Great Minds PBC + Zearn

Supplemental English Mathematics, 4

Math Catalyst Texas + Zearn Math for Texas, Grade 4

MATERIAL TYPE	ISBN	FORMAT	ADAPTIVE/STATIC
Supplemental	**9798894179025**	**Both Print and Digital**	**Adaptive**

Rating Overview

TEKS SCORE	TEKS BREAKOUTS ATTEMPTED	ERROR CORRECTIONS (IMRA Reviewers)	SUITABILITY NONCOMPLIANCE	SUITABILITY EXCELLENCE	PUBLIC FEEDBACK (COUNT)
100%	155	6	Flags Not in Report	Not Applicable	0

Quality Rubric Section

RUBRIC SECTION	RAW SCORE	PERCENTAGE
1. Intentional Instructional Design	26 out of 28	93%
2. Progress Monitoring	21 out of 21	100%
3. Supports for All Learners	40 out of 43	93%
4. Depth and Coherence of Key Concepts	16 out of 16	100%
5. Balance of Conceptual and Procedural Understanding	38 out of 38	100%
6. Productive Struggle	19 out of 19	100%

Breakdown by Suitability Noncompliance and Excellence Categories

SUITABILITY NONCOMPLIANCE FLAGS BY CATEGORY	IMRA REVIEWERS	PUBLIC	Flags NOT Addressed by November Vote
1. Prohibition on Common Core	0	0	0
2. Alignment with Public Education's Constitutional Goal	0	0	0
3. Parental Rights and Responsibilities	0	0	0
4. Prohibition on Forced Political Activity	0	0	0
5. Protecting Children's Innocence	0	0	0
6. Promoting Sexual Risk Avoidance	0	0	0
7. Compliance with the Children's Internet Protection Act (CIPA)	0	0	0

SUITABILITY EXCELLENCE FLAGS BY CATEGORY	IMRA REVIEWERS
Category 2: Alignment with Public Education's Constitutional Goal	0
Category 6: Promoting Sexual Risk Avoidance	0

IMRA Quality Report

1. Intentional Instructional Design

Materials support educators in effective implementation through intentional course and lesson-level design.

1.1 Course-Level Design

GUIDANCE	SCORE SUMMARY	RAW SCORE
1.1a	All criteria for guidance met.	5/5
1.1b	All criteria for guidance met.	3/3
1.1c	All criteria for guidance met.	2/2
1.1d	All criteria for guidance met.	2/2
1.1e	All criteria for guidance met.	2/2
—	**TOTAL**	14/14

1.1a – Materials include an alignment guide outlining the TEKS, ELPS, and concepts covered, with a rationale for learning paths across grade levels (vertical alignment) and within the same grade level (horizontal alignment) as designed in the materials.

In *Zearn Math*, the "Course Guide" includes an alignment guide that lists the Texas Essential Knowledge and Skills (TEKS) and English Language Proficiency Standards (ELPS) for each mission and explains how the sequence builds from place value and operations to more complex topics like geometry, fractions, and data. The Curriculum Overview and adaptive platform show a clear vertical progression, with early concepts supporting later problem-solving, reinforcing both conceptual understanding and procedural fluency.

In *Math Catalyst*, the materials organize alignment guides by strands, such as Place Value and Fractions, demonstrating vertical alignment from kindergarten through grade 5. Each guide includes the TEKS, corresponding lessons, the TEKS Mathematical Process Standards (MPS), and ELPS for all language domains.

1.1b – Materials include an implementation guide with usage recommendations and strategies for effective educator use in various contexts, such as just-in-time supports, advanced learning, or as a course.

In *Zearn Math*, the "Course Guide" includes a Classroom Implementation section outlining recommended instructional groupings, pacing structures, and strategies for integrating digital and small-group instruction. The materials provide weekly schedules and instructional routines that support consistent implementation across varied classroom settings.

In *Math Catalyst*, the "Implementation Guide" offers guidance on using the materials effectively, including recommendations aligned to a Multi-Tiered System of Supports (MTSS). The materials offer sample schedules, suggest instructional groupings, and describe how teachers can flexibly use lesson components to meet student needs across various instructional formats.

1.1c – Materials include a TEKS correlation guide with recommended skill entry points based on diagnostic assessment results.

In *Zearn Math*, the materials do not include a diagnostic assessment to identify student proficiency levels or determine appropriate skill entry points. While the program provides formative assessments, such as the Tower of Power and Mission-Level Assessments, these tools are not tied to diagnostic data and do not establish initial instructional placement. The sequence of instruction follows a fixed mission order, beginning with place value and multi-digit operations and concluding with decimals, measurement, and data representation. Reports, such as the Pace Report and Tower Alerts, offer insight into student progress, but they do not provide diagnostic recommendations or guidance for personalized entry points.

In *Math Catalyst*, the materials include a Concept Diagnostic for each assessment that can be administered before or during instruction to collect data on students' skills, strengths, and areas for growth. These assessments inform instruction and allow for timely intervention. Each Concept Diagnostic is supported by a Progression Toward Proficiency Rubric, which includes TEKS alignment and specific Concept Mini Lesson Objectives. The problems are sequenced from simple to complex, and additional questions aligned to each objective are included to guide instructional decisions about student entry points.

1.1d – Materials include protocols with corresponding guidance for unit and lesson internalization.

In *Zearn Math*, the Structure of a Mission section in the "Course Guide" provides comprehensive unit-level internalization support, including prioritized TEKS, anticipated misconceptions, and vocabulary. Lesson-level tools, such as Guided Practice, Fluency Activities, and Exit Tickets, enable teachers to prepare effectively and respond to student understanding in real time.

In *Math Catalyst*, the "Implementation Guide" and "Concept Guides" provide protocols and reflective questions to support unit and lesson internalization. These resources include preparation steps, anticipated misconceptions, visual lesson sequences, and guiding questions to help teachers plan instruction and monitor student progress.

1.1e – Materials include resources and guidance for instructional leaders to support educators with implementing the materials as designed.

In *Zearn Math*, the "Implementation Playbook" provides a structured four-phase model—Prepare, Launch, Grow, Reflect—that guides instructional leaders through planning, classroom integration, and ongoing implementation support.

The "Getting Started with *Zearn Math*" guide and the *Zearn Math* School Implementation Checklist provide pacing guidance for 60-, 75-, and 90-minute math blocks, as well as weekly instructional schedules and step-by-step onboarding tools to help leaders monitor teacher progress and support implementation milestones. The Leader Implementation Toolkit, Zearn Professional Learning Modules, and "Model Lessons and Walkthrough Guides" provide facilitation resources, asynchronous training, and sample lessons to support instructional coaching and professional learning throughout the school year.

1.2 Lesson-Level Design

GUIDANCE	SCORE SUMMARY	RAW SCORE
1.2a	The materials do not include detailed lesson plans with learning objectives or assessment resources aligned with the ELPS.	5/7
1.2b	All criteria for guidance met.	5/5
1.2c	All criteria for guidance met.	2/2
—	**TOTAL**	12/14

1.2a – If designed to be static, materials include detailed lesson plans with learning objectives, teacher and student materials, lesson components with suggested timeframes, and assessment resources aligned with the TEKS and ELPS.

In *Math Catalyst*, each lesson includes a TEKS-aligned learning objective, such as "Represent multi-digit whole numbers in unit form and show the value that each digit represents."

1.2b – If designed to be adaptive, materials include detailed lesson overviews with learning objectives, lesson components with suggested timeframes, and assessment resources aligned with the TEKS and ELPS.

In *Zearn Math*, the materials include lesson overviews with TEKS- and ELPS-aligned learning objectives and instructional components such as guided practice, scaffolded fluency, and independent digital tasks. For example, a grade 4 lesson aligned to TEKS 4.3D helps students represent and compare fractions using number lines and area models. The lesson also provides opportunities for students to use precise mathematical language to explain how the models represent the size of each fraction, supported by sentence stems and visual tools aligned to ELPS 1.C, 2.E, and 3.E. In addition, the "Course Guide" provides lesson overviews with TEKS- and ELPS-aligned objectives, suggested timeframes for teacher-led components, and assessment resources to support instructional planning.

1.2c – Materials contain support for families in Spanish and English for each unit, with suggestions on supporting the progress of their student(s).

In *Zearn Math*, each mission includes a Family Tip Sheet in English and Spanish. These resources outline unit goals, introduce academic vocabulary, and offer guiding questions and home activities aligned to the TEKS. For example, in grade 4, Mission 5, a tip sheet asks, "How do you know if two fractions are equivalent?" and suggests an activity using number lines to compare fractions.

In *Math Catalyst*, the "Teacher Guide" includes a Family Math/Matemáticas en familia page for each concept, available in both English and Spanish. Each page begins with a letter to families explaining the concepts and models students will use. The resource also includes guiding questions and sample student responses to support at-home conversations. For example, in a unit on place value, families are

prompted to ask, "How can you represent each place value unit by using multiplication?" with example responses to guide discussion.

2. Progress Monitoring

Materials support educators in effective implementation through frequent, strategic opportunities to monitor and respond to student progress.

2.1 Instructional Assessments

GUIDANCE	SCORE SUMMARY	RAW SCORE
2.1a	All criteria for guidance met.	2/2
2.1b	All criteria for guidance met.	2/2
2.1c	The materials do not include digital assessments with printable versions and accommodations, such as text-to-speech, content and language supports, and calculators, which educators can enable or disable to support individual students.	Not Scored
2.1d	All criteria for guidance met.	4/4
2.1e	All criteria for guidance met.	4/4
—	**TOTAL**	12/12

2.1a – Materials include the definition and intended purpose for the types of instructional assessments.

In *Zearn Math*, the "Course Guide" defines multiple embedded instructional assessments, such as Lesson Checkpoints, Tower of Power, Mission-Level Assessments, and Selected Response Practice. The materials explain the purpose of each assessment type, highlighting how they measure progress, address misconceptions, and support instructional decisions. For example, the Tower of Power provides scaffolded, mastery-based tasks at the end of digital lessons, while Lesson Checkpoints offer immediate support to ensure concept mastery.

In *Math Catalyst*, the "Implementation Guide" defines formative assessments and outlines their role in informing instruction, identifying misconceptions, and monitoring student progress. The materials describe specific examples, including application activities, the Read–Draw–Write Tool, the Pause and Monitor Tool, and project check options. These support teachers in gathering formative data to guide instruction.

2.1b – Materials include guidance to ensure consistent and accurate administration of instructional assessments.

In *Zearn Math*, the materials include an End-of-Mission Rubric that outlines clear criteria for scoring student responses, helping educators evaluate progress objectively and in alignment with learning goals. Assessments, such as Lesson Checkpoints and the Tower of Power, are placed at consistent points within the instructional sequence, allowing for the accurate measurement of student learning. The grade 4

"Course Guide" specifies when to administer these assessments, including Lesson Checkpoints, Tower of Power, and both Mid-Mission and End-of-Mission Assessments.

In *Math Catalyst*, educators use Progress Checks supported by the Progression Toward Proficiency Rubric, which classifies student performance as "Proficient," "Partially Proficient," or "Not Yet Proficient." Each Progress Check includes sections titled "About the Progress Check Tool," "Using the Progress Check Tool to Inform Instruction," and a Teacher Tip to support implementation. For example, in the progress check on multiplying two-digit numbers, students are asked to show their work and select the correct answer.

2.1c – Digital assessments include printable versions and accommodations, including text-to-speech, content and language supports, and calculators, that educators can enable or disable to support individual students.

In *Zearn Math*, the materials do not include printable versions of digital products. While digital assessments offer features such as text-to-speech and visual representations, educators cannot enable or disable these tools for individual students. The materials also lack adjustable accommodations, such as calculators or content language supports, to meet diverse learner needs.

In *Math Catalyst*, the materials do not include digital assessments. Instead, assessments appear only as PDFs in the guidebook or student materials. The program does not provide accommodations, such as text-to-speech, calculators, or content language supports, that educators can customize based on student needs.

2.1d – Materials include diagnostic assessments with TEKS-aligned tasks or questions, including interactive item types with varying complexity levels.

In *Zearn Math*, the materials do not include a diagnostic assessment to identify student needs or inform placement decisions. While the platform offers ongoing formative assessments, it does not provide beginning-of-year or end-of-year diagnostics to support individualized learning plans or targeted instruction. The guidance recommends placing students in the first-grade level unit aligned with the core curriculum.

In *Math Catalyst*, the materials include a Concept Diagnostic Assessment for each concept, providing teachers with tools to identify student proficiency levels. The assessment problems are sequenced from simple to complex, providing a comprehensive view of student understanding. Item types include multiple choice, number lines, place value charts, cards or counters to arrange, fill-in-the-blank, and open response. Students are also encouraged to show their work, giving teachers additional insight into their reasoning and misconceptions.

2.1e – Materials include a variety of formative assessments with TEKS-aligned tasks or questions, including interactive item types with varying complexity levels.

In *Zearn Math*, the materials include formative assessments with TEKS-aligned tasks and questions that vary in format and complexity. Tasks include using area models, place value models, strip diagrams, and word problems that apply knowledge of multiplication. Additional activities focus on fractions, such as labeling fractions on a diagram, creating diagrams to represent fractions, and modeling fractions as the sum of unit fractions. The materials also include multistep formative assessments, such as solving problems with pictorial models, using the partial product algorithm, and interpreting pictorial representations of number sentences and word problems. These tasks encourage students to demonstrate their reasoning and apply mathematical concepts across representations.

In *Math Catalyst*, the materials provide a variety of TEKS-aligned formative assessments, including Quick Checks, Quizzes, Exit Tickets, and embedded lesson tasks. Quick Checks at the end of each objective assess mastery through increasing levels of complexity. For example, in grade 4, students may draw a strip diagram to find equivalent fractions, complete an equation using multiplication to generate an equivalent fraction, or solve application problems that require analyzing real-world scenarios in a game setting through Solve a Task. The program also incorporates interactive item types within the Progress Check Tool, including plot the point, order numbers, fill-in-the-blank, and multiple choice, offering students multiple ways to demonstrate understanding.

2.2 Data Analysis and Progress Monitoring

GUIDANCE	SCORE SUMMARY	RAW SCORE
2.2a	All criteria for guidance met.	3/3
2.2b	All criteria for guidance met.	1/1
2.2c	All criteria for guidance met.	2/2
2.2d	All criteria for guidance met.	2/2
2.2e	All criteria for guidance met.	1/1
—	**TOTAL**	9/9

2.2a – Instructional assessments include scoring information and guidance for interpreting student performance, including rationale for each correct and incorrect response.

In *Zearn Math*, the materials include scoring rubrics for the Mid-Mission and End-of-Mission Assessments that define four performance levels: "Initiating Understanding," "Developing Understanding," "Nearing Understanding," and "Full Understanding." Each level has clear descriptions and examples of student work to help teachers interpret student thinking and determine proficiency. For instance, in grade 4, Mission 5, the End-of-Mission Assessment rubric highlights that a student who uses an appropriate visual model but does not complete the calculation demonstrates "Initiating Understanding" of the concept. However, the materials do not provide a rationale for individual answer choices. There are no item-level explanations that clarify why a response is correct or incorrect for assessments.

In *Math Catalyst*, the materials include informal and formative assessments with numerical scoring guidance and performance labels such as "Not Yet Proficient," "Partially Proficient," and "Proficient." However, the materials do not provide a rationale for correct or incorrect responses.

2.2b – Materials provide guidance for the use of included tasks and activities to respond to student trends in performance on assessments.

In *Zearn Math*, the materials include tools and guidance to help teachers use assessment data to inform instruction. The grade 4 "Course Guide" describes a Progress Report that provides a quick overview of lesson completion and Tower of Power success, helping teachers identify trends in understanding over time. Teachers also receive real-time data through the Tower Alerts Report, which flags students who miss three or more questions on a checkpoint and identifies whether they used scaffolds or completed the lesson. This information helps teachers determine when reteaching is needed. Additionally, the report highlights specific TEKS where a student is struggling, allowing teachers to pair small-group lessons with foundational content from previous grades for targeted intervention.

In *Math Catalyst*, the materials offer instructional guidance based on student performance from Progress Checks. For example, in the grade 4 "Compose, Decompose, and Represent Decimals to the Hundredths"

lesson, teachers are prompted to reflect on student responses using targeted questions such as "Can the student represent decimals in unit form and show the value that each digit represents?" Depending on the student's answer, the teacher adjusts instruction by shifting focus to the appropriate learning objective.

2.2c – Materials include tools for teachers to track student progress and growth, and tools for students to track their own progress and growth.

In *Zearn Math*, the materials offer a range of teacher-facing tools to monitor student progress and growth. Reports such as the Class Report, Curriculum Progress, Pace and Progress, Tower Alerts, and Sprint Alerts enable teachers to identify trends, track lesson completion, and adjust instruction based on student needs. The Tower Report specifically helps monitor progress on TEKS-aligned checkpoints, while small-group lesson materials include assessment keys and recording sheets to support performance tracking on targeted standards. Student-facing tools, such as the Student Lesson Calendar, Weekly Goal Tracker, and Challenge Trackers, help students track the completion of digital lessons and enrichment activities. However, these tools do not support students in monitoring their growth in understanding or mastery of grade-level concepts over time.

In *Math Catalyst*, the materials include tools that allow teachers and students to track student progress and growth. Teachers use the Observational Data Recording Sheet to capture anecdotal notes by objective and student. Students track their progress using the Pause and Monitor Tool, where they indicate their understanding with levels like "Getting started," "On my way," or "I got it!" This visual tracking system encourages reflection and ownership of learning throughout each concept or objective.

2.2d – If designed to be static, materials provide prompts and guidance to support educators in conducting frequent checks for understanding at key points throughout each lesson or activity.

In *Math Catalyst*, the materials offer prompts and guidance to support teachers in checking for understanding throughout lessons. For example, in the lesson "Subtract Fractions with Like Denominators by Using Unit Fraction Tiles and Unit Form," Objective 1 includes specific questions such as, "Can the student identify the fractional unit of the total and the known part?" and "Can the student represent the expression by using unit fraction tiles?" These checks help teachers assess conceptual understanding in real time.

Teacher Tips in the lessons guide educators in monitoring student thinking. For instance, after students represent numbers in unit form, a tip might recommend prompting students to decompose using place value in other ways, encouraging flexibility, and further checks for understanding.

2.2e – If designed to be adaptive, materials provide frequent checks for understanding at key points throughout each lesson or activity.

In *Zearn Math*, the materials embed checks for understanding within each lesson using digital feedback, checkpoints, and scaffolded supports that respond to real-time student input. These features guide corrective pathways and help ensure content mastery before students progress. Each mission includes a Mid-Mission Assessment that evaluates conceptual understanding, reasoning, and problem-solving after several lessons.

Rubrics support teachers in analyzing student thinking, identifying misconceptions, and planning targeted small-group instruction.

Every digital lesson concludes with a Tower of Power, a mastery-based assessment that determines whether students advance in the digital sequence. If students struggle, they receive a scaffolded Boost and another opportunity to demonstrate understanding, reinforcing a consistent formative assessment cycle throughout instruction.

3. Supports for All Learners

Materials support educators in reaching all learners through design focused on engagement, representation, and action/expression for learner variability.

3.1 Differentiation and Scaffolds

GUIDANCE	SCORE SUMMARY	RAW SCORE
3.1a	All criteria for guidance met.	1/1
3.1b	All criteria for guidance met.	4/4
3.1c	All criteria for guidance met.	2/2
3.1d	*Math Catalyst*, a static program without digital components, and *Zearn Math* do not include digital materials with accommodations, including text-to-speech, content and language supports, and calculators that educators can enable or disable to support individual students.	0/3
3.1e	All criteria for guidance met.	2/2
—	**TOTAL**	9/12

3.1a – Materials include explicit educator guidance for lessons or activities scaffolded for students who have not yet reached proficiency in prerequisite or grade-level concepts and skills.

In *Zearn Math*, the materials provide explicit guidance to support students who have not yet reached grade-level proficiency. For example, in Mission 3, teachers use place value disks, area models, and number lines to help students build an understanding of multi-digit multiplication. The guidance encourages simplifying problems by starting with smaller factors and gradually increasing complexity. Structured small-group lessons include teacher prompts, such as having students use base-ten blocks to decompose numbers and connect visual models to multiplication strategies.

In *Math Catalyst*, the materials provide detailed guidance for supporting students through differentiated starting points in each Concept Mini Lesson. In "Adding Within 1,000," teachers begin instruction in one of four objectives, depending on whether students need concrete models, place value drawings, or the standard algorithm. Similarly, in the "Division" unit, the "Concept Guide" provides options ranging from using place value disks and drawings to representing division with area models or applying the standard algorithm for multi-digit division.

3.1b – Materials include explicit educator guidance for language supports, including pre-teaching and embedded supports for developing academic vocabulary and unfamiliar references in text.

In *Zearn Math*, the materials support vocabulary development through contextual use and embedded modeling. For example, in Mission 2, students learn vocabulary terms such as *mass* and *liquid volume*

during measurement tasks and teacher-led discussions. Lessons in Mission 5 include activities where students say and apply terms such as *mixed numbers* and *equivalent fractions* using area models and number lines. In Mission 6, instruction reinforces new terms such as *decimal* in the context of metric measurement and money.

In *Math Catalyst*, the materials include explicit language support in each unit's Language Support section. In grade 4, Objective 3, the "Concept Guide" explains that the word *period* has multiple meanings and suggests discussing all uses before applying it to place value. The "Alignment Guide" for "Divide Multi-Digit Numbers by One-Digit Numbers" describes embedded supports, such as anchor charts, to help students remember key terms such as *divisor* and *quotient*. These strategies appear consistently across Mini Lessons to build academic vocabulary.

3.1c – Materials include explicit educator guidance for enrichment and extension activities for students who have demonstrated proficiency in grade-level and above grade-level content and skills.

In *Zearn Math*, the materials include enrichment activities that deepen student understanding of grade-level content. For example, in Mission 3, students reason about area and perimeter by predicting how changes in side lengths affect measurements, and in Mission 4, students justify angle predictions using both visual and verbal reasoning. The program also provides designated enrichment lessons and components, such as Multiple Means of Engagement and Multiple Means of Representation, which extend learning on angles, metric conversions, and perpendicular lines through real-world applications and challenge prompts. Educators can adjust digital pacing to provide enrichment and extension opportunities for students who demonstrate above-grade-level proficiency; however, the materials do not provide explicit teacher guidance for implementing these opportunities.

In *Math Catalyst*, the materials include explicit educator guidance for enrichment and extension activities for students who have demonstrated proficiency in grade-level content. For example, in the "Teacher Concept Guide for Round to the Nearest Ten and Hundred," the Activities, Structures, and Considerations chart provides teachers with guidance on implementing enrichment tasks, designed for independent or partner work. Each unit also includes an Application section with enrichment activities, such as Solve a Task and Partner Games, that extend and enrich grade-level content. Additionally, the "Strand by Grade Scope and Sequence" document outlines how concepts build across grades, enabling teachers to identify opportunities for above-grade-level enrichment. The Progression of Mini Lesson Objectives chart includes "Start here if students can . . ." statements, which direct educators to appropriate enrichment or extension activities for students demonstrating above-grade-level proficiency.

3.1d – Digital materials include accommodations, including text-to-speech, content and language supports, and calculators that educators can enable or disable to support individual students.

In *Zearn Math*, the materials do not include digital materials that include accommodations, such as text-to-speech, content and language supports, and calculators that educators can enable or disable to support individual students. The materials embed text-to-speech features that automatically read prompts and questions aloud in digital lessons and assessments. Content and language supports, including verbal cues, visual scaffolds, and sentence frames, are also built in and accessible to all students by default. Educators cannot enable or disable these features for individual students, and the materials do not include a digital calculator or other adjustable tools to customize accommodations.

In *Math Catalyst*, the materials are print-focused and do not provide digital tools, such as text-to-speech, content and language supports, or calculators, that educators can adjust to meet individual student needs.

3.1e – Materials include educator guidance on offering options and supports for students to demonstrate understanding of mathematical concepts in various ways, such as perform, express, and represent.

In *Zearn Math*, the materials prompt students to compare, decompose, and represent fractions through flexible activities, such as hands-on station work and fraction design tasks. In Mission 5, teacher guidance supports the use of manipulatives and visual models to help students express their thinking through drawings, models, and discussions. Small-group lessons and digital activities encourage multiple means of action and expression, including using fraction tiles, number lines, and digital manipulatives to model concepts and justify reasoning.

In *Math Catalyst*, the materials provide guidance for students to demonstrate understanding in varied ways. For example, in the "Subtract Fractions with Like Denominators" lessons, students use fraction tiles, draw number bonds, and show subtraction on a number line. Additional supports include read-and-draw tools, partner sharing, recording pages, and activities, such as creating subtraction match cards or using highlighters to annotate information.

3.2 Instructional Methods

GUIDANCE	SCORE SUMMARY	RAW SCORE
3.2a	All criteria for guidance met.	5/5
3.2b	All criteria for guidance met.	2/2
3.2c	All criteria for guidance met.	3/3
3.2d	All criteria for guidance met.	2/2
3.2e	All criteria for guidance met.	2/2
—	**TOTAL**	14/14

3.2a – Materials include explicit (direct) prompts and guidance for educators to build knowledge by activating prior knowledge, anchoring big ideas, and highlighting and connecting key patterns, features, and relationships through multiple means of representation.

In *Zearn Math*, the materials provide explicit guidance to help educators activate prior knowledge and anchor big ideas. For example, in Mission 1, Lesson 2, the teacher prompts revisiting prior grade-level measurement knowledge using number bonds to connect familiar metric units with new problem-solving strategies. In Mission 6, Lesson 3, instruction builds on students' earlier understanding of multiplication and division to introduce algorithms and simplification strategies for multi-digit computation. The program highlights key patterns and relationships using multiple representations. For instance, a digital lesson pairs the standard algorithm for multiplication with a place value chart, allowing students to observe regrouping steps visually and numerically. Lessons frequently prompt students to make connections among visual models, symbolic notation, and real-world contexts.

In *Math Catalyst*, the materials do not include direct prompts or guidance for educators to activate prior knowledge or explicitly anchor big ideas. While lessons are sequenced to build on previously taught concepts and support conceptual development, the materials rely on lesson progression rather than instructional prompts to make connections. The materials do not provide guidance for intentionally highlighting patterns, features, or relationships across visual and symbolic representations.

3.2b – If designed to be static, materials include educator guidance for effective lesson delivery and facilitation using various instructional approaches.

In *Math Catalyst*, the materials include guidance on effective lesson delivery and using varied instructional approaches. In the "Representations of Multiplication" unit, students engage in hands-on learning with tiles, arrays, and number lines. The educator guidance includes prompts for real-world application and deeper reasoning in the Application section, such as having students justify their thinking with questions like "How do you know?" and "Show how you know." In the "Whole Numbers Within 1,000,000" unit, students begin with place value disks and charts before transitioning to standard algorithms. The

materials prompt teachers to strategically structure additional practice, allowing for small-group or peer-supported learning.

3.2c – Materials include multi-tiered intervention methods for various types of practice and structures and educator guidance to support effective implementation.

In *Zearn Math*, the materials offer multi-tiered intervention support embedded within guided, independent, and collaborative instructional formats. For example, in Mission 2, students move through a structured digital sequence that includes the Learning Lab for guided instruction and the Tower of Power for independent problem-solving. A built-in Boost breaks the concept into manageable steps when students respond incorrectly, providing immediate, scaffolded feedback. Small-group lessons include teacher scripting for scaffolding strategies, such as extending partial arrays or reinforcing multiplication with place value tools. The "Course Guide" further supports intervention by instructing teachers to use data from the Tower Alerts Report to group students for reteach, customize lesson expectations, and assign individualized supports.

In *Math Catalyst*, teachers use the Progress Tool and rubric to determine where students should begin within a unit, based on their proficiency with the TEKS. For example, in "Multiplication of Multi-Digit Numbers by One-Digit Numbers," students may start on Objective 3 to practice creating partial products before applying the standard algorithm. Students complete guided instruction, then transition to independent or collaborative practice during the Application phase. The "Implementation Guide" offers additional flexibility, stating that Progress Checks may be used for pre-assessment, post-assessment, or small-group work. Additionally, lesson components such as Practice and Application can be completed independently, with a partner, or in small groups, allowing for varied instructional delivery tailored to student needs.

3.2d – Materials include enrichment and extension methods that support various forms of engagement, and guidance to support educators in effective implementation.

In *Zearn Math*, the materials include enrichment and extension strategies designed to foster deeper engagement and real-world application. For example, in Mission 4, the Multiple Means of Engagement section presents a challenge where students predict angle measures and justify their reasoning using mathematical language. The lesson extends students' thinking by encouraging them to connect geometric concepts, such as perpendicularity, to real-world contexts like construction and design. In Mission 2, measurement activities include teacher prompts for exploring the use of metric terms, such as *kilo-*, in measurement and digital storage, supporting cross-disciplinary connections. The "Course Guide" outlines strategies for utilizing Digital Bonuses, Optional Practice Problems, and differentiated pacing to provide extension opportunities for students who are ready to explore beyond grade-level content.

In *Math Catalyst*, the materials provide structured enrichment and extension tasks that promote multiple forms of engagement. For instance, in the unit "Multiplication of Multi-Digit Numbers by One-Digit

Numbers," students work on tasks such as Solve a Problem, Play a Game, and Solve a Task, which may be completed independently or with a partner. Teacher guidance includes prompts to encourage discussion and comparison of solution strategies across representations. In Solve a Task, scaffolds such as providing grid paper are suggested to help students align place value units when solving using the standard algorithm. In the Application section of the "Add Whole Numbers within 1,000,000" unit, three activities engage students in applying their knowledge in both collaborative and independent formats, reinforcing understanding while extending learning.

3.2e – Materials include prompts and guidance to support educators in providing timely feedback during lesson delivery.

In *Zearn Math*, the materials include prompts and guidance to support the delivery of timely feedback during instruction. For example, in Mission 1, the Concept Exploration section presents a prompt such as, "Are you going to use the algorithm or a simplifying strategy to solve?" followed by a request for students to explain their reasoning. This structure enables teachers to assess understanding in real time and offer responsive guidance. The digital component also supports real-time correction through embedded scaffolds. When students make an error in the Tower of Power, a Boost breaks the task into smaller steps, guiding students back toward conceptual understanding.

In *Math Catalyst*, the materials do not provide educators with explicit guidance on delivering timely feedback during instruction. While the materials provide teachers with prompts to monitor progress, they lack embedded suggestions or strategies for offering corrective or reinforcing feedback in response to student misconceptions during lesson delivery.

3.3 Support for Emergent Bilingual Students

An emergent bilingual student is a student who is in the process of acquiring English and has another language as the primary language. The term emergent bilingual student replaced the term English learner in the Texas Education Code 29, Subchapter B after the September 1, 2021 update. Some instructional materials still use English language learner or English learner and these terms have been retained in direct quotations and titles.

GUIDANCE	SCORE SUMMARY	RAW SCORE
3.3a	All criteria for guidance met.	4/4
3.3b	All criteria for guidance met.	4/4
3.3c	All criteria for guidance met.	1/1
3.3d	All criteria for guidance met.	8/8
3.3e	This guidance is not applicable to the program.	N/A
—	**TOTAL**	17/17

3.3a – If designed to be static, materials include educator guidance on providing and incorporating linguistic accommodations for all levels of language proficiency [as defined by the English Language Proficiency Standards (ELPS)], which are designed to engage students in using increasingly more academic language.

In *Math Catalyst*, the materials include educator guidance on providing and incorporating linguistic accommodations for all levels of language proficiency. Each concept's "Alignment Guide" outlines support aligned with the ELPS. For example, the grade 4 "Alignment Guide for Multiplication of Multi-Digit Numbers by One-Digit Numbers" addresses listening, speaking, reading, and writing skills across all ELPS levels—from pre-production to advanced. Suggested strategies include using concrete manipulatives and pictorial representations during math games, providing sentence stems to describe mathematical procedures, and incorporating Turn and Talk opportunities to support oral language development and mathematical planning.

3.3b – If designed to be adaptive, materials include embedded linguistic accommodations for all levels of language proficiency [as defined by the English Language Proficiency Standards (ELPS)], which are designed to engage students in using increasingly more academic language.

In *Zearn Math*, the materials include linguistic accommodations for all levels of language proficiency as defined by the 2026 ELPS (Pre-Production, Beginning, Intermediate, High-Intermediate, and Advanced). Supports for beginning-level students are available in Digital Lessons and the grade 4 "Course Guide," and include visual models, audio narration, scaffolded vocabulary, and physical actions to reinforce terms such as *length* and *area*. Bilingual student notes also feature Spanish translations alongside key vocabulary. For intermediate-level students, supports include sentence frames during the Lesson

Synthesis, oral language routines in Small-Group Lessons, and structured partner talk routines in the Supports for Emergent Bilingual Students section of the "Course Guide." For instance, multiplication lessons include discussion prompts such as, "The product of . . . and . . . is . . . because . . ."

3.3c – Materials include implementation guidance to support educators in effectively using the materials in state-approved bilingual/ESL programs.

In *Zearn Math*, the materials provide educator guidance on implementing the program within state-approved bilingual or ESL instructional models, including dual language, transitional bilingual, and ESL pull-out programs. The Supports for Emergent Bilingual Students section of the "Course Guide" outlines accommodations and strategies to help educators support language development alongside mathematical understanding.

In *Math Catalyst*, the materials include an "Implementation Guide" dedicated to supporting emergent bilingual students with explicit guidance to build vocabulary, comprehension, and content knowledge. Teachers are encouraged to strategically group students based on their mathematical or English proficiency, and when possible, pair students who share the same home language to support meaning-making in both languages. Additional guidance recommends creating cross-linguistic anchor charts that include terminology in both English and the student's home language, accompanied by visuals, to reinforce understanding. The "Implementation Guide" also includes a section titled "Using *Math Catalyst* in State-Approved Bilingual/ESL Programs," which provides alignment with instructional models such as dual language one-way, two-way, and ESL pull-out programs, along with strategies for supporting emergent bilingual students in building both language and mathematics skills.

3.3d – Materials include embedded guidance to support emergent bilingual students in developing academic vocabulary, increasing comprehension, building background knowledge, and making cross-linguistic connections through oral and written discourse.

In *Zearn Math*, the materials include multiple supports for developing academic vocabulary through oral and written discourse. Sentence frames and partner talk embedded in Concept Exploration lessons provide structured opportunities for oral language development. The Vocabulary Notebook and grade 4 "Course Guide" describe using bilingual vocabulary notebooks and Spanish cognates (e.g., *factores* and *producto*) to reinforce conceptual understanding. To support comprehension and background knowledge, lessons include guided questions, oral explanations of diagrams, and written strategy descriptions using academic vocabulary. The materials also embed cross-linguistic connections through bilingual glossaries, visuals, and guidance for previewing vocabulary in students' home language.

In *Math Catalyst*, the materials support the development of academic vocabulary and making cross-linguistic connections. For example, in the "Compose, Decompose, and Represent Multi-Digit Numbers" unit, Language Supports suggests providing word banks (e.g., *compose*, *place value units*, *represent*) and addressing multiple meanings of terms such as *period*. In "Represent and Generate Equivalent Fractions

Greater Than 1," guidance supports oral discussions and vocabulary development, including alternative terms such as *break apart* for *decompose*, and using visuals to clarify meaning. The "Alignment Guide" recommends pairing students by proficiency level and creating anchor charts in English and students' home languages, accompanied by visuals. However, the materials lack embedded guidance to support emergent bilingual students specifically in increasing comprehension through oral discourse or building background knowledge and academic vocabulary through written discourse.

3.3e – If designed for dual language immersion (DLI) programs, materials include resources that outline opportunities to address metalinguistic transfer from English to the partner language.

This guidance is not applicable because the program is not designed for dual language immersion (DLI) programs.

4. Depth and Coherence of Key Concepts

Materials are designed to meet the rigor of the standards while connecting concepts within and across grade levels/courses.

4.1 Depth of Key Concepts

GUIDANCE	SCORE SUMMARY	RAW SCORE
4.1a	All criteria for guidance met.	2/2
4.1b	All criteria for guidance met.	4/4
—	**TOTAL**	6/6

4.1a – Practice opportunities throughout learning pathways (including instructional assessments) require students to demonstrate depth of understanding aligned to the TEKS.

In *Zearn Math*, the materials include practice opportunities and instructional assessments embedded throughout learning pathways that require students to demonstrate depth of understanding aligned with the TEKS. For example, in grade 4, Mission 2, students engage in lessons that allow them to practice measurement conversions using tables, number lines, strip diagrams, and algorithms. Practice sections and assessments, such as Exit Tickets, Mid-Mission Assessments, and End-of-Mission Assessments, further support TEKS alignment through tasks involving skip counting, place value strategies, strip diagrams, equations, and real-world multiplication and division problems. These assessments progress from concrete to abstract representations, reinforcing coherence and conceptual development.

In *Math Catalyst*, students demonstrate TEKS-aligned depth of understanding through practice activities and assessments embedded within lessons. For example, in the "Multiplication of Two-Digit Numbers by Two-Digit Numbers" lesson, students practice progressing from area models to partial products and finally using the standard algorithm. Application activities and Progress Check Tools provide assessment opportunities to reflect real-world contexts and require students to apply their understanding of multiplication operations.

4.1b – Questions and tasks, including enrichment and extension materials, increase in rigor and complexity, leading to grade-level and above grade-level proficiency in the mathematics TEKS.

In *Zearn Math*, the materials include questions and tasks that increase in rigor and complexity to support mastery of grade-level and above-grade-level TEKS. Lessons build on prior knowledge and scaffold new concepts, and enrichment opportunities offer tasks that deepen conceptual understanding through word problems and visual models.

In *Math Catalyst*, each Concept Mini Lesson progresses in rigor and complexity through sequenced objectives. For example, in the "Multiplication of Two-Digit Numbers by Two-Digit Numbers" lesson, students move from multiplying two-digit numbers by two-digit numbers using an area model to solving two-digit multiplication using the standard algorithm. The materials include enrichment and extension opportunities within application activities that require students to analyze errors and explain reasoning.

4.2 Coherence of Key Concepts

GUIDANCE	SCORE SUMMARY	RAW SCORE
4.2a	All criteria for guidance met.	1/1
4.2b	All criteria for guidance met.	1/1
4.2c	All criteria for guidance met.	4/4
—	**TOTAL**	6/6

4.2a – Materials demonstrate coherence across concepts horizontally within the grade level by connecting patterns, big ideas, and relationships.

In *Zearn Math*, the materials include practice opportunities through learning pathways that require students to demonstrate a depth of understanding aligned with the TEKS. For example, in grade 4, Mission 4, Lesson 1, students draw points, lines, and rays and identify them in familiar shapes. In Lesson 2, students create right angles using a paper-folding activity and locate right angles in their environment. The Practice Problems sections provide additional tasks, including identifying acute, obtuse, and right angles and applying this knowledge to real-world examples involving perpendicular and parallel lines. The materials also include instructional assessments throughout learning pathways that require students to demonstrate a depth of understanding aligned with the TEKS. Exit Tickets, Mid-Lesson Assessments, and End-of-Mission Assessments include tasks such as comparing fractions on a number line, identifying benchmark values, and using divisibility rules and estimation strategies to analyze mathematical relationships. The assessments reinforce coherence by guiding the progression from concrete representations to abstract reasoning, supporting conceptual understanding, and connecting new learning to previously taught content.

In *Math Catalyst*, the materials demonstrate coherence across concepts horizontally. For example, in grade 4, students connect ideas of subtracting with regrouping using place-value understanding.

4.2b – Materials demonstrate coherence vertically across concepts and grade bands, including connections from grade K–6, by connecting patterns, big ideas, and relationships.

In *Zearn Math*, the materials demonstrate vertical coherence by systematically connecting mathematical concepts across grade levels from kindergarten through grade 6. According to the grade 4 "Course Guide," the sequence begins with counting and composing numbers in the early grades and progresses toward addition, subtraction, multiplication, and division. Geometry follows a similar trajectory, beginning with shape identification and advancing to classification, measurement, and spatial reasoning. In Mission 3: "Multiply and Divide Big Numbers," students build conceptual understanding and procedural fluency by applying the distributive property and interpreting remainders, laying a foundation for later work with fractions, ratios, and algebraic reasoning.

The materials reinforce vertical alignment through scaffolding and instructional models that connect prior grade-level learning to current objectives. For example, in Mission 1: "Add, Subtract, and Round," the Math Chat revisits familiar place value strategies using a place value chart, while Mission 2: "Measure and Solve," references vertically aligned TEKS from grades 2 and 3 to support mastery of measurement conversions and multi-digit operations. In Mission 5, students deepen their understanding of fraction equivalence and operations by connecting visual models, number lines, and common denominators. Instruction highlights patterns in equivalent fractions and guides students to apply those patterns when adding and subtracting fractions with unlike denominators, preparing them for work with decimals in future grades.

4.2c – Materials demonstrate coherence across lessons or activities by connecting students' prior knowledge of concepts and procedures to the mathematical concepts to be learned in the current grade level and future grade levels.

In *Zearn Math*, the materials consistently connect new learning to students' prior knowledge. In grade 4, Mission 1 builds on place value and rounding from grade 3, extending understanding to numbers up to one billion and deepening fluency with addition and subtraction algorithms. Mission 5 expands students' understanding of part–whole relationships by introducing fraction equivalence, comparison, and operations using visual models, preparing students for decimals and proportional reasoning in grade 5. Mission 3 transitions students from visual models to standard algorithms for multi-digit multiplication and division, connecting prior learning of area and perimeter to more advanced problem-solving. These progressions support coherence across grade levels and prepare students for future mathematical concepts.

In *Math Catalyst*, the materials do not demonstrate strong coherence across lessons or activities. They do not connect students' prior knowledge to current grade-level concepts or future mathematical learning. Additionally, the materials lack consistent teacher guidance on activating students' prior knowledge in daily instruction.

4.3 Coherence and Variety of Practice

GUIDANCE	SCORE SUMMARY	RAW SCORE
4.3a	All criteria for guidance met.	2/2
4.3b	All criteria for guidance met.	2/2
—	**TOTAL**	4/4

4.3a – Materials provide spaced retrieval opportunities with previously learned skills and concepts across learning pathways.

In *Zearn Math*, the materials provide spaced retrieval opportunities by revisiting previously taught skills across lessons and missions. For example, in grade 4, Mission 1, Warm Ups spiral in multiplication, skip-counting, and place value fluency to support later instruction on multi-digit operations. Digital lessons incorporate varied fluency activities, such as Make and Break 10 and timed Sprints, to build automaticity with foundational skills. In Mission 5, small-group lessons revisit fraction equivalence and operations using visual models, benchmarks, and number lines, reinforcing conceptual understanding through repeated practice.

In *Math Catalyst*, the materials do not provide opportunities for spaced retrieval of previously learned skills. The focus remains on current learning objectives without revisiting prior concepts across the instructional pathway.

4.3b – Materials provide interleaved practice opportunities with previously learned skills and concepts across learning pathways.

In *Zearn Math*, the materials provide interleaved practice by prompting students to apply previously learned strategies in new contexts. For example, Warm Ups in measurement lessons require students to use the standard algorithm and strip diagrams from earlier missions to solve metric conversion problems. To reinforce prior learning, fluency activities revisit place value charts, arrays, and area models. Lessons consistently connect current topics, such as decimals and financial literacy, to previously taught concepts in fractions, place value, and operations, supporting conceptual transfer across strands.

In *Math Catalyst*, the materials do not include interleaved practice opportunities. Activities and interventions focus on individual objectives, without encouraging students to revisit or apply previously taught skills across different contexts or learning pathways.

5. Balance of Conceptual and Procedural Understanding

Materials are designed to balance conceptual understanding, procedural skills, and fluency.

5.1 Development of Conceptual Understanding

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.1a	All criteria for guidance met.	3/3
5.1b	All criteria for guidance met.	2/2
5.1c	All criteria for guidance met.	1/1
—	**TOTAL**	6/6

5.1a – Questions and tasks provide opportunities for students to interpret, analyze, and evaluate models and representations for mathematical concepts and situations.

In *Zearn Math*, the materials provide opportunities for students to interpret mathematical models using concrete and pictorial tools such as place value charts, strip diagrams, and area models. For example, in Mission 3, students interpret place value charts and area models during Math Chat and Learning Lab to understand multi-digit multiplication and determine what the model represents before solving. The materials support students in analyzing visual models by comparing representations and identifying mathematical relationships. In decimal subtraction lessons, students analyze the differences between place value models and the standard algorithm. In fraction comparison lessons, they use number lines, benchmarks, and area models to analyze equivalence and relative value. The materials also prompt students to evaluate mathematical representations by assessing their accuracy and explaining how models demonstrate equivalence or support problem-solving.

In *Math Catalyst*, the materials include questions and tasks that prompt students to interpret, analyze, and evaluate models and representations. For example, in "Add Whole Numbers within 1,000,000," students use place value disks to find the total of 161,413 and 50,232 while checking the reasonableness of their answer against a vertical algorithm. In another lesson, students draw dots in a place value chart to analyze regrouping when columns exceed nine and evaluate whether to create a new, larger unit or remain in the same place value. In "Divide Multi-Digit Numbers by One-Digit Numbers," students use place value disks to interpret how to form groups from tens and ones, analyze what to do with the remaining parts, and evaluate strategies such as, "Can you equally distribute the place value units to each group?"

5.1b – Questions and tasks provide opportunities for students to create concrete models and pictorial representations to represent mathematical situations.

In *Zearn Math*, the materials enable students to construct concrete models using manipulatives, such as base-ten blocks, place-value disks, and square tiles, to support their conceptual understanding of multi-digit multiplication and area. For example, in Mission 3, Lesson 6, students use base-ten blocks to

represent factors and organize them into arrays. The materials also guide students in creating pictorial representations, including drawing number bonds, strip diagrams, lines of symmetry, and place-value models to solve problems. Lessons explicitly connect concrete and pictorial models, such as fraction and decimal lessons, where students build quantities with disks or folded strips and then represent them with drawings, labels, or charts.

In *Math Catalyst*, the materials provide opportunities for students to create concrete and pictorial models to represent mathematical situations. For example, in "Add Whole Numbers within 1,000,000," students use place value disks to add numbers and then transition to pictorial representations of the disks and place-value charts. In "Divide Multi-Digit Numbers by One-Digit Numbers," students start by modeling division with place value disks before drawing models on place-value charts to illustrate the division process.

5.1c – Questions and tasks provide opportunities for students to apply conceptual understanding to new problem situations and contexts.

In *Zearn Math*, the materials provide opportunities for students to apply conceptual understanding to real-world financial contexts, such as calculating profit from lemonade sales and solving multistep word problems involving mass, volume, and metric conversions. The materials include word problems that connect learning to everyday experiences. Students solve for the area and perimeter of a fenced yard, comparing bakery production quantities, and scripting multiplication strategies with partners. Lessons also guide students in applying concepts to new problem situations through open-ended tasks and data interpretation, such as decomposing prisms to test volume rules, modeling mixed numbers in measurement scenarios, and identifying patterns in expanded place-value charts.

In *Math Catalyst*, the materials provide opportunities for students to apply conceptual understanding to new problem-solving situations and contexts. For example, in the Teacher "Concept Guide" for Place Value Adding, students extend their understanding of adding whole numbers within 1,000,000 by solving problems in real-life scenarios, such as using a table of sporting event attendance to answer, "How many people in total attend games one and three?" Additionally, students apply their understanding of equivalent fractions to solve problems, such as "James and Carla pour water into a beaker. James says the liquid volume is exactly 3/5 liters. Carla measures the liquid volume using tenths of a liter. What does Carla say the liquid volume is?"

5.2 Development of Fluency

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.2a	All criteria for guidance met.	2/2
5.2b	All criteria for guidance met.	3/3
5.2c	All criteria for guidance met.	3/3
5.2d	All criteria for guidance met.	1/1
—	**TOTAL**	9/9

5.2a – Materials provide tasks that are designed to build student automaticity and fluency necessary to complete grade-level mathematical tasks.

In *Zearn Math*, the materials include structured fluency tasks to build the automaticity necessary for completing grade-level mathematical work. For instance, in Mission 1, Lesson 8, students complete a timed Multiplication-By Pattern Sheet during the Fluency Practice, with teacher prompts encouraging skip-counting strategies to support recall of multiplication facts. These fluency-building activities are sequenced to reinforce number patterns and operations with place value, including work with tens, hundreds, and thousands in Mission 4. Additionally, the "Course Guide" highlights digital fluency routines such as Sprints, Totally Times, and Fraction Action, which appear regularly throughout lessons to promote repeated, targeted practice and support fact fluency with whole numbers and fractions.

In *Math Catalyst*, the materials do not include tasks designed to be automatic. The materials offer fluency-building games that promote understanding of composing and decomposing numbers and place value representation. For example, in the Application—Play a Game section of the "Place Value Compose, Decompose, Represent" lesson, students play a partner game that involves writing multi-digit numbers in word or expanded form, checking each other's answers, and revising mistakes. In the "Divide Multi-Digit Numbers by One-Digit Numbers with Remainders" lesson, students play a game using number cards to create and solve division problems.

5.2b – Materials provide opportunities for students to practice the application of efficient, flexible, and accurate mathematical procedures throughout learning pathways.

In *Zearn Math*, the materials provide structured opportunities for students to practice efficient, flexible, and accurate mathematical procedures throughout their learning. Lessons use multiple strategies to solve multi-digit multiplication problems, including area models, partial products, and the standard algorithm. In the lessons on multi-digit addition and subtraction, students round numbers before selecting either a number line or a strip diagram to solve. Warm-Ups and fluency routines across the "Course Guide" emphasize strategy evaluation and accurate execution for solving problems involving place value, measurement, and multistep operations.

In *Math Catalyst*, students engage in multiple strategies for solving problems involving multiplication and division. In the unit on multiplying multi-digit numbers by one-digit numbers, students begin with the area model and distributive property, then connect these representations to vertical form. They compare partial products between the two methods, gaining practice with both efficient and accurate strategies. Similarly, in division lessons, students use place value disks to distribute and regroup, then progress to compatible numbers and area models. Through drawing and comparing place value models with the standard algorithm, students evaluate which strategy is more efficient while ensuring their calculations are accurate.

5.2c – Materials provide opportunities for students to evaluate mathematical representations, models, strategies, and solutions for efficiency, flexibility, and accuracy throughout learning pathways.

In *Zearn Math*, the materials include prompts that guide students to reflect on and evaluate different problem-solving strategies based on efficiency and accuracy. For example, in Mission 1, Lesson 2, the Wrap-Up section asks students to compare methods such as arrays, area models, and equations with questions like, "Which method was quicker?" and "Which model helped you visualize the problem best?" This strategic comparison encourages students to think critically about their approaches. In Mission 4, students solve perimeter problems using various formulas (e.g., $L + W + L + W$, $2L + 2W$, and $2 \times (L + W)$), and then evaluate the most appropriate formula for specific scenarios. The "Course Guide" further supports this type of metacognitive reflection by offering wrap-up prompts for students to analyze decompositions and explain why their chosen strategy was effective.

In *Math Catalyst*, students are given regular opportunities to evaluate strategies and representations for efficiency, flexibility, and accuracy. In the "Multiplication of Multi-Digit Numbers by One-Digit Numbers" unit, students use the area model and the distributive property to connect those representations to vertical form. They compare partial products between strategies to assess accuracy and determine which method is more efficient. Similarly, in the "Represent Equivalent Fractions" unit, students use strip diagrams and number lines to represent the same fraction and are prompted to analyze the representations.

5.2d – Materials contain guidance to support students in selecting increasingly efficient approaches to solve mathematics problems.

In *Zearn Math*, the materials provide structured guidance to help students move toward increasingly efficient problem-solving strategies. For example, in Mission 1, students transition from using visual representations, such as arrays and area models, to applying the standard algorithm for multi-digit multiplication. Teacher prompts emphasize selecting methods that best align with the problem's structure and complexity. In Mission 4, students explore three different formulas for perimeter, $L + W + L + W$, $2L + 2W$, and $2 \times (L + W)$, and analyze which is most efficient depending on the shape. Lessons also include extensions that ask students to solve for unknown side lengths using area or perimeter,

reinforcing the strategic selection of methods. The "Course Guide" supports this progression by encouraging teachers to use visual tools, templates, and discussions to guide students toward streamlined approaches that retain conceptual understanding.

In *Math Catalyst*, the materials support students in identifying and applying more efficient problem-solving strategies through progressive lesson sequencing. In the "Multiplication of Multi-Digit Numbers by One-Digit Numbers" unit, students begin by modeling with area representations and the distributive property, then transition to vertical form with partial products. Each objective guides students to refine their approach and increase efficiency. Similarly, in "Divide Multi-Digit Numbers by One-Digit Numbers," the lessons scaffold division strategies, starting with concrete models such as place value disks and place value charts. As students build understanding, they advance to finding compatible numbers and ultimately apply the standard algorithm.

5.3 Balance of Conceptual Understanding and Procedural Fluency

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.3a	All criteria for guidance met.	2/2
5.3b	All criteria for guidance met.	3/3
5.3c	All criteria for guidance met.	6/6
—	**TOTAL**	11/11

5.3a – Materials explicitly state how the conceptual and procedural emphasis of the TEKS are addressed.

In *Zearn Math*, the materials explicitly highlight the conceptual emphasis of the TEKS in Mission 3, Topic A, by introducing multi-digit multiplication through area models and place value strategies. Lesson guidance focuses on helping students understand how partial products relate to the structure of the standard algorithm. In Mission 5, the materials deepen conceptual understanding of equivalent fractions by using visual models, such as fraction towers and number lines, to explore part-whole relationships and benchmark comparisons. The materials then shift to procedural emphasis in Mission 5 by guiding students from visual fraction models to symbolic representations. Students write equations and use standard notation to compose, decompose, and compare fractions with like and unlike denominators. The grade 4 "Course Guide" outlines how these conceptual foundations progress toward procedural strategies across major content strands, using models and visual tools before introducing formal algorithms and equations.

In *Math Catalyst*, the "Implementation Guide" provides an overview of how the materials balance conceptual understanding and procedural fluency, stating that Concept Mini Lessons progress in complexity and offer opportunities for students to develop both. The Practice component then reinforces this learning. In the "Adding Fractions with Like Denominators" unit, students begin with fraction tiles to represent unit form, then transition to number lines, and later apply properties of operations. Additionally, in the Progression of Mini Lesson Objectives for the "Multiplication" unit, the materials describe a clear progression from area models to vertical form, partial products, and eventually the standard algorithm, linking visual understanding to procedural mastery.

5.3b – Questions and tasks provide opportunities for students to use concrete models, pictorial representations, and abstract models as required by the TEKS.

In *Zearn Math*, the materials provide opportunities for students to engage with concrete, pictorial, and abstract models. In Mission 2, students use place value disks to solve measurement and conversion problems involving metric units. In Mission 4, they use protractors and manipulatives to construct and measure angles. In Mission 5, students explore fraction equivalence and decomposition using fraction towers. In Mission 6, virtual base-ten blocks and decimal grids help students understand place value. Pictorial representations, including number lines, area models, and geometric diagrams, appear in

Concept Exploration and Warm-Up activities. After students have built conceptual understanding using physical and visual tools, the materials then introduce abstract models such as equations, formulas, and standard algorithms.

In *Math Catalyst*, students engage with concrete, pictorial, and abstract models across the Concept Mini Lessons. In "Compose, Decompose, and Represent Multi-Digit Numbers," students begin with place value disks to build and break apart numbers in Objective 1, then move to pictorial place value charts and write numbers in unit form in Objective 2. In the "Divide Multi-Digit Numbers by One-Digit Numbers with Remainders" unit, students begin in Objective 1 using cubes to create equal groups. By Objective 3, they use place value charts for pictorial representation, and in Objective 4, they transition to the standard algorithm.

5.3c – Materials include supports for students in connecting, creating, defining, and explaining concrete and representational models to abstract (symbolic/numeric/algorithmic) concepts, as required by the TEKS.

In *Zearn Math*, the materials include support for connecting concrete and representational models to abstract concepts. In Mission 2, Lesson 4, students use place value disks alongside expanded notation to convert metric units and connect visual models to symbolic expressions. In Mission 5, Lesson 8, students use number lines and fraction towers to visualize equivalent fractions before writing equations to describe those relationships. Lesson guidance encourages students to justify their reasoning using visual evidence. Across multiple missions, the materials support students in creating models, such as drawing arrays, constructing area models, and building geometric figures to deepen understanding. In Mission 4, students sketch and measure angles and classify shapes using hands-on tools. In Student Lesson Materials and Lesson Synthesis, students are guided to define and explain how models connect to abstract notation. For example, they describe how numerators and denominators are represented in fraction models and relate decimal place value to expanded form. Sentence starters and targeted prompts support the development of mathematical language to explain the connections between models and equations.

In *Math Catalyst*, students transition from concrete to pictorial to abstract models across multiple objectives. In "Compose, Decompose, and Represent Multi-Digit Numbers," students begin with place value disks and then use place value charts and expanded notation to represent numbers. In "Divide Multi-Digit Numbers by One-Digit Numbers with Remainders," students begin by using counters to model equal groups and later transition to strip diagrams and pictorial models using place value charts. Finally, they solve the same problems using the standard algorithm. While the materials offer multiple model types to support conceptual development, they do not include guidance or student-facing prompts that help define and explain how concrete and representational models connect to abstract (symbolic or numeric) concepts, as required by the TEKS.

5.4 Development of Academic Mathematical Language

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.4a	All criteria for guidance met.	1/1
5.4b	All criteria for guidance met.	2/2
5.4c	All criteria for guidance met.	1/1
5.4d	All criteria for guidance met.	2/2
5.4e	All criteria for guidance met.	2/2
—	**TOTAL**	8/8

5.4a – Materials provide opportunities for students to develop academic mathematical language using visuals, manipulatives, or other language development strategies.

In *Zearn Math*, academic vocabulary is introduced through explicit modeling, visuals, and manipulatives embedded in instruction. In Mission 3, Lesson 6, students describe multi-digit multiplication using base-ten blocks while the teacher introduces terms such as *partial product* and *area model*, which are reinforced through images and narration. In Mission 3, Lesson 12, digital manipulatives support vocabulary development as students sort place value disks to represent dividend and divisor relationships, then draw models to explain division structures. In Mission 5, Lesson 13, students engage in a hands-on fraction comparison activity using shaded rectangles, with teacher prompts guiding the use of terms such as *numerator* and *denominator* to describe parts of the whole.

In *Math Catalyst*, the materials provide frequent opportunities for students to develop academic mathematical language using visuals, manipulatives, and structured language supports. In Representations of Multiplication, students use manipulatives and drawings to represent multiplication as repeated addition. Vocabulary terms such as *equal*, *expression*, *repeated addition*, *array*, *rows*, *columns*, *total*, and *factors* are introduced and reinforced through hands-on activities. In "Multiplication of Multi-Digit Numbers by One-Digit Number," students use area models and partial products to solve problems, with teacher guidance encouraging the use of sentence frames such as "We can decompose into . . ." and "We can use . . . to find the partial products," to scaffold vocabulary use in discussions.

5.4b – Materials include embedded educator guidance to scaffold, support, and extend students' use of academic mathematical vocabulary in context when communicating with peers and educators.

In *Zearn Math*, the materials embed educator guidance to scaffold and extend the use of academic mathematical vocabulary during lesson discussions. In Mission 1, Lesson 5, the Multiple Means of Representation section prompts students to trace arrays using fingers or colored pencils while repeating the terms *array* and *row*. Teachers facilitate partner discussions and journal reflections using these terms, reinforcing vocabulary through repetition and peer explanation. In Mission 2, Lesson 3, multimodal support includes gestures (e.g., outlining a rectangle to model area), diagrams, and structured questions

like "What are the factors in your equation?" and "How does this diagram show a comparison?" to build understanding of terms such as *factor*, *product*, and *times as many*. In Mission 6, Lesson 4, vocabulary instruction extends to real-world financial contexts with prompts such as "What do we mean by more expensive and less expensive?" Students use labeled visuals and apply terms such as *price*, *value*, *cost*, and *change* during structured discourse to support precise mathematical communication.

In *Math Catalyst*, the materials provide educator guidance to scaffold vocabulary use during mathematical discussions. In "Multiplying Multi-Digit Numbers by One-Digit Numbers Using Area Models and Partial Product," Objective 1 suggests sentence frames such as "We can decompose ___ into ___" and "We can use ___ to find the partial products." Similarly, in "Multiplication of Two-Digit Numbers by Two-Digit Numbers," Objective 3 includes a Language Support feature with detailed sentence frames to help students explain each step of their calculations. However, the materials do not include guidance for extending students' use of academic mathematical vocabulary beyond initial scaffolding in peer or whole-class discussions.

5.4c – Materials include embedded guidance to support student application of appropriate mathematical language and academic vocabulary in discourse.

In *Zearn Math*, the materials include embedded teacher-facing supports that guide students in applying academic mathematical vocabulary during structured discourse. In Mission 1, Lesson 5, students use terms such as *array*, *row*, *equal groups*, *area model*, and *product* to describe multiplication strategies and calculate area with rectangular arrays. Prompts in the Lesson Synthesis section, such as "How does the array help find the total area?" and "What does each row or column represent in this model?" support vocabulary use in both discussion and written explanation. In Mission 1, Lesson 4, the Concept Exploration and Guided Practice sections include prompts, including "How can repeated addition represent this array?" and "How does the multiplication equation match the model?" to guide the use of terms such as *repeated addition*, *multiplication equation*, and *unit form*. In Mission 6, Lesson 4, the Math Chat and Student Discussion sections use labeled visuals and discussion questions to promote vocabulary such as *cost*, *price*, *value*, and *difference* within real-world financial contexts.

In *Math Catalyst*, the materials include embedded teacher guidance to support students' application of academic vocabulary during problem-solving and reasoning. In "Subtract Decimals to the Hundredths," Objective 2 includes a Turn and Talk prompt where students discuss subtraction strategies using a place value chart and vertical form. During the discussion, students use terms such as *tenths*, *hundredths*, *vertical form*, *minus*, *compose*, *decompose*, *difference*, and *rename*. In the "Multiplication of Two-Digit Numbers by Two-Digit Numbers" unit, Objective 3 invites students to discuss how they used place value and partial products to multiply, reinforcing precise mathematical vocabulary in reasoning tasks.

5.4d – Materials include embedded guidance to facilitate mathematical conversations allowing students to hear, refine, and use math language with peers.

In *Zearn Math*, the materials include embedded guidance to support peer conversations using academic mathematical vocabulary. In Mission 2, Lesson 9, teacher materials provide sentence frames such as "___ kilometers is equal to ___ meters," and "I multiplied because . . ." to guide students in discussing metric conversions. The Guided Practice section directs teachers to model the sentence frames and monitor peer discussions to ensure accurate vocabulary use. In Mission 3, Lesson 10, structured prompts in the Multiple Means of Representation and Lesson Synthesis sections facilitate student discussions using terms such as *partial products*, *area model*, and *algorithm* to compare multiplication strategies. Prompts like "How does the area model help solve the problem?" support collaborative reasoning. In Mission 7, Lesson 3, the Math Chat routine includes visuals and discussion questions, such as "Why do we convert gallons to quarts first?" to guide student dialogue using terms like *gallons*, *quarts*, and *volume*.

In *Math Catalyst*, the materials provide teacher guidance to support peer discourse using mathematical language. In "Subtract Decimals to the Hundredths," Objective 2 includes Turn and Talk opportunities for students to explain strategies using vocabulary such as *tenths*, *hundredths*, *decomposing*, and *vertical form*. Questions such as "Do you need to decompose a unit to subtract?" help students refine their reasoning through discussion. In "Fractions as Numbers: Represent and Generate Equivalent Fractions Greater Than 1," Objective 4 prompts students to turn and talk about finding equivalent mixed numbers using multiplication, encouraging the use of academic vocabulary in collaborative conversations.

5.4e – Materials include embedded guidance to anticipate a variety of student answers including exemplar responses to questions and tasks, including guidance to support and/or redirect inaccurate student responses.

In *Zearn Math*, the materials include embedded guidance to anticipate a variety of student answers, including possible misconceptions, and provide exemplar responses to questions and tasks. For example, in Mission 3, Lesson 8, the "Teacher Guide" outlines solution strategies students might use when multiplying two-digit numbers and provides sample correct answers that model efficient approaches. The program also includes explicit prompts and instructional moves to redirect inaccurate responses. In Mission 5, Lesson 4, teachers are guided to address errors in identifying equivalent fractions by prompting students to revisit fraction models and compare visual representations to confirm accuracy. However, exemplar responses and redirection strategies are not consistently included across all lessons, as some provide only correct answers without additional instructional moves, limiting teacher support for addressing misconceptions in every context.

In *Math Catalyst*, the materials provide exemplar student responses alongside questions to guide teacher feedback. For example, in the "Teacher Guide" for "Add Fractions with Like Denominators," Objective 1 includes the prompt, "How are the equations with fractional units similar to the whole number equations?" with the exemplar response, "The parts are added to make the total; they both show 2 units

+ 4 units = 6 units." Similarly, in "Subtract Decimals to the Hundredths," Objective 3, the materials ask, "Are we ready to subtract the tenths? How do you know?" with the exemplar response, "Yes, we are ready to subtract the tenths. There are 3 tenths, and we do not need to take away any tenths." The Concept Mini Lesson component further provides visual examples of sample student work to clarify expectations for proficient solutions. Each lesson also includes an Analyze Student Progress section with Questions to Advance Student Thinking to help educators interpret student strategies, identify misconceptions, and scaffold support. In addition, the Addressing Student Misconceptions section of each "Concept Guide" provides explicit guidance for responding to common misunderstandings, ensuring teachers have actionable strategies to redirect inaccurate responses.

5.5 Process Standards Connection

GUIDANCE	SCORE SUMMARY	RAW SCORE
5.5a	All criteria for guidance met.	1/1
5.5b	All criteria for guidance met.	2/2
5.5c	All criteria for guidance met.	1/1
—	**TOTAL**	4/4

5.5a – TEKS process standards are integrated appropriately into the materials.

In *Zearn Math*, the materials embed structured opportunities for students to engage with the TEKS process standards through consistent instructional routines. Students regularly apply the RDW (Read–Draw–Write) process in Guided Practice and Tower of Power tasks to solve real-world multiplication problems using strip diagrams, number bonds, and written explanations. In Mission 3, Lesson 17, the Math Chat routine supports process standards 4.1A–4.1G by prompting students to select strategies, justify solutions, and use visual representations to communicate their thinking. Written response prompts in Student Notes and Exit Tickets also ask students to explain their reasoning and evaluate different strategies, especially when working with fraction comparisons.

In *Math Catalyst*, the TEKS process standards are integrated into the instructional design through application-based tasks. In "Subtract Decimals to the Hundredths," students engage with process standards in the Application section by organizing decimal subtraction using place value charts in the context of rainfall. In "Add Decimals to the Hundredths," students solve problems involving decimal or money addition using the RDW process or grid paper to align numbers and organize their work. These instructional routines reinforce the connection between process skills and content understanding.

5.5b – Materials include a description of how process standards are incorporated and connected throughout the learning pathways.

In *Zearn Math*, the materials explain how the TEKS process standards are embedded to support mathematical concept development. The Mission 3 Overview outlines how students build fluency through modeling, communication, and analysis, moving from concrete representations (e.g., area models and strip diagrams) to abstract strategies for multi-digit multiplication and division. In Mission 3, Lesson 9, students construct and label area models, write equations to represent partial products, and explain how the model reflects place value and the distributive property, demonstrating the integration of multiple TEKS process standards. In Topic D, Lessons 18–20, multistep problem-solving tasks ask students to estimate, select strategies, and defend their solutions using visual models and equations, reinforcing process standards through reasoning, justification, and representation.

In *Math Catalyst*, the materials describe how the TEKS process standards are incorporated and connected throughout the learning pathways. The "Implementation Guide" provides general explanations, such as

how students use place value charts and drawings to solve problems in units like "Subtract Decimals to the Hundredths" and "Add Decimals to the Hundredths." The "Alignment Guide" lists the process standards addressed in each strand and shows how they connect across the instructional pathway. For example, in the multiplication strand, process standards 1A, 1C, 1D, 1E, 1F, and 1G are identified as key components of the unit's structure and instruction.

5.5c – Materials include an overview of the TEKS process standards incorporated into each lesson.

In *Zearn Math*, the grade 4 "Course Guide" includes a grade 4 Mathematical Process Standards by Lesson per Mission chart that maps each TEKS process standard (4.1A–4.1G) to specific lessons. For example, in Mission 3, Lessons 1–3, the materials embed 4.1C, and standard 4.1E is in Mission 5, Lessons 1–8. This documentation provides an overview of when and where each process standard occurs, giving educators a structured reference to track student engagement in problem-solving, modeling, communication, and justification throughout the year.

In *Math Catalyst*, the materials do not provide an overview of the process standards embedded in each lesson. While the "Alignment Guide" for each unit includes a section listing the applicable process standards for the overall strand, it does not break down or associate those standards with specific lessons.

6. Productive Struggle

Materials support students in applying disciplinary practices to productive problem-solving, including explaining and revising their thinking.

6.1 Student Self-Efficacy

GUIDANCE	SCORE SUMMARY	RAW SCORE
6.1a	All criteria for guidance met.	3/3
6.1b	All criteria for guidance met.	3/3
6.1c	All criteria for guidance met.	3/3
—	**TOTAL**	9/9

6.1a – Materials provide opportunities for students to think mathematically, persevere through solving problems, and to make sense of mathematics.

In *Zearn Math*, the materials provide structured opportunities for students to think mathematically, make sense of problems, and persevere through challenging tasks. In Mission 3, the Concept Exploration includes partner modeling and prompts, such as "What conclusions can you make from your drawing?" to support peer feedback and revision. Students solve long division problems using scaffolds such as graph paper and placeholder digits, promoting alignment, accuracy, and persistence. In the Tower of Power digital lessons, corrective supports are activated when students answer incorrectly, prompting them to analyze their errors and revise their work. Teachers present complex problems that require justification of models, including base-ten blocks and place value charts, especially when solving multiplication problems involving ten times as many. Students engage with multistep word problems involving area, perimeter, and multi-digit operations, often using strip diagrams and estimation. Tasks such as comparing T-shirt sales or calculating total fabric use encourage modeling, justification, and reflection through discussion and written explanations.

In *Math Catalyst*, the materials support mathematical thinking and perseverance through intentionally sequenced tasks that increase in complexity. In "Add Whole Numbers within 1,000,000," each Mini Lesson builds in difficulty to help students gain confidence before solving more complex problems. Teachers ask questions such as "How can you show both addends with your disks?" and "Can you make a larger unit? How?" In "Fractions as Numbers: Represent and Generate Equivalent Fractions Greater Than 1," students solve multistep problems using visuals and given information, with instructions that require critical thinking to arrive at a solution.

6.1b – Materials support students in understanding, explaining, and justifying that there can be multiple ways to solve problems and complete tasks.

In *Zearn Math*, the materials guide students in understanding and explaining that there is more than one way to solve a problem. In Mission 3, the Concept Exploration section presents multistep word problems

and prompts students to compare strategies with their peers. Teachers ask questions like "What's another way to represent that work?" to support the analysis of alternate methods. Lessons on area and perimeter encourage students to apply and compare different formulas, such as P = *L* + *W* + *L* + *W*, P = 2*l* + 2*w*, and P = 2 × (*L* + *W*), with students justifying which strategy is most efficient. In problems involving multi-digit multiplication and elapsed time, students use various strategies—including the standard algorithm, partial products, area models, and the distributive property. The Read–Draw–Write process and Lesson Synthesis discussions prompt students to justify their thinking, evaluate strategy efficiency, and reflect on different solution paths.

In *Math Catalyst*, the materials support students in understanding, explaining, and justifying multiple ways to solve a problem. In the "Teacher Guide" for "Addition of Whole Numbers Within 1,000,000," the Solve a Problem activity in the Application section prompts teachers to invite students to share their work with a partner, compare solution paths, and make connections between different representations. In "Add Fractions with Unlike Denominators," Objective 3, the materials guide the teacher to state, "Let's use the associative property to find the sum of 1/8, 4/8, and 4/8 another way," encouraging students to explore alternate strategies. After students share their methods with the class, they are asked, "Both ways resulted in the same sum. Which way do you prefer? Why?" In "Subtract Fractions from Whole Numbers," Objective 3, students are prompted to choose a strategy and work with a partner to find the difference in 8/8 – 2/8. They are encouraged to draw a number line or think of the equation as addition with an unknown, reinforcing the idea that there are multiple valid paths to a solution.

6.1c – Materials are designed to require students to make sense of mathematics through multiple opportunities for students to do, write about, and discuss math with peers and/or educators.

In *Zearn Math*, the materials include collaborative tasks that require students to solve problems and discuss strategies with peers. In Mission 3, the Concept Exploration section prompts partners to solve perimeter and area problems, share how they found missing lengths, and compare different formulas to determine the most efficient strategy. Students write about mathematics by drawing and labeling figures, applying formulas, and connecting visual models to equations through written solution statements. Structured discussion and writing prompts in Guided Practice and Lesson Synthesis prompt students to justify their solutions and reflect on their accuracy. For example, during multistep problem-solving with strip diagrams and estimation, students respond to prompts like "How can you know if 46,303 is a reasonable answer? Discuss with your partner." Students complete individual written explanations and engage in peer dialogue to reinforce understanding.

In *Math Catalyst*, the materials provide opportunities for students to do, write about, and discuss mathematics within structured tasks. In "Addition of Whole Numbers Within 1,000,000," students solve problems using the Read–Draw–Write Tool, share their thinking with peers, and connect multiple representations. In "Multiplication of Multi-Digit Numbers by One-Digit Numbers," students use area

models to decompose numbers and calculate partial areas. Then, they write equations and complete sentence explanations to represent and justify their thinking.

6.2 Facilitating Productive Struggle

GUIDANCE	SCORE SUMMARY	RAW SCORE
6.2a	All criteria for guidance met.	6/6
6.2b	All criteria for guidance met.	4/4
—	**TOTAL**	10/10

6.2a – Materials support educators in guiding students to share and reflect on their problem-solving approaches, including explanations, arguments, and justifications.

In *Zearn Math*, the materials support educators in facilitating student communication of mathematical reasoning through explanation, argumentation, and justification. In Mission 3, the Read–Draw–Write process guides students to model problems, explain their representation choices, and justify solutions in structured partner dialogue. Throughout the lessons, the scripted teacher prompts encourage students to reflect on solution strategies. For example, in Mission 7, students compare area models and partial products to the standard two-digit by two-digit multiplication algorithm. Teachers ask, "How is it different?" and "How did your understanding help you learn the algorithm?" to foster meaningful connections. Lessons embed opportunities for peer discourse around problem-solving strategies. Students respond to prompts like "Explain how you solved the problem" and "What is the advantage of this method?" as they justify their reasoning, evaluate efficiency, and analyze model similarities.

In *Math Catalyst*, the materials support educators in guiding students to share and reflect on their problem-solving approaches with explanations, arguments, and justifications. In the "Teacher Guide" for "Add Whole Numbers Within 1,000,000," students work with partners to compare solution paths, explain their thinking, and justify their responses during the Application—Solve a Problem activity. These collaborative opportunities are structured to deepen understanding through peer discussion. In the Solve a Task activity for the same lesson, students respond to the prompt, "Robin says that the total number of people who attend games 3 and 4 is greater than the total number of people who attend games 1 and 2. Do you agree? Why?" This task requires students to determine the solution and justify their reasoning in writing, reinforcing their ability to communicate mathematical thinking clearly and support their conclusions with evidence.

6.2b – Materials include prompts and guidance to support educators in providing explanatory feedback based on student responses and anticipated misconceptions.

In *Zearn Math*, the materials include prompts to help educators respond to student responses. In Mission 3, Lesson 18, the teacher asks follow-up questions as students solve problems. The materials provide the teacher with prompts, as well as anticipated student answers. For example, "We'll think of our eights facts. I'm thinking of an eights fact whose product is close to 74. Can you guess? Nice job! But 72 is only part of 74. What's the other part? What is 74 divided by 8?" In Mission 3, Lesson 8, the materials offer educator guidance in Notes on Multiple Means of Action and Expression on what to do when students

recognize and want to start using more efficient strategies than the one presented. For example, the materials state, "Review the advantages of tracking regrouping, yet encourage innovation and discovery of other methods, such as the method as introduced in Problem 3."

In *Math Catalyst*, the materials include prompts to help educators address anticipated misconceptions. For example, in the "Teacher Guide" for "Add Decimals to the Hundredths," the Addressing Student Misconceptions section includes questions such as, "What is the largest unit in the first addend? Write the first addend in vertical form. What is the largest unit in the second addend?" These prompts help educators surface and correct conceptual errors. Similarly, in "Division: Divide Multi-Digit Numbers by One-Digit Numbers with Remainders," educators are guided to clarify misunderstandings by relating the quotient to the number of equal groups and the remainder to the amount that does not fit. Teachers help students locate the quotient and remainder within their equations and the standard algorithm. However, while the materials support anticipation of misconceptions, they do not provide embedded guidance for delivering explanatory feedback based on student responses. Teacher Tips are included throughout, but they lack specific prompts or strategies to help educators respond to correct or incorrect student work in real time.