or pillars: content structures, assessment development, and assessment administration. We also summarize evidence collected to date in each of these areas; for more information on collected evidence, see the DLM technical manuals (Dynamic Learning Maps [DLM] Consortium, 2017, 2022a, 2022b, 2025c, 2025d, 2025e).

DLM content structures, including the learning maps, Essential Elements, linkage levels, and blueprints, are designed to support all students in having access to grade-level academic content across the breadth of the subject. Learning maps detail how learning develops from foundational concepts to grade-level expectations. Linkage levels identify key points along these pathways and serve as assessment targets providing all students an entry point. Blueprints sample Essential Elements, promoting breadth of coverage and access to the general education curriculum.

Assessment development incorporates accessibility by design drawing from evidence-centered design (ECD; Mislevy et al., 1999) and universal design for learning (UDL; CAST, 2018) principles. Together, these frameworks help guide decisions about what evidence of student learning is elicited and how that evidence can be demonstrated across varied learners. Testlets are intentionally designed as short, coherent collections of items aligned to a single Essential Element and linkage level, anchored by an introductory activity that provides context and supports student engagement with the content. UDL principles—multiple means of engagement, representation, and action and expression—inform testlet structure, item formats, vocabulary selection, and response options, providing students with flexible ways to interact with content and show what they know and can do. Where needed, alternate forms for students who are blind or visually impaired ensure comparable access to content. Item development guidelines further support accessibility by aligning

content, language, and task demands with intended constructs, allowing students with the most significant cognitive disabilities to meaningfully demonstrate their knowledge and skills.

Assessment administration also promotes accessibility for all students through the design of technology, supports, and administration procedures. DLM assessments are delivered through the Kite® Suite, an accessible technology platform designed to be customizable to individual student needs. Educators enter information about students' needs and preferences in the Educator Portal, which is used to activate system-based accessibility supports and guide administration decisions, while students engage with assessments in the Student Portal through an easy-to-navigate interface designed specifically for students with significant cognitive disabilities. Accessibility supports are provided both within the system (e.g., display and audio features) and outside the system through test-administrator actions and materials aligned with students' instructional experiences. Test administrators play a central role in implementing these supports, preparing materials, and ensuring the assessment environment supports student engagement and independence. Educators responsible for administering assessments are provided with documentation, guidelines, checklists, and required training modules that describe appropriate administration practices and the consistent use of accessibility supports so that students can fully demonstrate what they know and can do. Testlet delivery, including both teacher administered and computer delivered, is structured to maintain student accessibility and independence in responding while meeting blueprint requirements. Testlets are assigned according to administration model, either through adaptive testlet assignment or teacher selection of testlets in the Instruction and Assessment Planner to meet blueprint requirements and deliver assessments at linkage levels of appropriate difficulty for each Essential Element.

To date, collected evidence across these three areas supports claims about the accessibility of the DLM assessment system. This evidence contributes to the assessment validity argument supporting inferences made from assessment results, as students are provided meaningful opportunities to demonstrate their knowledge, skills, and understandings while reducing construct-irrelevant access barriers. The DLM Consortium remains committed to continuous improvement through the ongoing collection and analysis of data and feedback from educators, state leaders, and the Technical Advisory Committee. These efforts inform future refinements to the system and support long-term goals of increasing student progress in academic content, strengthening educator instructional decision-making, and enabling students with significant cognitive disabilities to engage with and meet higher academic expectations.

PURPOSE OF REPORT

This purpose of this report is to describe the Dynamic Learning Maps® (DLM®) accessibility-by-design approach and to define what accessibility means within the DLM Alternate Assessment System. DLM assessments are intentionally designed so that students with the most significant cognitive disabilities can demonstrate what they know and can do as independently as possible, regardless of disability, communication mode, behavior, or health needs. DLM is grounded in the belief that these students can learn and show progress on rigorous academic content when assessments are accessibly designed; this report outlines how access is designed for and embedded across content structures, assessment development, the technology platform, and assessment administration, and it summarizes accessibility evidence collected to date for DLM assessments.

BACKGROUND

Alternate assessments based on alternate academic achievement standards (AA-AAAS) are large-scale assessments intended for students with the most significant cognitive disabilities who cannot meaningfully participate in general education assessments even with accommodations. AA-AAAS are designed to measure what students with significant cognitive disabilities know and can do on grade-level academic expectations that are of reduced depth, breadth, and complexity relative to state academic standards. Because results from AA-AAAS are used for high-stakes purposes, accessibility is critical to ensure students can show what they know and can do without interference of construct-irrelevant barriers.

STUDENTS WITH SIGNIFICANT COGNITIVE DISABILITIES

Students with the most significant cognitive disabilities are heterogeneous with respect to their modes of communication, support needs, and demographics. Generally, students who are eligible for participation in AA-AAAS have one or more disabilities that significantly affect their intellectual functioning and adaptive behavior and require substantial supports both in and out of the classroom. These students need extensive, repeated, individualized instruction with ongoing supports and adapted materials to learn, retain, and generalize information to multiple settings (Taub et al., 2017).

Students with significant cognitive disabilities may have disabilities that limit adaptive behaviors, self-regulatory skills, and working memory capacity, which can significantly influence how they engage with academic assessments. Students with significant cognitive disabilities may also have visual impairments, restrictive motor control, and limited or idiosyncratic expressive communication that require specialized technology or equipment (Burnes & Clark, 2021; Karvonen et al., 2023). Some students may not yet communicate

with spoken words, signs, or symbols (Erickson & Karvonen, 2025; Kearns et al., 2011). These conditions necessitate flexibility in administration alongside accessible content and technology that allows them to show what they know and can do in ways consistent with how they demonstrate knowledge and skills during instruction.

FAIRNESS IN THE DESIGN OF LARGE-SCALE ASSESSMENTS

Accessibility is a critical component of fairness. *Assessment fairness* means that all students are assessed on the same construct; the assessment does not advantage or disadvantage some individuals because of construct-irrelevant features such as disability, cultural or linguistic background, socioeconomic status, race, among others; and interpretation of the scores is the same across the intended population (American Educational Research Association [AERA] et al., 2014). Fairness in testing and the validity of inferences made from results hinge on the assumption that all students can access the content and demonstrate their knowledge, skills, and understandings on the assessment items without construct-irrelevant factors affecting their performance (AERA et al., 2014).

Large-scale assessment programs are designed to provide students the opportunity to show what they know, while minimizing the influence of construct-irrelevant factors on assessment results. Historically, large-scale assessment programs have provided accommodations to students with disabilities to address their disability-related characteristics that may interfere with measurement of the intended construct. When assessments are not designed with a broad examinee population in mind (including students with disabilities), accommodations serve to essentially retrofit an assessment experience through individualized exceptions to the rule. This philosophy and approach are problematic from a fairness perspective when stakeholders undermine comparability claims (e.g., flagging or removing accommodated scores from consideration). To accurately reflect students' responses, assessment accommodations must be identified and defined so that students may adequately demonstrate their knowledge (Tindal & Fuchs, 1999). To meet this goal, Individualized Education Program (IEP) teams are typically charged with identifying accommodations according to students' support needs in the context of the assessed construct and students' familiarity with the accommodations used in instruction (Thurlow et al., 2013). Teachers are then responsible for ensuring students can use the accommodations as intended (e.g., ensuring familiarity with tools in a testing platform; Thurlow et al., 2017).

Accessibility and fairness are necessary components of validity. For results to be accurate, students must be able to fully demonstrate their knowledge, skills, understandings without construct-irrelevant features (e.g., related to their disability or communication style)

influencing the results. As such, accessibility, and by extension fairness, must be central to all aspects of test design and delivery.

THE DYNAMIC LEARNING MAPS ALTERNATE ASSESSMENT SYSTEM

The DLM Alternate Assessment System is based on the core belief that all students should have access to challenging, grade-level content (e.g., Kingston et al., 2016). In contrast to a retrofitted, accommodation-by-exception approach to accessibility, the DLM assessment system was designed from the outset to account for how students with significant cognitive disabilities demonstrate what they know and can do.

DLM assessments measure student achievement in English language arts (ELA), mathematics, and science for students with the most significant cognitive disabilities in grades 3–8 and high school. In ELA and mathematics, states choose from either a year-end or an instructionally embedded administration model. Year-end ELA and mathematics, as well as science, make available optional instructionally embedded assessments for use throughout the year; summative scoring is based only on a spring assessment. The instructionally embedded model provides summative results based on all the assessments taken throughout the year. Results from the DLM alternate assessment are intended to support interpretations about what students know and can do relative to grade-level academic expectations and to support inferences about student achievement in the given subject. Results provide information that can guide instructional decisions, as well as information for use in state accountability programs.

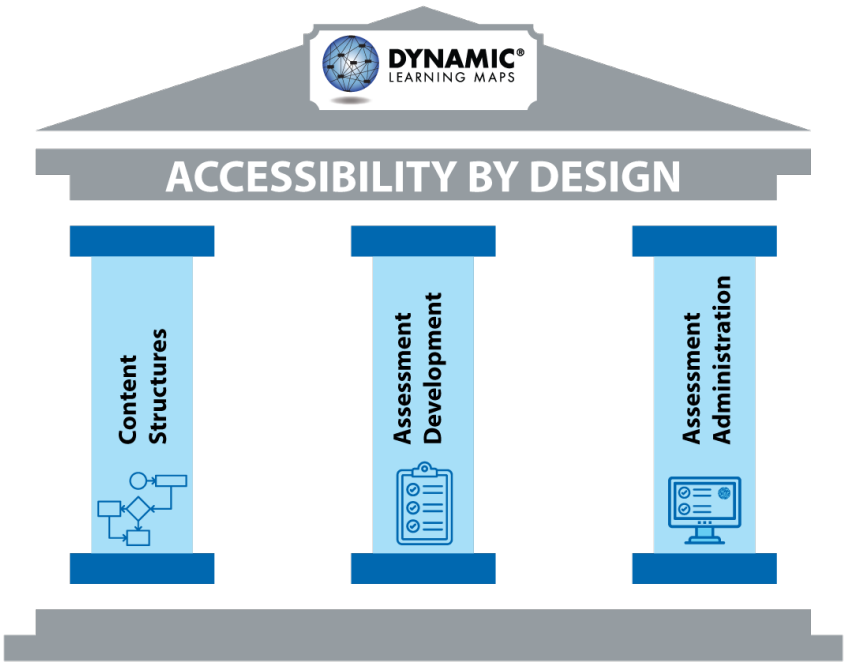
The accessibility philosophy that guides DLM assessments incorporates flexibility to reflect the student's accessibility needs while maintaining access to rigorous academic content. Because accessibility is a key component of validity, it is crucial that the entire system is informed by accessibility considerations throughout all phases of design, development, and administration. Accessibility for the DLM assessment system is prioritized through content structures, assessment development, and administration. In the sections that follow, we provide an overview of accessibility features within these four areas and evidence collected to date to evaluate accessibility.

ACCESSIBILITY APPROACH

This section details the DLM accessibility-by-design approach in three key areas, as shown in Figure 1, including content structures, assessment development, and assessment administration. We also summarize accessibility evidence collected to date. Accessibility is sustained by engaging stakeholders, continually monitoring all components of the assessment system, and making incremental improvements.

Figure 1

Three Pillars of the DLM Accessibility-By-Design Approach



CONTENT STRUCTURES

DLM incorporates accessibility by design in the content structures of the assessment system so that all students have access to rigorous, grade-aligned academic content. DLM content structures include the learning maps, Essential Elements, and linkage levels, which provide all students with access to the general education curriculum. The content structures are discussed further in the sections that follow.

Learning Maps

Learning maps are an essential component of the DLM accessibility-by-design approach. *Learning map models* are highly connected representations of how academic knowledge, skills, and understandings are acquired, which are depicted as nodes in the map, and connections between nodes show the order in which students develop the knowledge, skills, and understandings. Rather than assuming a single linear pathway (e.g., Daro et al., 2011; Heritage, 2008), learning maps extend traditional learning progressions (Swinburne Romine et al., 2025). Maps form a weblike network of connected nodes that reflect the way students learn by building and integrating concepts rather than developing them in isolation.

Learning map nodes span grade-level expectations of the Essential Elements as well as precursors, including the skills and knowledge acquired between birth and school entry

that are foundational for development of students' academic skills. These foundational nodes represent the least complex skills that are precursors to competency development in learning targets associated with grade-level academic expectations and are required across content domains. By intentionally spanning foundational through grade-level academic expectations, learning maps provide access points for students with the most significant cognitive disabilities so that all students can show their knowledge and skills on academic content at varying levels of complexity and cognitive processing (Bechard et al., 2021). This design removes barriers associated with a single point of entry.

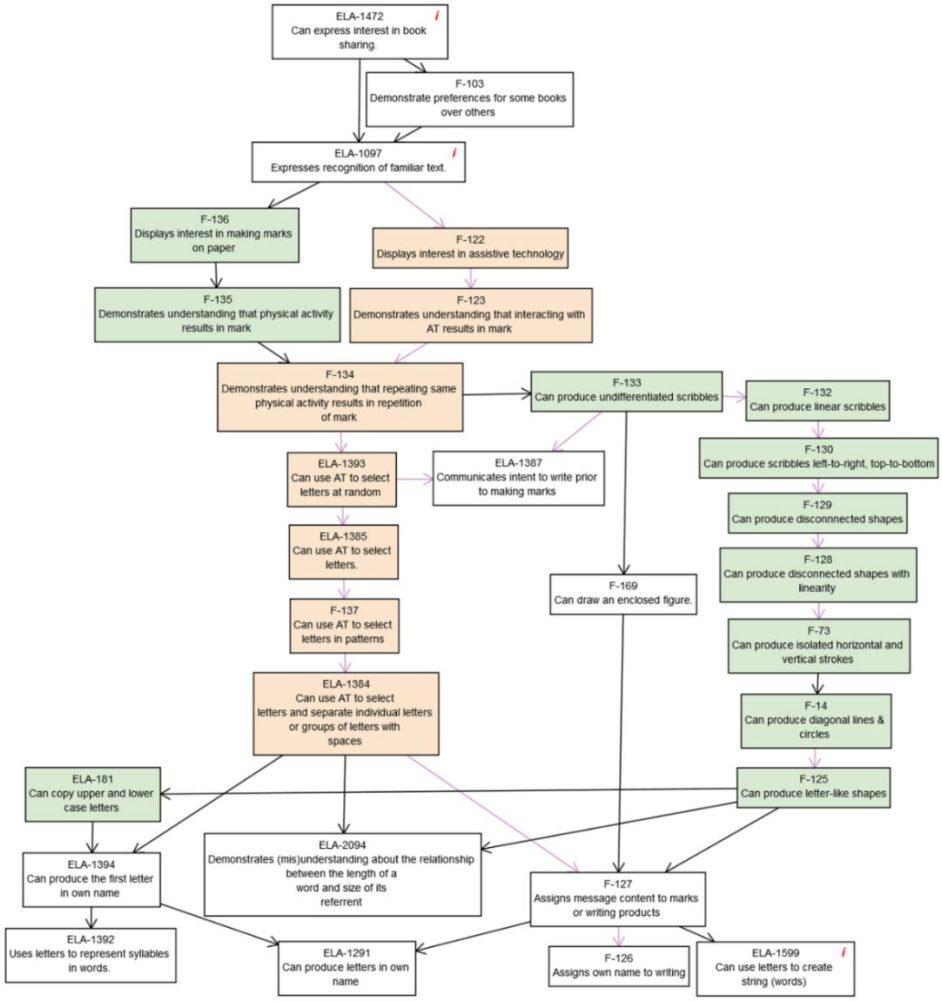
Maps promote access for all students, regardless of disability. Map nodes are written so students can use a variety of means to demonstrate the intended knowledge, skill, or understanding represented in the node. Nodes capture the core knowledge, skill, or understanding without specifying how the student must demonstrate that learning. This approach helps ensure nodes are neither artificially constrained nor dependent on response modality, while preserving the construct being measured.

DLM staff developed the maps using published research on skill acquisition and cognitive development. Further, map developers considered accessibility for students with sensory, mobility, and communication disabilities. For example, an early skill for writing development is drawing scribbles; however, students with limited motor skills may use assistive or alternate technology in acquiring writing skills, requiring additional means of representation and expression to capture their learning process. In the example illustrated in Figure 2, skills in the green boxes indicate the writing-development path for students with typical mobility, while the orange boxes suggest a path for students using assistive technology for writing. The map supports accessibility by removing the dependency on a single capability required for students to demonstrate their skills and knowledge.

Evidence for DLM maps comes from multiple sources. Maps were developed from published research, including studies focused on acquisition of skills for students with the most significant cognitive disabilities. Maps underwent multiple internal and external reviews by subject-matter and population experts. Reviewers evaluated the node ordering, skill granularity, and alignment with grade-level academic expectations (DLM Consortium, 2022). Statistical modeling evidence (e.g., Thompson & Nash, 2022) and external alignment ratings further support the structure of the maps in providing all students with access to grade-level academic content.

Figure 2

Writing Pathways for Students Who Do (Orange) or Do Not (Green) Use Assistive Technology



Essential Elements and Linkage Levels

Essential Elements are the academic learning targets measured by DLM assessments. Essential Elements are grade-specific statements of knowledge and skills derived from state academic-content standards and were constructed so that students with the most significant cognitive disabilities can meaningfully engage with grade-level academic content.

Essential Elements promote accessibility by design by identifying learning targets of appropriate breadth, depth, and complexity relative to state general education content standards, while accounting for the variability in how students with significant cognitive disabilities perceive, process, and express learning. Essential Elements represent high academic expectations that are achievable by students with significant cognitive

disabilities by removing construct-irrelevant demands, such as modality-specific language, motor-dependent actions, or narrowly defined response requirements. Essential Elements promote high expectations for students and access to the general education curriculum by supporting opportunities to learn the breadth of grade-level academic content. The breadth of Essential Elements addresses historical inequities in access to rigorous academic instruction from emphasis on functional curriculum and narrowed scope (e.g., Karvonen et al., 2011). Essential Elements were developed, reviewed, and refined by panels of content experts, special educators, and state representatives with expertise in academic content and students with significant cognitive disabilities to ensure that expectations were appropriate, instructionally meaningful, and accessible for the intended population. Alignment studies provided further evidence that the Essential Elements maintain connections to grade-level general education content standards and with the learning map.

DLM blueprints sample the Essential Elements to provide students with significant cognitive disabilities access to a broad range of rigorous, grade-level academic content. Blueprint Essential Element inclusion criteria sought to balance broad academic access with an appropriate amount of administration time for students with significant cognitive disabilities. Some Essential Elements were excluded from the blueprint to better support accessibility, such as if the Essential Element content relied on specific sensory information (e.g., it would likely provide a barrier to access for students with visual impairments). Blueprints for science and the year-end administration model for ELA and mathematics specify a fixed set of Essential Elements to be assessed. Blueprints for instructionally embedded assessment specify choices within constraints (e.g., choose three Essential Elements from among the Essential Elements available for conceptual area 1.1). This approach was selected to allow students to show their knowledge and skills on content they had meaningful access to during instruction while maintaining broad academic coverage of the domain. Initial drafts of test blueprints were reviewed by DLM partner states and Technical Advisory Committee members.

Accessibility by design is further enacted through linkage levels, which connect the academic expectations in the Essential Elements with the cognitive model of the learning map. *Linkage levels* are small collections of related learning map nodes representing critical junctures in the knowledge and skills needed to achieve the grade-level Essential Element learning target. Each Essential Element has multiple linkage levels so all students can access grade-level academic content. In ELA and mathematics, there are five linkage levels for each Essential Element (Initial Precursor, Distal Precursor, Proximal Precursor, Target, Successor). In science, through spring 2026, there are three linkage levels (Initial, Distal, Target). Beginning in spring 2027, science assessments have four linkage levels

(Initial Precursor, Distal Precursor, Proximal Precursor, Target). The Target linkage level corresponds to the grade-level expectation in the Essential Element. For information on how linkage levels are assigned during assessment administration to ensure students have access to content at the appropriate complexity, see the Assessment Delivery section of this report. Ordering of the linkage levels and their alignment to map nodes was confirmed in external alignment studies by panelists with content and population expertise (DLM Consortium, 2017, 2022a, 2022b) and further evaluated through statistical analyses (Thompson & Nash, 2022).

DLM ASSESSMENT DEVELOPMENT

DLM assessment development applies established principles of universal design for learning (UDL) and evidence-centered design (ECD) throughout the assessment life cycle to ensure that students with the most significant cognitive disabilities can access, engage with, and respond to assessment tasks as intended (Bechard et al., 2019). These principles guide decisions about how assessment constructs are defined, how evidence of learning is elicited, and how barriers unrelated to the construct are avoided. Together, DLM assessment-development practices embed accessibility principles directly into assessment design rather than through retrofitted accommodations, thus supporting equitable opportunities for students to demonstrate what they know and can do.

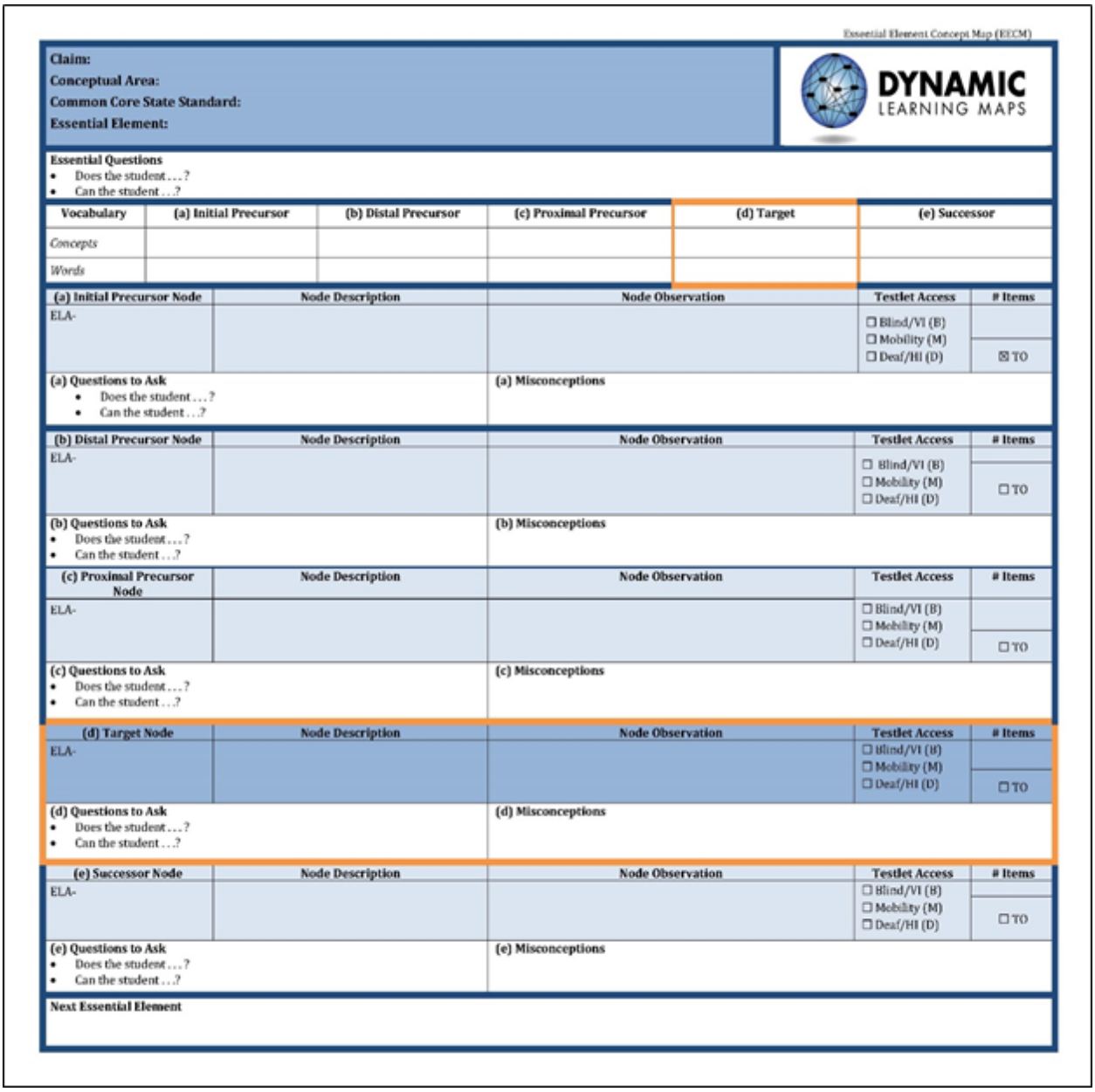
Design Principles

DLM assessment development integrates UDL and ECD as complementary frameworks to embed accessibility by design throughout the construction of testlets and items (Bechard et al., 2019). UDL principles guide the development of assessment content so that students have multiple ways to access information, engage with tasks, and demonstrate knowledge and skills, thereby reducing reliance on any single sensory, motor, or communication modality. ECD further supports accessibility by providing a structured framework for articulating assessment claims, identifying the evidence needed to support valid inferences from results, and designing tasks that elicit student responses clearly, consistently, and in construct-relevant ways.

Test developers use Essential Element Concept Maps and Linkage Level Concept Maps to incorporate ECD and UDL principles into assessment development (Bechard & Sheinker, 2012). These graphic organizers connect the learning map nodes with the content to be evaluated on the assessment (see example in Figure 3). They support development of content-aligned and accessible testlets. Specifications include key concepts and vocabulary, questions to elicit student understanding, common misconceptions, and specific accessibility considerations related to the concepts or task demands, including the potential need for alternate forms for students who are blind or have low vision.

Figure 3

Example Essential Element Concept Map Graphic Organizer



Essential Element Concept Map (EECM)

Claim:
Conceptual Area:
Common Core State Standard:
Essential Element:

DYNAMIC LEARNING MAPS

Essential Questions
- Does the student . . . ?
- Can the student . . . ?

Vocabulary	(a) Initial Precursor	(b) Distal Precursor	(c) Proximal Precursor	(d) Target	(e) Successor
Concepts					
Words					

(a) Initial Precursor Node	Node Description	Node Observation	Testlet Access	# Items
ELA-			☐ Blind/VI (B) ☐ Mobility (M) ☐ Deaf/HI (D)	☒ TO

(a) Questions to Ask
- Does the student . . . ?
- Can the student . . . ?

(a) Misconceptions

(b) Distal Precursor Node	Node Description	Node Observation	Testlet Access	# Items
ELA-			☐ Blind/VI (B) ☐ Mobility (M) ☐ Deaf/HI (D)	☐ TO

(b) Questions to Ask
- Does the student . . . ?
- Can the student . . . ?

(b) Misconceptions

(c) Proximal Precursor Node	Node Description	Node Observation	Testlet Access	# Items
ELA-			☐ Blind/VI (B) ☐ Mobility (M) ☐ Deaf/HI (D)	☐ TO

(c) Questions to Ask
- Does the student . . . ?
- Can the student . . . ?

(c) Misconceptions

(d) Target Node	Node Description	Node Observation	Testlet Access	# Items
ELA-			☐ Blind/VI (B) ☐ Mobility (M) ☐ Deaf/HI (D)	☐ TO

(d) Questions to Ask
- Does the student . . . ?
- Can the student . . . ?

(d) Misconceptions

(e) Successor Node	Node Description	Node Observation	Testlet Access	# Items
ELA-			☐ Blind/VI (B) ☐ Mobility (M) ☐ Deaf/HI (D)	☐ TO

(e) Questions to Ask
- Does the student . . . ?
- Can the student . . . ?

(e) Misconceptions

Next Essential Element

Testlet Design

DLM assessments adopt a testlet-based approach to assessment design. *Testlets* combine a set of three to nine items measuring a single Essential Element and linkage level[1]. This structure reduces cognitive load and administration time, while promoting accessibility by

[1]Writing testlets measure writing Essential Elements together. Current test-development procedures ensure testlets have five items; however, the operational pool contains some testlets with three items.

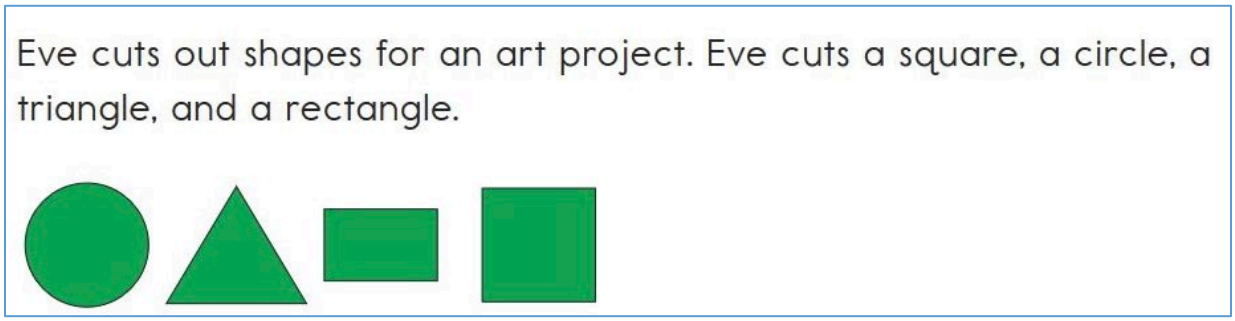
avoiding isolated, decontextualized items on lengthy test forms. Testlets are intended to reflect classroom instructional activities, helping students engage with familiar task structures and reducing construct-irrelevant barriers.

Students complete a series of testlets to achieve blueprint coverage. There are two types of DLM testlets: educator administered and computer delivered. Educator-administered testlets are designed for students who cannot independently interact with the computer interface. Initial Precursor testlets are educator administered to support students who are developing symbolic understanding or who may not yet demonstrate symbolic understanding. Some other linkage levels use teacher-administered testlets where required by the tested nodes. Computer-delivered testlets are designed for students to interact with while using any necessary accessibility supports. For more information on accessibility supports, allowable practices, and test administration, see the Accessibility Supports and Assessment Delivery sections of this report.

Because DLM testlets are designed to reflect classroom instructional activities, items in testlets are delivered with a shared stimulus. In ELA, reading testlets embed questions in a story or text; in mathematics and science, testlets begin with an anchoring scenario or phenomenon (see example in Figure 4). The stimulus is intended to provide relevant context for the questions, promote engagement, and activate prior knowledge.

Figure 4

Example Mathematics Testlet Scenario



For reading testlets, students conduct a first reading of the text as a shared reading activity that familiarizes them and promotes comprehension of the entire text before they respond to scored items. The decision to use paired readings of the same passage in each reading testlet was made in consideration of *cognitive load theory* (Chandler & Sweller, 1991), which promotes decreased memory storage demands of the curriculum to emphasize processing components of the activity. Cognitive processing that is not relevant to the construct being measured should be minimized (Chandler & Sweller, 1991). Students with significant cognitive disabilities should have fewer processing requirements so they can focus on task demands (Schuster & Erickson, 2014; Schuster & Swinburne Romine, 2016).

ELA texts are adapted from or thematically aligned with general education materials to promote equity in educational experiences and are intentionally simplified to reduce linguistic and cognitive barriers. The texts use DLM core vocabulary and simple sentence structures and are generally brief (typically 50–200 words). DLM reading testlets prioritize student engagement with text as the construct being measured. While images and pictures can support student access and engagement with the text and are used throughout story screens in reading testlets, they are not intended to replace or augment the information conveyed through the text itself.

All testlets written for an Essential Element and linkage level are intended to be interchangeable, supporting consistent measurement across students. Development specifications and task templates support test development that is stable across testlets.

Alternate Forms

The DLM accessibility-by-design approach results in limited need for alternate forms. DLM test development began by consulting with educators to inform decisions about supports for students who are blind or have low vision, such as allowing test administrators to input student responses and substituting objects referenced in the testlets with those more appropriate for their students. Where applicable, Testlet Information Pages describe administration supports for students who are blind or have low vision. In some instances, braille and forms for students who are blind or have low vision (BVI) were created when testlets were inaccessible for students who had visual impairments, even when supports such as read aloud or magnification were enabled. For example, an alternate form is necessary for testlets that require students to view video clips, locate objects, or identify object characteristics (e.g., a zipper on a backpack or pockets on a coat). Braille forms are currently available in uncontracted Unified English Braille for ELA and science, and Nemeth for mathematics testlets. Braille testlets are intended for students who are proficient braille readers and use braille during regular instruction; thus, these testlets are available only at higher linkage levels (i.e., for grades 3–5 at the Target and Successor levels and for grades 6 through high school at the Proximal Precursor, Target, and Successor levels). Less than 1% of DLM students use braille, and 2%–3% of students use BVI testlets (DLM Consortium, 2022a, 2022b), further indicating that the accessibility-by-design features embedded in standard DLM testlets support access for most students and minimize the need for alternate forms.

Item Development

Item types include single-select multiple-choice (i.e., answer choices contain one correct response option), multiple-choice multiple-select (i.e., choices contain more than one correct response option), and technology-enhanced items. Technology-enhanced item

types are used sparingly in DLM assessments; they include drag-and-drop, select-text (ELA only), matching, and click-to-place items. Because of the additional cognitive load they can impose, technology-enhanced items are used on a limited basis when the node or linkage level is difficult to assess using a multiple-choice format (e.g., when matching or sorting is required). They are not used for testlets at the Initial Precursor linkage level. Across subjects, most items (97.6%) use the single-select multiple-choice format with either text or images and three response options. This format was selected to reduce cognitive demands on students and optimize physical access for students with fine-motor-skill limitations.

During item writing, accessibility is supported through item-writer guidelines that are based on UDL and use an appropriate vocabulary level (DLM Consortium, 2022a). Item writers have expertise in academic content and the student population. Item-writer training focuses on various topics, including accessibility (e.g., accessible text language, accessible text content). Item writers use various resources when writing testlets, including the Essential Element Concept Maps.

Items and testlets undergo extensive internal and external review, which includes checks for accessibility, content, and bias and sensitivity. ELA texts are also reviewed for text complexity. Panel reviewers have expertise in academic content and the student population. Panelists review items and testlets for instructional relevance and grade-appropriate content; use of clear and accessible language and graphics; and possible construct-irrelevant barriers related to working memory, communication mode, or cognitive demands. To ensure they perform as intended, all testlets are field tested before promotion to the operational pool. External review ratings, item statistics, and other analyses (e.g., Erickson & Karvonen, 2025) provide evidence supporting the accessibility of testlets for the range of students in the population. Cognitive labs and test-administration observations provide additional evidence of the accessibility of items for students with significant cognitive disabilities (Karvonen et al., 2024).

ASSESSMENT ADMINISTRATION

DLM assessment administration encourages variability within intended flexibility. The technology platform was designed to promote accessibility for students with significant cognitive disabilities. Accessibility supports used inside and outside the system allow students to demonstrate their knowledge, skills, and understandings. Test-administrator responsibilities and mechanisms for determining which testlets to administer further promote access for all students. Together, these administration components reduce barriers and promote construct-relevant measurement of student achievement.

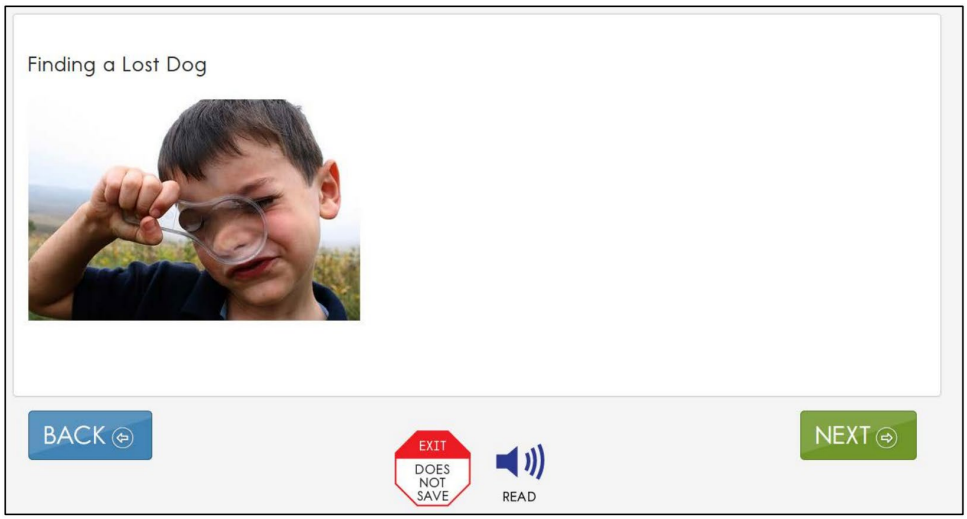
Technology Platform

The DLM Consortium designed the assessment platform to allow students to experience assessment like they experience instruction and learning. DLM assessments use a technology platform called Kite® Suite, and testlets are delivered in the Student Portal of Kite Suite. An example screenshot of the Student Portal interface is provided in Figure 5. The platform was designed to be accessible for students with significant cognitive disabilities. Design features include a simplified interface that maximizes screen space and minimizes the cognitive load related to navigating the test and entering responses. The default font (Report School, a geometric, sans-serif font) and font size (22 pt or 7.7 mm) were selected to support accessibility, because of their common use in communication systems and curricular materials and their alignment with accessibility guidelines (e.g., Information and Communication Technology Standards and Guidelines, 2017). Student Portal uses an delayed timeout period to allow teachers and students to pause for breaks during administration. The platform also features an Exit Does Not Save button, which allows a student to exit and later restart the testlet if they could not engage or respond for any reason. Practice and released testlets are also available in Student Portal to support familiarity with the interface and response modalities. Student Portal is supported on devices running Windows or macOS , Chromebooks, and iPads. Together, these design features reduce cognitive load and support accessible assessment delivery.

Evidence that Student Portal supports accessible assessment administration was collected from item tryout studies, test-administration observations, teacher surveys, and teacher focus groups.

Figure 5

Screenshot of a Testlet in Kite Student Portal



Accessibility Supports

A variety of accessibility supports are available to students inside and outside of the system. Test administrators make selections for each student in the Educator Portal portion of the Kite Suite. Test administrators complete a Personal Needs and Preferences Profile (PNP) before administering testlets and are encouraged to select accessibility supports consistent with those used during instruction. Options include display enhancements, language and braille, audio and environmental supports, and other supports. Some accessibility supports are delivered directly through the Student Portal, such as display enhancements (e.g., contrast color, inverted colors, magnification) and spoken audio (text-to-speech); these are automatically activated during assessment according to selections made in the PNP. Others require test administrators to supply materials or tools, such as calculators, manipulatives, alternate forms for students with visual impairments, or a switch system. Additional supports are provided through test-administrator interaction, including human read aloud, language translation, sign interpretation, partner-assisted scanning, and test-administrator entry of student responses. Sign language can be used as an accessibility support when it does not alter the construct being measured; signing may be used to present directions or content in non-ELA assessments, but it cannot be used to translate or interpret text in ELA reading assessments because doing so would replace students' required engagement with written language. Students may use more than one accessibility support. The most frequently used supports include human read aloud, spoken audio, and test-administrator entry of student responses (DLM Consortium, 2025a, 2025b).

Teachers were surveyed about their perceptions of the accessibility supports available for DLM assessments. Generally, teachers agreed or strongly agreed that students were able to effectively use accessibility supports and that the supports were like those used during instruction. In targeted focus groups, project staff followed up with educators who indicated on the survey that they did not find the supports useful to learn more about potential accessibility gaps for DLM assessments. Findings indicated that educator reasons for disagreeing largely reflected uncertainty about allowable practices or available supports rather than true design gaps and that most of the accessibility challenges in which teachers reported uncertainty were areas addressed in existing manuals (Kobrin et al., 2022). These results indicate opportunities to continue supporting test administrators in their understanding of DLM assessment administration, while also providing evidence that the system is accessible when implemented as intended.

Test-Administrator Responsibilities

Test administrators engage in numerous activities to support accessible assessment administration. Before administering testlets, responsibilities include completing required test-administrator training; becoming familiar with the test-administration and accessibility manuals (DLM Consortium, 2025a, 2025b); coordinating with the student's IEP team as needed to determine the accessibility supports that should be selected for each student; confirming their state's requirements for documenting DLM accessibility supports; and checking the compatibility of students' assistive devices with the Kite Student Portal.

As part of student-specific preparation, test administrators use Educator Portal to complete the PNP profile and First Contact Survey for each student. The First Contact Survey collects information on individual learner characteristics, including special education services, sensory capabilities, motor capabilities and health, computer instruction, communication, language, and academic skills in ELA, mathematics, and science.

After testlets are assigned, test administrators can use Educator Portal to access Testlet Information Pages, which include testlet-specific information about substitute materials, allowable and prohibited accessibility supports (e.g., calculator use), and alternate text with descriptions of images for human read aloud when administering an assessment to students who are blind or have low vision. Test administrators can gather needed materials (e.g., familiar manipulatives) before delivering the testlet.

Evidence that test administrators appropriately administer DLM assessments comes from test-administrator observations and test-administrator think alouds (Karvonen et al., 2024). Teacher survey data also indicate that test administrators feel prepared to deliver assessments and are confident administering testlets.

Assessment Delivery

Both teacher-administered and computer-delivered testlets are delivered in Kite Student Portal.

During teacher-administered testlets, educators engage with the system to deliver the testlet content to the student outside the system and record student responses in the system. The testlets include scripted guidance for administrators and explicit directions for materials and procedures. Computer-delivered testlets are designed for students to directly interact with directly using accessibility supports as indicated on their PNP. Students may interact with the testing engine, or their test administrator may enter their responses on their behalf. About 40% of DLM students can independently use computers (Burnes & Clark, 2021), and slightly more than half of student PNP records have enabled

the support for the test administrator entering responses on the student's behalf (DLM Consortium, 2025a, 2025b). The assessment administrator is responsible for making sure the arrangement of the assessment environment is conducive to supporting the student's independence and interaction with the computer. Assessment administrators are present to monitor students and support them as needed.

When a braille form is indicated in a student's PNP and is available for the Essential Element and linkage level, the system delivers a Braille Ready File in Educator Portal; the assessment administrator downloads the file and has the assessment embossed for the student. The administrator follows along in Student Portal and enters the student's responses as the student indicates them.

Testlet assignment prioritizes meeting blueprint requirements while allowing flexibility in testlet complexity (i.e., the linkage level assessed for each Essential Element) and timing. Teachers determine when testlets are administered within the state testing window. In the year-end model and for science, testlets are assigned *adaptively*. The linkage level for the first assigned testlet is based on each student's First Contact Survey complexity band for the subject, whereby students with a higher complexity band receive a testlet at a higher linkage level[2]. In adaptive testlet assignments, the linkage level of subsequent testlets is determined by the student's percentage of correct responses on the previous testlet. Students can receive a testlet at one linkage level higher, one linkage level lower, or the same linkage level as the previous testlet, depending on the percentage of correct responses. This approach balances assigning content of appropriate complexity for an individual student with ensuring that blueprint requirements and breadth of coverage are met. Instructionally embedded assessments are assigned by the test administrator in Educator Portal using a tool called the Instruction and Assessment Planner. Consistent with the Instructionally Embedded blueprints, educators choose which Essential Elements to administer from among blueprint requirements. They can assign the system-recommended linkage level, which is determined by the First Contact Survey complexity band, or they can choose a different level according to their knowledge of the student and the content covered during instruction.

Evidence from testlet-assignment patterns, modeling parameters, and item statistics in both administration models indicate that students receive testlets at the appropriate linkage level. Data from educator focus groups and teacher surveys also provide evidence that testlets are of appropriate difficulty and available at levels of complexity that provide all students with access to grade-level academic content.

[2]See Chapter 4 of the DLM Technical Manual for more information on the relationship between complexity bands and linkage levels.

CONCLUSION

The Dynamic Learning Maps® (DLM®) assessment system was designed with accessibility as a foundational guiding principle rather than as a retroactive accommodation. Across content structures, assessment development, and assessment administration, accessibility considerations are embedded into the design, implementation, and delivery of the assessment system to support meaningful participation for students with significant cognitive disabilities.

Content structures, including the learning maps, Essential Elements, linkage levels, and blueprints, were developed to organize academic expectations in ways that make grade-level content accessible while preserving high expectations for what students can learn. These structures provide multiple entry points to content, support variability in student learning pathways and modalities, and ensure that assessment targets are instructionally relevant and aligned to standards.

During assessment development, principles of ECD and UDL guided decisions about testlet structure, item formats, and alternate forms. Assessment materials are designed to minimize construct-irrelevant barriers while maintaining fidelity to the intended constructs being measured.

Similarly, assessment administration is designed to support accessibility through a user-friendly technology platform, availability of accessibility supports, clearly defined test-administrator responsibilities, and delivery models that prioritize flexibility within constraints.

Together, the three pillars demonstrate a cohesive, system-level approach to accessibility. By attending to accessibility throughout design, development, and administration, the DLM assessment system supports students in demonstrating what they know and can do, reinforces valid and meaningful interpretations of assessment results, and reflects a commitment to high-quality assessment for students with the most significant cognitive disabilities.

The DLM Consortium is committed to continuous continual improvement of the assessment system. Data are collected annually, alongside input from educators, state leaders, and members of the Technical Advisory Committee, to evaluate how well the system supports diverse learners and to inform ongoing improvement efforts. This iterative process reflects a commitment to ensuring that all students—regardless of disability, health, or mobility constraints—have access to grade-level academic content and can demonstrate their learning.

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