Publisher Name	Program Name
Kiddom	*Texas Math Powered by Kiddom*
Subject	**Grade Level**
Mathematics	5

Texas Essential Knowledge and Skills (TEKS) Coverage: **100%**

English Language Proficiency Standards (ELPS) Coverage: **100%**

Quality Review Overall Score: **220 / 227**

Quality Review Summary

Rubric Section	Quality Rating
1. Intentional Instructional Design	**52 / 53**
2. Progress Monitoring	**25 / 28**
3. Supports for All Learners	**31 / 32**
4. Depth and Coherence of Key Concepts	**23 / 23**
5. Balance of Conceptual and Procedural Understanding	**64 / 66**
6. Productive Struggle	**25 / 25**

Strengths

- 1.1 Course-Level Design: Materials include a scope and sequence outlining the TEKS, ELPS, concepts, and knowledge taught in the course, with suggested pacing guides for various instructional calendars, explanations for the rationale of unit order and concept connections, guidance for unit and lesson internalization, and resources to support administrators and instructional coaches in implementing the materials as designed.
- 1.3 Lesson-Level Design: Materials include comprehensive, structured lesson plans with daily objectives, questions, tasks, materials, and instructional assessments required to meet the content and language standards. They also provide a lesson overview outlining the suggested timing for each component, a list of necessary teacher and student materials, and guidance on the effective use of lesson materials for extended practice, such as homework, extension, and enrichment.
- 2.2 Data Analysis and Progress Monitoring: Materials include instructional assessments and scoring information that provide guidance for interpreting and responding to student performance, offer guidance on using tasks and activities to

address student performance trends, and include tools for students to track their own progress and growth.

- 3.1 Differentiation and Scaffolds: Materials include teacher guidance for differentiated instruction, activities, and scaffolded lessons for students who have not yet reached proficiency, pre-teaching or embedded supports for unfamiliar vocabulary and references in text, and guidance for differentiated instruction, enrichment, and extension activities for students who have demonstrated proficiency in grade-level content and skills.
- 3.2 Instructional Methods: Materials include prompts and guidance to support teachers in modeling, explaining, and directly and explicitly communicating concepts to be learned. They provide teacher guidance and recommendations for effective lesson delivery using various instructional approaches, and support multiple types of practice with guidance on recommended structures, such as whole group, small group, and individual settings, to ensure effective implementation.
- 4.1 Depth of Key Concepts: Materials provide practice opportunities and instructional assessments that require students to demonstrate depth of understanding aligned to the TEKS, with questions and tasks that progressively increase in rigor and complexity, leading to grade-level proficiency in mathematics standards.
- 4.2 Coherence of Key Concepts: Materials demonstrate coherence across courses and grade bands through a logically sequenced scope and sequence, explicitly connecting patterns, big ideas, and relationships between mathematical concepts, linking content and language across grade levels, and connecting students' prior knowledge to new mathematical knowledge and skills.
- 4.3 Spaced and Interleaved Practice: Materials provide spaced retrieval and interleaved practice opportunities with previously learned skills and concepts across lessons and units.
- 5.1 Development of Conceptual Understanding: Materials include questions and tasks that require students to interpret, analyze, and evaluate various models for mathematical concepts, create models to represent mathematical situations, and apply conceptual understanding to new problem situations and contexts.
- 5.2 Development of Fluency: Materials provide tasks designed to build student automaticity and fluency for grade-level tasks, offer opportunities to practice efficient and accurate mathematical procedures, evaluate procedures for efficiency and accuracy, and include embedded supports for teachers to guide students toward more efficient approaches.
- 5.4 Development of Academic Mathematical Language: Materials provide opportunities for students to develop academic mathematical language using visuals, manipulatives, and language strategies, with embedded teacher

guidance on scaffolding vocabulary, syntax, and discourse, and supporting mathematical conversations to refine and use math language.

- 5.5 Process Standards Connections: Materials integrate process standards appropriately, nor do they provide descriptions of how they are incorporated and connected throughout the course, within each unit, or in each lesson.
- 6.1 Student Self-Efficacy: Materials provide opportunities for students to think mathematically, persevere through problem-solving, and make sense of mathematics, while supporting them in understanding multiple ways to solve problems and requiring them to engage with math through doing, writing, and discussion.
- 6.2 Facilitating Productive Struggle: Materials support teachers in guiding students to share and reflect on their problem-solving approaches, offering prompts and guidance for providing explanatory feedback based on student responses and anticipated misconceptions.

Challenges

- 1.2 Unit-Level Design: Materials do not include the academic vocabulary necessary to effectively teach the concepts in the unit.
- 2.1 Instructional Assessments: The materials do not align diagnostic, formative, and summative assessments to the TEKS.
- 3.3 Support for Emergent Bilingual Students: Materials do not provide linguistic accommodations for more than one level of language proficiency.
- 5.3 Balance of Conceptual Understanding and Procedural Fluency: Materials do not explicitly state how the conceptual and procedural emphasis of the TEKS are addressed.

Summary

Texas Math powered by Kiddom is a Mathematics 3–5 program emphasizing real-world problem-solving. This practical approach is designed to engage students in learning, enhance their critical thinking skills, and increase student outcomes. The program is student-centered, discovery-based, and incorporates student communication. It also promotes collaborative learning, providing teachers with a consistent daily lesson structure. The lessons are problem-based, use real-world situations, and are detailed, including various questions, tasks, and assessments. Materials include teacher guidance for Lesson Narratives, Lesson Synthesis, Number Talks, Centers, and Responding to Student Thinking. Additionally, the program consists of coherence across units by connecting content and language learned in previous courses/grade levels.

Campus and district instructional leaders should consider the following:

- While the product features comprehensive and detailed lessons with guidance for differentiation and various instructional approaches.

- The program includes multiple opportunities for students to collaborate and learn from each other through hands-on experiences relevant to everyday life. Materials connect previous and future learning through shared language and vocabulary.

Intentional Instructional Design

1.1	Course-Level Design	15/15
1.1a	Materials include a scope and sequence outlining the TEKS, ELPS, concepts, and knowledge taught in the course.	**5/5**
1.1b	Materials include suggested pacing (pacing guide/calendar) to support effective implementation for various instructional calendars (e.g., varying numbers of instructional days – 165, 180, 210).	**2/2**
1.1c	Materials include an explanation for the rationale of unit order as well as how concepts to be learned connect throughout the course.	**2/2**
1.1d	Materials include guidance, protocols, and/or templates for unit and lesson internalization.	**2/2**
1.1e	Materials include resources and guidance to support administrators and instructional coaches with implementing the materials as designed.	**4/4**

The materials include a scope and sequence outlining the TEKS, ELPS, concepts, and knowledge taught in the course. Materials include suggested pacing (pacing guide/calendar) to support effective implementation for various instructional calendars (e.g., varying numbers of instructional days–165, 180, and 210). Materials include an explanation for the rationale of unit order as well as how concepts to be learned connect throughout the course. Materials include guidance, protocols, and templates for unit and lesson internalization. Materials include resources and guidance to support administrators and instructional coaches in implementing materials as designed.

Evidence includes, but is not limited to:

Materials include a scope-and-sequence outlining the TEKS, ELPS, concepts, and knowledge taught in the course.

- The materials provide TEKS, ELPS, and subject materials applicable to grade 5 math. For example, the *Course Guide Overview* and *Teacher Resource Guide* both include a year-long TEKS-aligned scope and sequence for instruction. The scope and sequence consists of eight units for grade 5. Each unit contains student learning goals, concepts and how they build across the unit, and knowledge. The guide outlines how grade 5 concepts are broken into units and the lesson progression within each unit.
- Materials incorporate multiple learning targets containing concepts and knowledge taught. Each unit includes the learning goals with an explanation of the correlation of standards addressed in each unit and the concepts and knowledge addressed in the explanations. A clear progression of knowledge and concepts is outlined for each unit covering the grade 5 TEKS.

Materials include suggested pacing (pacing guide/calendar) to support effective implementation for various instructional calendars (e.g., varying numbers of instructional days–165, 180, and 210).

- The materials provide a flexible pacing calendar with opportunities to adjust as needed. The Texas Scope and Sequence materials include a year-long breakdown of estimated time frames for teachers with suggested pacing for each unit. For example, in Unit 1, the unit suggests 12 instructional days and two days for extension, review, and assessment. The suggested pacing guide is for a 34-week cycle.
- The guide for pacing includes a range of instructional calendar days. The scope and sequence suggest a range of days from 163 to over 177. The Texas Scope and Sequence page states, "To reduce the number of instructional days, omit the 14 lessons noted as optional. This will reduce the number of instructional days to 163 days."

Materials include an explanation for the rationale of unit order as well as how concepts to be learned connect throughout the course.

- Materials explain the reasoning of unit order and the concept flow throughout the course. For example, the Coherent Progression section found in the *Course Guide* explains how concepts learned connect throughout the course. It states, "Grade-level, unit, lesson, and activity narratives describe decisions about the organization of mathematical ideas, connections to prior and upcoming grade-level work, and the purpose of each lesson and activity. The basic architecture of the materials supports all learners through a coherent progression of mathematics based on the standards and research-based learning trajectories. Activities and lessons are parts of a mathematical story that spans units and grade levels." The materials also state, "Every unit, lesson, and activity has the same overarching design structure: The learning begins with an invitation to the mathematics, is followed by a deep study of concepts and procedures, and concludes with an opportunity to consolidate understanding of mathematical ideas. "
- The materials include a thorough explanation of the learning goal for each unit. In the course overview, the scope and sequence consists of a unit-lesson progression guide. In grade 5, the materials found in the scope and sequence digital resources provide a detailed explanation of the learning goals for each unit with information on how these learning goals build upon content learned in previous grade levels. For example, in Unit 1, Section C states, "The work reminds students that they can decompose multi-digit factors by place value to find their product, paving the way toward the standard algorithm for multiplication in a later unit."
- The materials explain the rationale of concept development throughout the course. In the grade 5 scope and sequence, a detailed explanation of the rationale of the unit order is given for each unit. The rationale states the unit learning goals and explains student learning, starting with where learning left off in grade 4. A sequential order provides the unit with organization and connection throughout the course. For example, in Unit 3, Section A, the narrative states, "In this unit, students find the product of two fractions, divide a whole number by a unit fraction, and divide a unit fraction by a whole number."

Materials include guidance, protocols, and/or templates for unit and lesson internalization.

- The materials strategically guide the course. For example, in the Design Principles located in the *Teacher Resource Guide* of the digital resources, the materials guide how the various lesson components connect lessons to the overall learning objective. The Design Principles explain the overarching design principle used throughout the resource. The Design Principles provide the purpose of each unit-lesson component. The materials include guidance for unit internalization. The *Course Guide* for grade 5 includes guidance and common instructional routines used in the units and lessons found in the sections Design Principles, A Typical IM Lesson, and How to Use These Materials.
- The materials provide narratives to guide units and lessons. The grade 5 digital materials have unit narratives at the start of Unit 2 through Unit 8 that provide specific learning goals and specify connections to previous learning. The unit narratives identify foundational skills that build. The Teacher Edition Narrative found in each unit provides guidance to develop a deeper understanding of the following unit. For example, in Unit 2, the Unit Narrative states, "In this unit, students learn to interpret a fraction as a quotient and extend their understanding of multiplication of a whole number and a fraction. In grade 3, students made sense of multiplication and division of whole numbers in terms of equal-size groups. In grade 4, they used multiplication to represent equal-size groups with a fractional amount in each group and to express comparison."
- The materials provide templates to support the internalization of learning. After each unit narrative, the materials include a Section-Level Planning Guide that provides a template for planning lesson components and includes assessment suggestions.
- Activities within each lesson provide details of the arrangement of the lessons. The Lesson Synthesis provides guidance for lesson internalization. In Unit 2, Lesson 2, Lesson Synthesis, the materials provide teachers with statements and questions for students to internalize learning. The materials state, "Today we matched division situations with representations and division expressions. Display expression: 1 ÷ 6 What does the expression mean in terms of the problems we were solving about people sharing sandwiches?" The materials provide examples of students' responses to teacher support.
- Materials provide protocols for lesson understanding. The Instructional Routines section includes a list and description of warm-up routines that "provide structure for both the teacher and the students," designed to assist with lesson internalization. For example, the material states, "Throughout the curriculum, routines are introduced purposefully to build a collective understanding of their structure. The selected activities vary based on their alignment with the unit, lesson, or activity learning goals. While each routine serves a different specific purpose, they all aim to support students in accessing mathematics, requiring students to think and communicate mathematically. The Instructional Routines section of this *Course Guide* gives more details on the specific routines used in the curriculum."
- The materials follow a systematic flow, providing multiple supports and structures for teachers and students. The *Teacher Resource Guide's* "A Typical Kiddom Lesson" section states that a typical lesson has four phases: a warm-up, one or more instructional activities, the lesson synthesis, and a cool-down.

Materials include resources and guidance to support administrators and instructional coaches with implementing the materials as designed.

- The materials include resources to support administrators and instructional coaches, such as video training. The materials state, "As part of Kiddom's NEW Admin Insights Reporting Package, we now offer Usage Reports! These reports allow district and school leaders to gain insight into Kiddom activation and usage across schools. This video link provides materials that include resources and guidance to support administrators and instructional coaches in implementing the materials as designed."
- The materials provide usage reports for administrator and instructional coach implementation. The top section includes a scoreboard that displays the distribution of scores for each grade level and subject. The scoreboard can be used to assess students' needs. The bottom section displays information about all unit levels and interim assessments. The table tracks student submission and grading progress to determine when it is time to review students' performance across the school or district.

Intentional Instructional Design

1.2	Unit-Level Design	3/4
1.2a	Materials include comprehensive unit overviews that provide the background content knowledge and academic vocabulary necessary to effectively teach the concepts in the unit.	**1/2**
1.2b	Materials contain supports for families in both Spanish and English for each unit with suggestions on supporting the progress of their student.	**2/2**

The materials provide comprehensive unit overviews that provide the background content knowledge. Materials do not contain the academic vocabulary necessary to effectively teach unit concepts. Materials contain supports for families within units with suggestions on supporting the progress of their students in English and Spanish.

Evidence includes, but is not limited to:

Materials include comprehensive unit overviews that provide the background content knowledge and academic vocabulary necessary to effectively teach the concepts in the unit.

- Materials include unit overviews that provide content knowledge to teachers. For example, the grade 5 Unit Narrative opens each unit and explains new concepts students will encounter, student background from the previous grade, and an overview of the learning progression within the unit. The Unit Narrative includes models and sample problems students will interact with throughout the unit. The beginning of the Unit Narrative in Unit 2 provides a comprehensive overview stating "In this unit, students learn to interpret a fraction as a quotient and extend their understanding of multiplication of a whole number and a fraction. In grade 3, students made sense of multiplication and division of whole numbers in terms of equal-size groups. In grade 4, they used multiplication to represent equal-size groups with a fractional amount in each group and to express comparison. For instance, 4 × 13 can represent '4 groups of 13' or '4 times as much as 13.'"
- Each lesson within the unit begins with the purpose and narrative of the lesson, which supports teachers' understanding of foundational skills and learning goals. In Unit 2, Lesson 1, the materials provide a lesson purpose stating "The purpose of this lesson is for students to relate equal shares of objects to division and to fractions." The lesson narrative states, "In previous grades, students learned to interpret products of whole numbers, such as 3×5, as the total number of objects in 3 groups, each containing 5 objects. They interpreted division, such as 15÷3, to be either the number of groups when 15 things are put in groups of 3 or as the number of things in each group when 15 things are put in 3 equal groups. They also solve word problems posed with whole numbers and have whole-number answers, including problems in which remainders must be interpreted. The next several lessons aim to extend this understanding of division to quotients like 15÷6 where the result is not a whole number. Students learned to interpret fractions such as 156 in a previous grade, and this unit will establish that 156 is the value of the quotient 15÷6."

- The materials provide a set of academic terms within the resource. At the beginning of the course and throughout the units, the materials contain Glossary Terms. This includes a slide deck providing "a complete grade-level list including word, definition, and picture for all vocabulary words introduced in the IM Math curriculum." However, academic vocabulary is not clearly provided in the unit overviews. Academic vocabulary directly connected with each lesson or activity is not evident. Academic vocabulary is only offered for the entire resource. The glossary terms provided are insufficient to teach each unit's concepts effectively.

Materials contain supports for families in both Spanish and English for each unit with suggestions on supporting the progress of their student.

- The materials contain resources to support families with information to assist their students in learning in English and in Spanish. Family Support Materials in each unit provide an overview of student learning objectives and suggestions for ways caregivers can support the unit learning at home. Additionally, caregivers can view their student's progress.
- The materials include Family Support Materials with unit concepts, visual models, and questions to ask students as they work. Teachers can provide this information to families for each unit. At the end of the unit, there is a "Try it at Home!" section, which includes a problem that students and caregivers should be able to solve by the end of the unit. This allows for a family connection and understanding of student knowledge. For example, at the end of Unit 2, the section states, "Near the end of the unit, find the volume of these figures with your student," and shows two rectangular prisms with given dimensions or cubes."
- The materials include a Teacher Resource Pack for each unit. This resource provides family support materials in English for each unit.

Intentional Instructional Design

1.3	Lesson-Level Design	34/34
1.3a	Materials include comprehensive, structured, detailed lesson plans that include daily objectives, questions, tasks, materials, and instructional assessments required to meet the content and language standards of the lesson.	**30/30**
1.3b	Materials include a lesson overview outlining the suggested timing for each lesson component.	**1/1**
1.3c	Materials include a lesson overview listing the teacher and student materials necessary to effectively deliver the lesson.	**2/2**
1.3d	Materials include guidance on the effective use of lesson materials for extended practice (e.g., homework, extension, enrichment).	**1/1**

Materials include comprehensive, structured, detailed lesson plans that include daily objectives, questions, tasks, materials, and instructional assessments required to meet the content and language standards of the lesson. Materials include a lesson overview outlining the suggested timing for each lesson component. Materials include a lesson overview listing the teacher and student materials necessary to effectively deliver the lesson. Materials include guidance on the effective use of lesson materials for extended practice.

Evidence includes, but is not limited to:

Materials include comprehensive, structured, detailed lesson plans that include daily objectives, questions, tasks, materials, and instructional assessments required to meet the content and language standards of the lesson.

- Materials include structured lesson plans that contain daily objectives, called Goals. The lesson plans are comprehensive and detailed, and they state the goals for the teacher and the student. For example, in Unit 7, Lesson 1, the materials state, "Ask (orally) questions to identify a specific shape on a coordinate grid. Describe (orally) a shape on a coordinate grid." The materials provide Student Facing Learning Goals that state, "Let's explore the coordinate grid."
- Throughout each lesson, materials provide structured and detailed lesson plans that include questions. In Unit 7, Lesson 3, materials provide teachers with questions to ask within the Activity Synthesis. For example, "How can we describe the location of the point? The coordinates of this point are. What would be the coordinates of the point if we moved it up 2 units?" The lesson plans are not comprehensive in the inclusion of questions because the materials do not provide numerous practice opportunities.
- Teacher Reflection questions are provided for each lesson and questions are included in the Activity Synthesis for each activity. In Unit 7, Lesson 3 materials provide Teacher Reflection questions stating "What questions did you ask to deepen student understanding of the structure of the coordinate grid?"

- The lesson plans contain student tasks built into the activities that are comprehensive, structured, and detailed. Each activity provides the purpose, materials, and Student Task Statements. In Unit 7, Lesson 3, the resource expects students to plot several points with the same vertical or horizontal coordinate and observe that the points lie on a horizontal or vertical line, respectively. Students also plot points on the axes for the first time. The resource states, "Before plotting the points on a grid with grid lines, students first estimate the location of the points. This encourages them to think about the coordinates as distances (from the vertical axis for the first coordinate and the horizontal axis for the second coordinate)." The Student Task Statement states, "Partner A: 1. Estimate to plot and label the location of each point. 2. Plot and label the same points on the coordinate grid. 3. What do the points have in common? 4. Plot the point with coordinates on the coordinate grid." In Unit 7, Lesson 3, Activity 2, the Student Task Statement says, "The grid lines are removed from this coordinate grid, and a point is plotted and labeled. Plot and label some other points. Explain or show your reasoning." Tasks are embedded.
- Materials include structured lesson plans that contain the materials needed for each lesson. In the Teacher Edition, each unit includes an overview that outlines the materials to gather and copy per lesson. In Unit 7, Lesson 1, the materials state "Required Materials: Materials To Copy: Can You Draw It: Stage 6 Recording Sheet (1 copy for every one student): Activity 1. Can You Draw It Stage 6 Shape Cards (1 copy for every one student): Activity 1."
- The materials provide comprehensive, detailed, and structured lesson plans that include instructional assessments. In the *Course Guide*, each lesson describes the Checkpoint. Each Checkpoint includes observations of students' understanding of their work related to the section-level learning goal and ideas for the Next-Section Support. The supports address unfinished learning in upcoming lessons and include centers.
- At the end of each unit is the End-of-Unit Assessment to gauge students' understanding of the key concepts of the unit and prepare students for new-generation standardized exams. Problem types include multiple choice, multiple response, short answer, restricted constructed response, and extended response. Problems vary in difficulty and depth of knowledge.

Materials include a lesson overview outlining the suggested timing for each lesson component.

- The materials provide lesson component timelines. The digital materials for each unit include a Lesson Timeline. For example, in Unit 7, Lesson 2, the curriculum states the warm-up is 10 minutes, Activity 1 is 20 minutes, Activity 2 is 15 minutes, Synthesis Estimate is 10 minutes, and cool-down is 5 minutes. The times may vary from lesson to lesson, and the total time remains within the 60-minute timeframe.
- The materials suggest the timing of lesson components. The indicated time estimates in the materials are referred to as instructional time. The About the Materials section states "Each lesson plan is designed to fit within a class period at least 60 minutes long." There is extended lesson time if the optional activities or student practice are utilized.

Materials include a lesson overview listing the teacher and student materials necessary to effectively deliver the lesson.

- Materials include an overview listing of materials needed to deliver the lesson. Within the Teacher Edition, the beginning of each unit includes a Materials Needed chart organized by every lesson. Each lesson delineates the materials the teacher needs to gather and the materials the teacher needs to copy. For example, Unit 1 Lesson 3 materials state, "One copy for every two students" is needed. For example, in Unit 1, Lesson 1 states connecting cubes are needed.The materials include a section for Required Materials in the lesson overview. This section is divided into two sections: Materials to Gather and Materials to Copy. These align with the Materials Needed chart in the unit overview.

Materials include guidance on the effective use of lesson materials for extended practice (e.g., homework, extension, enrichment).

- The materials include extended practice designed to support learning outside of the school day. The How to Use These Materials section of the digital materials informs teachers of Exploration Problems that are intended to extend learning and may be used as homework. For example, Exploration Problems in the materials provide extended practice opportunities but may not be suitable to support independent learning outside the school day. The How to Use These Materials guidance states "One type is a hands-on activity directly related to the material of the unit that students can do either in class if they have free time, or at home. The second type of exploration is more open-ended and challenging. These problems go deeper into grade-level mathematics. They are not routine or procedural, and they are not just ‘the same thing again but with harder numbers.’"
- The materials include resources for homework. The materials inform teachers of Exploration Problems that may be used as homework. Per the How to Use These Materials guidance in the online materials, these problems are not intended to be completed by all students during a given lesson. The materials guidance states, "Exploration questions are intended to be used on an opt-in basis by students if they finish a main class activity early or want to do more mathematics on their own. It is not expected that an entire class engages in Exploration Problems, and it is not expected that any student works on all of them. Exploration Problems may also be good fodder for a Problem of the Week or similar structure." The student print materials include a variety of Exploration Problems in the practice problem section at the end of a unit.
- Materials provide resources for extended practice. Centers are included within each unit. Guidance is included in the Centers section of the digital materials. One page of directions for each center is provided in the Centers section.

Progress Monitoring

2.1	Instructional Assessments	21/24
2.1a	Materials include a variety of instructional assessments at the unit and lesson level (including diagnostic, formative, and summative) that vary in types of tasks and questions.	**12/12**
2.1b	Materials include the definition and intended purpose for the types of instructional assessments included.	**2/2**
2.1c	Materials include teacher guidance to ensure consistent and accurate administration of instructional assessments.	**2/2**
2.1d	Diagnostic, formative, and summative assessments are aligned to the TEKS and objectives of the course, unit, or lesson.	**3/6**
2.1e	Instructional assessments include standards-aligned items at varying levels of complexity.	**2/2**

The materials include a variety of instructional assessments at the unit and lesson level (including diagnostic, formative, and summative) that vary in types of tasks and questions. Materials include the definition and intended purpose for the types of instructional assessments included. Materials include teacher guidance to ensure consistent and accurate administration of instructional assessments. Materials include diagnostic, formative, and summative assessments that are aligned with the objectives of the course, unit, or lesson. Materials do not include diagnostic, formative, and summative assessments that are aligned to the Texas Essential Knowledge and Skills (TEKS). Instructional assessments found in the materials include standards-aligned items at varying levels of complexity.

Evidence includes, but is not limited to:

Materials include a variety of instructional assessments at the unit and lesson level (including diagnostic, formative, and summative) that vary in types of tasks and questions.

- Materials include a variety of instructional assessments at the unit and lesson levels that vary in types of tasks and questions. The Assessment Guide, found in the Teacher Resource Guide, describes a variety of assessments in both print and digital versions. Materials provide pre-assessment, warm-ups, cool-downs, summative, and end-of-course assessments.
- Materials include diagnostic assessments that vary in types of tasks and questions. The Assessment Guidance specifies that pre-unit questions and tasks are included in Section A of each unit. These are designed to be completed at the start of each unit to assess prerequisite skills and concepts for the unit. It also provides students with fifteen questions to answer about given graphs. The diagnostic section of the Assessment Guidance included in the *Teacher Resource Guide* also specifies that many lesson activities feature an Advancing Student Thinking section containing questions and tasks designed to give teachers diagnostic data at the lesson level.

- Materials include formative assessments that vary in types of tasks and questions. The Assessment Guidance specifies that each lesson concludes with a Cool-Down section to assess student understanding of the lesson's learning goals. The *Teacher Resource Guide* Assessment section states, "Each lesson in grades 2–5 includes a Cool-Down (analogous to an exit slip or exit ticket) to assess whether students understood the work of that day's lesson." The Cool-Downs, including digital and PDF options, include one to three questions or tasks, categorizing the Cool-Down as lesson formative questions and tasks. For example, in Unit 1, Lesson 3, Cool-Down asks students to answer a question about a given bar graph and then to write a question that could be asked of the given bar graph.
- Materials provide formative assessment opportunities at the unit level in their "Section Checkpoints." Each unit is broken into sections containing a set of lessons. Section Checkpoints contain three to four problems designed to assess student learning goals within a given unit section. The *Teacher Resource Guide* Assessment section states, "Each section contains two or more explorations, designed to engage students in thinking creatively about the mathematics of the unit at school or home."
- Materials include summative assessments that vary in types of questions. The Assessment Guidance specifies that each unit provides a summative End-of-Unit Assessment designed to assess student learning of key concepts throughout the unit. The materials also contain an End-of-Course Assessment to assess students' mastery of grade-level standards after the final unit. The *Teacher Resource Guide* Assessment section states, "Problem types include multiple choice, multiple response, short answer, restricted constructed response, and extended response."

Materials include the definition and intended purpose for the types of instructional assessments included.

- The materials include the definition and intended purpose for the instructional assessment types. The *Teacher Resource Guide* in the Digital Review materials includes descriptions of how the curriculum correlates with each type of assessment. The intended purpose of each type of assessment is provided within the *Teacher Resource Guide* Assessment.
- Materials include Cool-Downs, which are comparable to exit tickets. These formative assessments assess whether students understood the work of that day's lesson. The Cool-Down is given to students at the end of the lesson. This activity serves as a brief check-in to determine whether students understand the main concepts of the lesson. Materials guide the use of this as a formative assessment to plan further instruction.
- Materials include End-of-Unit Assessments and refer to these as summative assessments. Each unit (starting in Kindergarten, Unit 2) includes a written End-of-Unit Assessment that students complete individually to assess their progress toward the unit learning goals and the grade-level standards for the course. Items are aligned to the relevant grade-level standards. These assessments gauge students' understanding of the key concepts of the unit and also prepare students for new-generation standardized exams. Problem types include multiple choice, multiple response, short answer, restricted constructed response, and extended response.

- Materials include Section Checkpoints. These are designed to be completed at the start of each unit to assess prerequisite skills and concepts for the unit. The pre-unit problems identify unfinished learning that must be carefully addressed during the unit.
- Each grade includes an End-of-Course Assessment to use after the final unit. The resource indicates that teachers can use the results of this assessment to choose sections from the final unit on which to focus, especially if there is limited time to complete the course.
- Materials include Advancing Student Thinking questions that assess what students understand about mathematics in an activity. The first question is the "assessing" question, designed to assess whether students are on track with the mathematical focus of the activity. If students' responses show that they may not be on track, then subsequent questions direct students' attention to the concept or skill most important for the activity.

Materials include teacher guidance to ensure consistent and accurate administration of instructional assessments.

- The materials include teacher guidance for assessment purposes. The Assessment Guide provides a breakdown of each assessment type. Strategies with intended purposes are also provided as guidance.
- Materials provide guidance on assessment mastery. Materials do provide teachers with sample responses that demonstrate what evidence is needed to show skill mastery. The *Teacher Resource Guide* Assessments section states, "All summative assessment problems include a complete solution and standard alignment."
- The Assessment Guide found in Course Materials provides guidance for teachers on how and why to use the variety of opportunities in each course to ensure accurate administration of instructional assessments.
- The materials provide teacher guidance for tools students can use to complete assessments. For example, the End-of-Unit Assessments instruct teachers on specific questions: "Students can select from the following tools: Draw, Write, Upload Photo, Record Audio or Video."
- Materials guide the number of instructional days allotted to assessment. The scope and sequence contains guidance on the suggested number of instructional days to Extend, Review, Assess, and Reteach. According to the *Teacher Resource Guide*, the commentary suggests formative evaluation following each unit task.

Diagnostic, formative, and summative assessments are aligned to the TEKS and objectives of the course, unit, or lesson.

- Materials include diagnostics, formative, and summative assessments that are aligned with all objectives and standards of the course, unit, or lesson. The pre-unit questions that the Assessment Guidance of the *Teacher Resource Guide* specifies as the intended diagnostic assessment resource indicate alignment with the TEKS. The publisher has provided a *TEKS Alignment Document* that stated it would be included in their Texas Version.
- The materials provide diagnostic alignment to standards. The pre-unit questions align with the TEKS for grade 5. For example, in Unit 1, Pre-Unit Practice, the student is tasked with questions related to area and measurement that align with the learning goal.

- The materials provide formative alignment to objectives and TEKS for each lesson. For example, one of the Unit 3 Section Learning Goals states, "Represent and describe multiplication of a fraction by a fraction using area concepts." Within Unit 3, Lesson 6 Activity 2, students are asked to create a multiplication expression representing a shaded amount in a rectangle." This formative assessment question requires students to demonstrate the given learning objective. The material's various formative assessment resources, such as warm-ups, activities, practice problems, exploration problems, and Cool-Downs.
- The materials provide summative alignment to lesson objectives and standards. The *Teacher Resource Guide* Assessment section states, "All summative assessment problems include a complete solution and standard alignment." Although assessments align with unit objectives mentioned at the beginning of each lesson and at the bottom of the Section Checkpoint, the materials align with the TEKS. For example, the Unit 3 Lesson Level Planning Guide states one of the Section Learning Goals is to "Divide a unit fraction by a whole number using whole-number division concepts." Question 1 in Section B Checkpoint directly aligns with this objective, as it states, "Find the value of each expression. Draw a diagram if it helps. 1/3 divided by 5."

Instructional assessments include standards-aligned items at varying levels of complexity.

- Materials include assessments at varying levels of complexity. Assessments vary in complexity based on the variety of question types included in assessments; such materials include multiple choice, drag and drop, short answer, multiple select, and drawing. The Unit 6, Section C Practice Problems provided in the grade 5 digital materials reflect a variety of question types with varying levels of complexity. The first problem included in this practice requires students to compare a fraction to a whole in a multiple-choice format. Next, students are tasked with a short-answer word problem that requires the student to generate a numerator for a given denominator that would result in a value greater than 1. The practice problems progress to students practicing ordering fractions by plotting them on a number line. There is also an open-response question in which students are tasked with explaining why multiplying a fraction by a number less than 1 makes the fraction smaller. Finally, students are tasked with multiple-part exploration problems as an extension opportunity.
- Materials include varying levels of complexity across each assessment type. Across each unit and the various lessons, students are exposed to multiple items that vary in complexity to build mastery of the standard. The Assessment section of the *Teacher Resource Guide* states, "Problem types include multiple choice, multiple response, short answer, restricted constructed response, and extended response. Problems vary in difficulty and depth of knowledge." The End-of-Course Assessment and Resources consist of three types of items: items that assess the major work of the grade, some fluency items that target the key fluencies for each grade ("varying in levels of difficulty"), and one or more in-depth problem, according to the Assessment section of the *Teacher Resource Guide*.

Progress Monitoring

2.2	Data Analysis and Progress Monitoring	4/4
2.2a	Instructional assessments and scoring information provide guidance for interpreting and responding to student performance.	**2/2**
2.2b	Materials provide guidance for the use of included tasks and activities to respond to student trends in performance on assessments.	**1/1**
2.2c	Materials include tools for students to track their own progress and growth.	**1/1**

The instructional assessments and scoring information provide guidance for interpreting and responding to student performance. Materials provide guidance for the use of included tasks and activities to respond to student trends in performance on assessments. Materials include tools for students to track their own progress and growth.

Evidence includes, but is not limited to:

Instructional assessments and scoring information provide guidance for interpreting and responding to student performance.

- Materials provide guidance in the Next-Unit Support to help teachers identify misunderstandings and make observations in the End-of-Unit Assessments. Supports guide teacher observations to help identify misunderstandings. Materials include an answer key with detailed explanations that may be used to guide student responses. For example, the materials state, "If students identify how a decimal number would be represented in words but do not yet correctly identify the expanded form of the number, invite selected students to revisit how the Cool-down from Unit 5, Section A shows a diagram on a hundred grid and asks students to represent the number in different ways. Prompt students to make the connection between each form of the number and the diagram. Ask students where they see each part of the expanded form in the diagram and how it is represented in word form. For additional practice, invite students to play Greatest of Them All, Stage 4, and to represent each number in expanded form before comparing. Give students access to hundredths grids as needed."
- The *Teacher Resource Guide* Assessment section states, "Each instructional task is accompanied by commentary about expected student responses and opportunities to advance student thinking so that teachers can adjust their instruction depending on what students are doing in response to the task. Suggested questions are provided to help teachers better understand students' thinking." For example, grade 5, Unit 1 End-of-Unit Assessment Guidance notes an error that may be observed in student work as being able to select expressions that have the same value as the volume of the prism but do not correspond to the structure of the rectangular prism. The guidance then directs the teacher to respond by inviting students to explain how expressions match the diagrams they use throughout the next unit to support the students as they work towards mastery.

- Materials provide guidance for evaluating responses. Digital assessments offer "Note For Evaluating Responses" for guidance in interpreting and responding to student performance. For example, "Teacher Guidance. Students examine an area diagram showing a product of two non-unit fractions. Each true statement is essential to an understanding of the area model for finding a product of fractions. A explains why the denominator of a product of unit fractions can be taken as the product of their denominators. C interprets the area diagram as representing a product of fractions. E describes how to find the area. Students may select B if they do not pay attention to the unit in the picture, which is a full square. They may select D if they are not careful about the numerator and denominator of the product."
- The assessment materials at the lesson level, such as warm-ups, lesson activities, and cool-downs, provide both an answer key and notes for evaluating responses to aid in the accurate administration of assessments. For example, in Unit 4 Assessment, Problem 2 requires students to select all equations that are true. The materials provide a note for evaluating responses, stating, "Students select equations that represent different ways of expressing the value of a product. Since multiplication is commutative, the order of the factors can be reversed. Each multiplication equation is equivalent to two division equations. Students who select B or C do not understand the meaning of division, as the value of each of these expressions is less than 1. The relationship between multiplication and division is essential for all the different ways students have learned to find whole number quotients."

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

- In the Assessment Guidance Section provided in the course overview, materials provide guidance for how to respond to trends that demonstrate a lack of prerequisite skills after completing the diagnostic pre-unit assessments. The example provided states, "What if a large number of students can’t complete the same pre-unit assessment problem? Address prerequisite skills while continuing to work through the on-grade tasks and concepts of each unit instead of abandoning the current work in favor of material that addresses only prerequisite skills. Look for opportunities within the upcoming unit to address the target skill or concept in context or with a center."
- The End-of-Unit Assessment Guidance includes example observations of students’ "unfinished learning" and strategies for how to support students continued learning of concepts not yet mastered in the Next-Unit Support. The guidance states that it is organized around evidence for understanding and mastery of the grade-level content standards and advises that rather than provide item-by-item analysis, the observations encourage analyzing multiple items to look for evidence of what students understand about the standards. The Assessment Guidance states that the materials provide "Next-Unit Support," which offers ideas for how to address any unfinished learning alongside upcoming grade-level work or before the concept is needed for upcoming grade-level work. In the Unit 1 End-of-Unit Assessment Guidance chart, teachers see trends of students selecting expressions that have the same value as the volume of the prism but do not correspond to the structure of the rectangular prism (3). The guidance states, "Throughout the next unit, invite students to

explain how expressions match the diagrams they use." Other examples of these supports include suggestions for questions to ask during activities, representations to use, centers to encourage, and ways to incorporate the End-of-Unit Assessment as an additional learning opportunity.

- The materials included checkpoint items that are designed to provide teacher guidance for interpreting student performance, such as observations of students' understanding that may be seen in their work as it relates to the section-level learning goal. The materials provide ideas for the Next-Section Support intended to offer ways to address unfinished learning in upcoming lessons. For example, the Grade 5, Unit 1, Section A Checkpoint includes a section titled "Responding to Student Thinking" that highlights common misconceptions and errors teachers may see in students' work when describing volume as the space taken up by a solid object, such as not yet understanding what volume is or how it is measured. This portion of the materials also includes suggestions for the teacher to implement in response to these errors.
- As stated in the Assessment section of the *Teacher Resource Guide*, "Multiple choice and multiple response problems often include a reason for each potential error a student might make." In the *Teacher Resource Guide*, next to each question on the End-of-Unit Assessment, the materials list the standard being assessed, the solution to the problem, and a "Narrative" for teacher reflection. The Narrative includes teacher guidance on which skill is being assessed and possible reasons why students may have selected each incorrect answer choice. Below the End-of-Unit Assessment Guidance chart, several specific Center activities are given to respond to trends in performance assessments.

Materials include tools for students to track their own progress and growth.

- Materials provide guidance using online tools. The materials provide a comprehensive data dashboard for students. Materials provide students a personalized dashboard that tracks their progress in each class based on specific standards and assignments. The tool offers individualized reports showing students' strengths and areas needing improvement. Hovering over a standard provides more information, and clicking the standard reveals the number of assignments. The tool allows students to navigate to relevant assignments, view any associated attachments, check their grades, and read teacher comments or feedback.
- The online support article describes how students will receive notifications regarding assignments, grade notifications, and teacher comments. In the article "Student Help: How Do I Check My Grades and Feedback?" the materials state that students will receive an e-mail notification and an in-app notification when the teacher assigns a grade to a completed assignment. The materials state that students can review graded assignments and teacher feedback in their online accounts. Feedback may include general comments on the overall assignment performance or connections to specific questions. Materials provide question-specific feedback to enable students to navigate to those questions to better understand teacher feedback.

Supports for All Learners

3.1	Differentiation and Scaffolds	8/8
3.1a	Materials include teacher guidance for differentiated instruction, activities, and/or paired (scaffolded) lessons for students who have not yet reached proficiency on grade-level content and skills.	**3/3**
3.1b	Materials include pre-teaching or embedded supports for unfamiliar vocabulary and references in text (e.g., figurative language, idioms, academic language). (T/S)	**2/2**
3.1c	Materials include teacher guidance for differentiated instruction, enrichment, and extension activities for students who have demonstrated proficiency in grade-level content and skills.	**3/3**

The materials include teacher guidance for differentiated instruction, activities, and paired (scaffolded) lessons for students who have not yet reached proficiency on grade-level content and skills. Materials include pre-teaching and embedded supports for unfamiliar vocabulary and references in text. Materials include teacher guidance for differentiated instruction, enrichment and extension activities for students who have demonstrated proficiency in grade-level content and skills.

Evidence includes, but is not limited to:

Materials include teacher guidance for differentiated instruction, activities, and/or paired (scaffolded) lessons for students who have not yet reached proficiency on grade-level content and skills.

- Materials include teacher guidance for differentiated instruction for students who have not yet reached proficiency on grade-level content and skills. For example, the Section Checkpoint includes a part titled "Responding to Student Thinking." The guidance describes specific misconceptions or errors the teacher may observe in students' work and prescribes the next steps to take to support students' progress with the objective. Unit 1, Section A Checkpoint states, "Students' explanations show that they may not yet understand volume or how it is measured. For example, they say Figure A has a greater volume because it is taller and longer. Students show they may understand volume and how it is measured but miscount the number of cubes. For example, they say they have the same volume because they count 9 cubes for Figure A. Invite selected students to revisit the item during Center Choice Time as the next section begins. Ask students how they would measure the volume of each figure. As needed, invite students to demonstrate with cubes. For additional practice, play Can You Build It? Stage 3, with the group. Emphasize the ways students explain how they know they have built a prism that matches the volume."
- The materials provide center activities. The *Course Guide* provides teacher guidance to differentiate between two categories of center types. The "Center Overview" section of the *Course Guide* states, "Centers are intended to give students time to practice skills and concepts that are developed across the year. There are two types of centers. Addressing

centers address the work of a lesson or a section of a unit. Supporting centers review prior unit or prior grade-level understandings and fluencies."

- Material offers optional activities throughout the course. In the A Typical IM Lesson section of the *Teacher Resource Guide*, one of the purposes of these activities is to provide an opportunity for additional practice on a concept or skill that we know many students (but not necessarily all students) need. For example, Unit 1, Lesson 12, is listed in the Pacing Guide as an optional lesson. The lesson states, "The lesson is optional because it does not address any new mathematical content standards. This lesson provides students with an opportunity to apply precursor skills in mathematical modeling. In previous lessons, students computed volumes. They packed unit cubes inside boxes and found the volume of the box by multiplying the side lengths of the box. In this lesson, they will investigate a real-world problem using these ideas. In the first activity, students find different arrangements of 60 shipping containers, assuming that they are cubes. While real shipping containers are not cubes, we can simplify the situation by working with figures that are easier to use. Students are asked to draw a diagram of one of their arrangements. In the second activity, students estimate the number of shipping containers on a fully loaded cargo ship from a picture." Materials include paired (scaffolded) lessons for students who have not yet reached proficiency on grade-level content and skills. Material offers teacher guidance for paired (scaffolded) lessons in the Supporting Diverse Learners, Universal Design for Learning, and Access for Students with Disabilities section of the *Teacher Resource Guide*. This includes suggestions that support students' motivation to engage with content, develop effort and persistence, and internalize self-regulation. For example, in the Develop Effort and Persistence category of the Universal Design for Learning and Access for Students with Disabilities chart, the teacher's guidance is to "Differentiate the degree of difficulty or complexity by starting with accessible values." This scaffold would assist students who have not yet reached proficiency in grade-level content and skills.
- The *Course Guide* outlines specific strategies implemented throughout the materials from Universal Design for Learning. It explains that each of the implemented Universal Design Principles "includes varied levels, with suggestions that support ways to increase access to the learning goal, ways to develop or build understanding, and ways to empower learners to internalize learning and executive function."

Materials include pre-teaching or embedded supports for unfamiliar vocabulary and references in text (e.g., figurative language, idioms, academic language). (T/S)

- The materials include embedded supports for unfamiliar vocabulary in text. The materials offer students a variety of ways to learn and internalize the vocabulary associated with the new lesson, such as hands-on experiences, manipulatives, and visuals. Structured opportunities are provided for partner and group discussions using academic language, sometimes with sentence stems or prompts. The Glossary at the end of each unit's *Teacher Resource Guide* has a list of the terms with definitions. A Glossary Terms slide deck containing definitions and pictures for all vocabulary words is provided in the digital materials along with guidance for teachers on how to use it in their lessons. For example, in Unit 1, Lesson 1, "The

purpose of this lesson is for students to understand that solid objects have measurable attributes. One of these attributes is volume, which is defined as the amount of space taken up by an object."

- Lessons provide students with opportunities to interact with academic vocabulary and symbols through hands-on experiences, manipulatives, or visuals. There are structured opportunities for students to talk through activity questions with partners and groups using academic language and vocabulary with the support of sentence stems. For example, in Unit 1, Lesson 1, Activity 2, the Launch tasks student groups with interacting with the concept of volume, an academic vocabulary word introduced in the previous activity. Students are tasked with interacting with the concept of volume in groups by ordering a set of objects by volume and discussing their reasoning. Each student builds an object with 9 connecting cubes that the group will order by volume.
- Materials provide pre-teaching and embedded supports for academic language in the Support for English Language Learners. Unit 5, Lesson 1, Activity 2 states, "After all strategies have been presented, lead a discussion comparing, contrasting, and connecting the different approaches. Ask, what kinds of additional details or language helped you understand the displays? Were there any additional details or language that you have questions about?" and "Did anyone solve the problem the same way but would explain it differently?"
- Access for Students with Disabilities includes embedded supports for academic language and unfamiliar references. For example, Unit 5, Lesson 1, Activity 1, includes the support stating, "Maintain a visible display to record new vocabulary. Invite students to suggest details (words or pictures) that will help them remember the meaning of thousandths and the thousandths' connection to tenths and hundredths."
- Key Structures in This Course section in the *Teacher Resource Guide* states, "Additional teaching moves can be used to support the development of math learning communities throughout the school year." The chart specifies students' use of general and discipline-specific academic language. The material suggests three teacher moves for this student action. The materials state, "Before beginning small group work, give students sentence frames and probing questions that feature important terms."

Materials include teacher guidance for differentiated instruction, enrichment, and extension activities for students who have demonstrated proficiency in grade-level content and skills.

- The materials include teacher guidance for differentiated instruction for students who have demonstrated proficiency. Centers included with each unit are designed to give students time to practice skills and concepts developed throughout the year. They can be used if a lesson is completed with the remaining class time. The section How to Use These Materials in the *Teacher Resource Guide* states, "Centers are intended to give students time to practice skills and concepts that are developed across the year." They are used "to practice or solidify the mathematical ideas of a unit." There are two types of centers: addressing (focusing on current lesson content) and supporting (reviewing prior knowledge). Addressing centers address the work of a lesson or section of a unit, thus creating extension activities for students demonstrating proficiency. An example of an extension activity center for Unit 1 is "Center:

Can You Build It? (3–5)," where "Students construct and describe the structure of rectangles and rectangular prisms." This activity extends student learning of the Unit 1 objective to measure the volume of a rectangular prism by finding the number of unit cubes needed to fill it.

- For students who are proficient and need more of a challenge, the materials offer enrichment activities through Exploration Problems. These problems are designed to be more open-ended and challenging, providing deeper engagement with grade-level mathematics. The materials provide two or more exploration problems per unit. The guidance provided explains that one type of exploration problem features hands-on opportunities, while the other is designed to be "more open-ended and challenging." In Unit 8, Lesson 9, the *Teacher Resource Guide* states, "In this optional lesson, students apply their understanding of volume to relate the amount of water that falls on a house roof to the amount of water a family might use for everyday activities." This lesson is optional because it requires conversions between different measurement systems, which goes beyond expectations for grade 5. The calculations, especially those for family water use, require detailed estimates. Students can make their own estimates to increase the modeling aspect of the activity, or they can use provided estimates. Students may consider a variety of uses of water beyond those highlighted in the materials, such as the water they drink or the water used for plants. In the last activity, students compare the volume of water that falls on a house roof to the amount of water used each month. In the process, they discover that length and volume units in the metric system are naturally related to one another, and the context gives students a chance to practice multiple conversions.

Supports for All Learners

3.2	Instructional Methods	13/13
3.2a	Materials include prompts and guidance to support the teacher in modeling, explaining, and communicating the concept(s) to be learned explicitly (directly).	**6/6**
3.2b	Materials include teacher guidance and recommendations for effective lesson delivery and facilitation using a variety of instructional approaches.	**4/4**
3.2c	Materials support multiple types of practice (e.g., guided, independent, collaborative) and include guidance for teachers and recommended structures (e.g., whole group, small group, individual) to support effective implementation.	**3/3**

The materials include prompts and guidance to support the teacher in modeling, explaining, and communicating the concept(s) to be learned explicitly (directly). Materials include teacher guidance and recommendations for effective lesson delivery and facilitation using a variety of instructional approaches. Materials support multiple types of practice and include guidance for teachers and recommended structures to support effective implementation.

Evidence includes, but is not limited to:

Materials include prompts and guidance to support the teacher in modeling, explaining, and communicating the concept(s) to be learned explicitly (directly).

- The materials provide detailed prompts and guidance for teachers to model concepts and support student learning. The "Principles of IM Curriculum Design" emphasize the importance of understanding progressions in the materials to connect prior knowledge with upcoming content. Each lesson follows a consistent structure: an invitation to mathematics, a deep study of concepts, and a consolidation of understanding. The *Course Guide* outlines the three phases of each instructional activity: Launch, Activity Work Time, and Activity Synthesis. The materials provide specific directions to help students understand the context and problem during each phase.
- The materials include both prompts and guidance to support the teacher in modeling the concepts to be learned directly and explicitly. The materials include examples of sample student responses to prompts. For example, in Unit 1, Lesson 1, Activity 2, the Launch section prompts and guides the teacher to lead the class in organizing into groups of four to use connecting cubes to create objects and find their volume. The teacher is then prompted in the Activity to "collect a group's objects that each have a volume of 9 units but a different arrangement." Below the activity, the Student Response section has examples of what student work might include in response to being asked to put the objects in order by their volume. The Design Principles section of the *Teacher Resource Guide* also states, "In all lessons, teachers are supported in the practices of anticipating, monitoring, and selecting student work to share during whole-group discussions." The Design Principles section also states, "In addition to the precursor skills and modeling stages that appear across lessons, each unit culminates with a lesson that explicitly addresses these modeling skills and stages while pulling together the mathematical work of the unit."

- The materials include both prompts and guidance to support the teacher in explaining the concepts. The Design Principles section of the *Teacher Resource Guide* states, "The materials foster conversation so that students voice their thinking around mathematical ideas, and the teacher is supported to make use of those ideas to meet the mathematical goals of the lessons." It suggests teachers can "look to warm-ups and activity launches for built-in preparation, and to teacher-facing narratives for further guidance." Two sections within each lesson plan support teachers in learning more about what each student knows and provide guidance on how to respond to students' understandings and ideas. For example, in Unit 1, Lesson 2, Activity 1, the Response to Student Thinking section guides teachers, "If students are counting the unit cubes one at a time, consider asking, 'How did you count the unit cubes?' and, 'Where do you see unit cubes that can be counted as a group?'" Materials include prompts and guidance to support the teacher in communicating concepts. Activity narrative and descriptions provide guidance and directions. The activity's Launch provides support for direct communication of ideas. For example, at the start of each lesson, the materials provide the teacher with Goals, a Student Facing Learning Objective statement, a Lesson Purpose statement, and a Narrative section that provides the teacher with a detailed description of the lesson's goals and how it fits into the broader learning of the given concept. In A Typical IM Lesson section of the *Teacher Resource Guide*, the materials state each lesson has a Lesson Synthesis, which "assists the teacher with ways to help students incorporate new insights gained during the activities into their big-picture understanding." The materials guide teachers to use this time to choose one of the following: posing questions verbally and calling on volunteers to respond, asking students to respond to prompts in a written journal, asking students to add on to a graphic organizer or concept map, or adding a new component to a persistent display like a word wall. Recommended questions are embedded within each Lesson Synthesis, and suggested journal prompts are provided in the *Teacher Resource Guide* section, Key Structures In This Course. For example, in Unit 1, Lesson 1, Activity 1, the Activity Synthesis offers question prompts and examples of student responses for teachers to communicate concepts, such as having students share responses for both problems and encouraging students who make different choices to explain their reasoning. Materials prompt teachers to display the first pair of objects and ask, "How would you describe the amount of space each object takes up?" More prompts and guidance follow.
- The materials include an Activity Narrative with guidance and directions for the teacher. The activity's Launch provides direct information. For example, the Activity Narrative in Unit 9, Lesson 2 guides the teacher in communicating the following: "The purpose of this activity is for students to express place value relationships using multiplication and division. Students examined decimal place values in depth in the previous unit and used the relationships between the values when performing arithmetic with decimals. Here, they focus on expressing these relationships using multiplication and division. This will be helpful throughout the next several lessons as students examine powers of ten and then use them for measurement conversions." The Activity Narrative also provides the following for support: "Create a visual display that shows your equations. You may want to include details such as notes, diagrams, or drawings to help others understand your thinking. Monitor for students who: identify an equation that is incorrect during the gallery walk; notice place value patterns during the gallery walk."

Materials include teacher guidance and recommendations for effective lesson delivery and facilitation using a variety of instructional approaches.

- Materials include teacher guidance and recommendations using a variety of instructional approaches for effective lesson facilitation. Instructional resources describe the four phases: Warm-Up, Instructional Activities, Lesson Synthesis, and Cool-Down. The Warm-Up is defined as an instructional routine that engages students in the lesson. The *Course Guide* provides descriptions for various Warm-Up Routines, such as Act It Out, Choral Count, Estimation Exploration, How Many Do You See, Notice and Wonder, Number Talk, Questions About Us, True or False, What Do You Know About _____, and Which Three Go Together. The following guidance and recommendations are provided for the Warm-Up Number Talk: "The sequence of problems in a Number Talk encourages students to look for structure and use repeated reasoning to evaluate expressions and develop computational fluency. As students share their strategies, they make connections and build on one another's ideas, developing conceptual understanding."
- Materials include teacher guidance and recommendations using a variety of instructional approaches for effective lesson delivery. Each lesson includes a Lesson Narrative and an Activity Narrative. The Lesson Narrative includes information about the mathematical content of the lesson and its place in the learning sequence, with the meaning of any new terms introduced in the lesson and how the mathematical practices come into play. The Activity Narrative explains the mathematical purpose of the activity and its place in the learning sequence, what students are doing during the activity, and what teachers should look for while students are working on an activity to inform the Activity Synthesis. The Activity Narrative also explains that teachers should connect to the mathematical practices when appropriate.
- The materials include teacher guidance and recommendations for effective lesson delivery using a variety of instructional approaches such as discussions, journal prompts, and mathematical language routines to engage students in higher-level thinking to demonstrate their understanding of mathematics. The Design Principles section of the *Teacher Resource Guide* states, "Instructional routines provide opportunities for all students to engage and contribute to mathematical conversations. Instructional routines are invitational, promote discourse, and are predictable in nature." The materials highlight a small set of carefully chosen routines to "reduce the cognitive load for teachers." Professional learning materials guide teachers in effective lesson delivery through videos of these routines being used in the classroom. For example, in Unit 1, Lesson 1, Activity 2, the Instructional Routine lists "MLR2 Collect and Display," which invites teachers to collect a variety of students' words and phrases into a stable, collective reference. This is one of several instructional approaches described in the *Teacher Resource Guide* to provide teacher guidance and recommendations for effective lesson delivery.
- The Design Principles section of the *Teacher Resource Guide* states, "In lessons in which there are opportunities for students to make connections between representations, strategies, concepts, and procedures, the lesson and activity narratives provide support for teachers also to use the practices of sequencing and connecting, and the lesson is tagged so teachers can easily identify these opportunities." For example, Unit 1, Lesson 1 Narrative guides teachers

through the lesson facilitation to support sequencing and connecting by stating, "In previous grades, students learned to measure area by counting unit squares, decomposing a rectangular region into rows and columns, and multiplying the number of unit squares in a row by the number of rows or the number of unit squares in a column by the number of columns. Similarly, in this lesson, students use the layered structure in a rectangular prism to count the unit cubes more systematically. Students will have many opportunities to count the number of unit cubes in rectangular prisms in upcoming lessons before the introduction of formulas later in this unit.".

Materials support multiple types of practice (e.g., guided, independent, collaborative) and include guidance for teachers and recommended structures (e.g., whole group, small group, individual) to support effective implementation.

- Instructional materials include recommended structures for the effective implementation of lessons. For example, the Launch in Unit 6, Lesson 11, Activity 2, provides information to implement the activity with groups of two. It suggests five minutes of independent think time followed by five minutes of small group work time. The Activity Synthesis in Lesson 11, Warm-Up, Number Talk, Mixed Number Addition and Subtraction, implies using a whole group structure, stating, "How did you find the value of 158+68? The materials provide sample responses to support effective implementation, such as "I made a fraction from the mixed number and then added the numerators" or "I added on to get 2 and then added the rest of the eighths."
- There are multiple types of practice included in the instructional materials. Materials provide step-by-step instructions for practice that includes guided practice, independent practice, and collaborative practice. For example, the Launch suggests groups of two to answer the following questions: "What kind of ingredients do you like to put in your salad? (lettuce, cabbage, beans, seeds, beets, tomatoes, cheese) What kinds of dressings do you put on your salad? (homemade, Italian, blue cheese, tamari)." The materials then lead into the Activity Narrative, which suggests 1–2 minutes of quiet think time and 6–8 minutes of small group work time. The Activity Synthesis guides the teacher to poll the class altogether.
- The materials provide opportunities for student collaboration and specific teacher guidance to facilitate cooperation. Lesson components provide teacher guidance, like student group size suggestions, and indicate which lesson and activity components are designed to be completed collaboratively. For example, in Unit 5, Lesson 1, the teacher materials specify that students should work in groups of two for the Launch and Activity portion of the lesson. Teachers are also provided with question prompts to guide groups through the tasks. According to the "Assessment" section of the *Teacher Resource Guide*, independent practice is suggested for the end-of-unit assessment. It is "intended for students to complete individually to assess what they have learned at the conclusion of the unit." The lesson narratives provide teachers with guidance on how to support effective implementation. For example, in Unit 1, Lesson 3, the Warm-Up Narrative provides teacher guidance: "This is the first time students experience the Number Talk routine in grade 5. Students are familiar with

this routine from a previous grade; however, they may benefit from a brief review of the steps involved."

Supports for All Learners

3.3	Supports for Emergent Bilingual Students	10/11
3.3a	Materials include teacher guidance on providing linguistic accommodations for various 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.	**1/2**
3.3b	Materials include implementation guidance to support teachers in effectively using the materials in state-approved bilingual/ESL programs.	**1/1**
3.3c	Materials include embedded guidance for teachers to support emergent bilingual students in developing academic vocabulary, increasing comprehension, building background knowledge, and making cross-linguistic connections through oral and written discourse.	**8/8**
3.3d	If designed for dual language immersion (DLI) programs, materials include resources that outline opportunities to address metalinguistic transfer from English to the partner language.	**Not scored**

The materials include teacher guidance on providing linguistic accommodations for one level of language proficiency [as defined by the English Language Proficiency Standards (ELPS)], designed to engage students in increasingly more academic language. Materials do not include teacher guidance on providing linguistic accommodations for various levels of language proficiency [as defined by the English Language Proficiency Standards (ELPS)]. Materials include implementation guidance to support teachers in effectively using the materials in state-approved bilingual/ESL programs. Materials include embedded guidance for teachers to support emergent bilingual students in developing academic vocabulary, increasing comprehension, building background knowledge, and making cross-linguistic connections through oral and written discourse.

Evidence includes, but is not limited to:

Materials include teacher guidance on providing linguistic accommodations for various 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.

- The materials include teacher guidance on providing linguistic accommodations for one level of language proficiency. The Mathematical Language Development and Access for English Learners states "Support sense-making, scaffold tasks, and amplify language so students can make their meaning. Optimize output to strengthen opportunities for students to describe their mathematical thinking to others orally, visually, and in writing. Cultivate conversation to strengthen opportunities for constructive mathematical conversations and maximize meta-awareness to strengthen the meta-connections and distinctions between mathematical ideas, reasoning, and language." Mathematical Language Routines (MLRs) are instructional routines that provide structured but adaptable formats for amplifying, assessing, and developing students' language. MLRs are included in select activities in each unit to provide students with explicit opportunities to develop mathematical and academic language

proficiency. These embedded MLRs are described in the teacher notes for some lessons. The materials include supports for students, such as sentence stems, visible displays, and word collections. The Supporting Diverse Learners section of the Teacher Guide states "Each lesson also includes optional, suggested Mathematical Language Routines that can be used to support access and language development for English learners, based on the language demands students will encounter." This is described in the Activity Narrative under the heading Support for English Learners. For example, in Unit 6, Lesson 8 Activity 1, MLR8 Discussion Supports states "Pair gestures with verbal directions to clarify the meaning of any unfamiliar terms such as partial product." Synthesis: "Invite previously selected students to share their strategies. As students share, record their reasoning with equations." This accommodation only provides one level of support for students and does not provide accommodations for students at various levels of proficiency.

- The materials include sentence frames to support student language production by providing a structure to communicate about a topic. The recommended generic sentence frames and question starters are listed by language function in a chart in the Supporting Diverse Learners section of the Teacher Guide. It states, "Some of the lessons in these materials include suggestions of additional sentence frames that could support the specific content and language functions of that lesson." For example, Unit 5, Lesson 7, Activity 1 gives the teacher guidance in the Support for English Learners section for MLR8, Discussion Supports, stating the following: "During small-group discussion, invite students to take turns sharing their responses. Ask students to restate what they heard using precise mathematical language in their own words. Display the sentence frame: 'I heard you say...' Original speakers can agree or clarify for their partner."
- The Course Guide explains that MLRs are "instructional routines that provide structured but adaptable formats for amplifying, assessing, and developing students' language." While the Course Guide provides general guidance about the various MLRs, it does not give specific guidance for leveling supports based on student needs. For example, the Course Guide states that teachers can "Adapt these flexible routines to support students at all stages of language development in improving their use of English and disciplinary language." Still, it does not explicitly provide the teacher guidance on how to make these adaptations. It also states "Use the MLRs, as needed, and phase them out as students develop understanding and fluency with the English language," but does not give guidance regarding how to evaluate if a student is ready to have decreased language support.
- Kiddom's Approach to English Language Proficiency in Texas Math document aligns the MLRs to the ELPS, but does not provide linguistic accommodations for the various levels of language proficiency as defined by the ELPS. The document states that "Teachers should use their professional judgment about which routines to use and when, based on their knowledge of the individual needs of students in their classroom."

Materials include implementation guidance to support teachers in effectively using the materials in state-approved bilingual/ESL programs.

- The materials provide guidance and implementation support for teachers of emergent bilingual students, such as one-pagers, lesson guidance for "Access for English Learners," and four design principles that promote mathematical language use and development. For example, the Supporting Diverse Learners section of the Teacher Guide gives an information page for "Mathematical Language Development and Access for English Learners." This page guides teachers in creating a language-rich classroom environment. This page also includes information on MLRs and states "They are particularly well-suited to meet the needs of linguistically and culturally diverse students who are learning mathematics while simultaneously acquiring English."
- The materials provide Kiddom's Approach to English Language Proficiency in Texas Math that aligns the Mathematical Language Routines that are referenced throughout the materials to the ELPS. The Course Guide supports the teacher over the design principles that the language supports are based on in the materials. At the lesson level, lesson plans include Access for English Language Learners which provides specific guidance for suggested language supports to implement for a given activity. For example in Unit 5, Lesson 1 of the Teacher Edition, MLR7, Compare and Connect, it states "After all strategies have been presented, lead a discussion comparing, contrasting, and connecting the different approaches. Ask, 'What kinds of additional details or language helped you understand the displays?', 'Were there any additional details or language that you have questions about?', and 'Did anyone solve the problem the same way, but would explain it differently?'" This synthesis advances conversing and reading.

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

- The materials implement a set of core MLRs throughout the resource to support access and language development for emergent bilingual students. The MLRs used in the materials vary depending on the demands of the lesson or activity and target different aspects of supporting language development. For example, the MLR Collect and Display provides academic vocabulary support as well as building background knowledge support in both oral and written discourse. The Collect and Display excerpts from the Course Guide state "The intent of this routine is to stabilize the varied and fleeting language in use during mathematical work, in order for students' own output to become a reference in developing mathematical language. Organize, revoice, or explicitly connect to other terms in a display that all students can refer to, build on, or make connections with during future discussion or writing. Throughout a unit (and beyond), reference the displayed language as a model, update and revise the display as students' language changes, and make bridges between prior student language and new disciplinary language (Zwiers et al., 2017)."
- Materials include embedded guidance for teachers to support students in developing academic vocabulary. According to the Supporting Diverse Learners section of the Teacher

Guide, "To support students who are learning English in their development of language, this curriculum includes instruction devoted to fostering language development alongside mathematics learning, fostering language-rich environments where there is space for all students to participate." For example, in Unit 6, Lesson 6, Activity 2, the Access for English Language Learners section states "MLR1 Stronger and Clearer Each Time, Synthesis: Before the whole-class discussion, give students time to meet with 2–3 partners to share and get feedback on their response to 'How many liters of water did the dancers drink?' Invite listeners to ask questions, to press for details, and to suggest mathematical language. Give students 2–3 minutes to revise their written explanation based on the feedback they receive."

- According to the Supporting Diverse Learners section of the Teacher Guide, to support students in increasing comprehension and building background knowledge, the resource states "To advance the mathematics and language learning of all students, the materials purposefully engage students in sense-making and using language to negotiate meaning with their peers." An example of this oral discourse is in Unit 6, Lesson 10, Activity 2. The materials state for MLR8, Discussion Supports, that teachers should "Provide students with the opportunity to rehearse with a partner what they will say before they share with the whole class." In addition, materials include embedded guidance for teachers to support emergent bilingual students in increasing comprehension through written discourse. As stated in the Key Structures of This Course in the Teacher Guide, "Journal writing can provide an additional opportunity to support each student in their learning of mathematics." Journal prompts are included for "Reflecting on Content and Practices" and "Reflecting on Learning and Feelings about Math." The written discourse through journal writing will develop academic vocabulary and increase comprehension. An example of written discourse that fosters academic vocabulary and increasing comprehension is located in Unit 8, Lesson 2, Activity 1. The Support for English Language Learners for MLR1, Stronger and Clearer Each Time, states "Before the whole-class discussion, give students time to meet with 2–3 partners to share and get feedback on their response to 'What parts of Kiran's work do you agree and disagree with?'" Then, the materials prompt the teacher to invite listeners to ask questions, press for details, and suggest mathematical language. Then the materials prompt the teacher to give students 2–3 minutes to revise their written explanation based on the feedback they receive.
- The Course Guide specifies five practices for building background knowledge and making connections as Other Instructional Routines. These practices are implemented during the Activity Synthesis stating "...students collectively reveal multiple approaches to a problem and make connections between these approaches (MP3)." For example, MLR5, Co-craft Questions, "Allows students to get inside a context before feeling pressure to produce answers and creates opportunities for students to produce the language of mathematical questions," and MLR2, Collect and Display, "Captures a variety of students' oral words and phrases into a stable, collective reference. Output can be organized, revoiced, or explicitly connected to other languages in a display that all students can refer to, build on, or make connections with during future discussion or writing.
- Compare and Contrast develops academic vocabulary through oral discourse as students "identify, compare, and contrast different mathematical approaches and representations. Students are prompted to reflect on, and linguistically respond to, these comparisons; for example, exploring why or when one might do or say something a certain way, or by identifying

and explaining correspondences between different mathematical representations or methods."

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

- The materials do not specify that they are designed for dual language immersion programs. Materials do not include resources that outline opportunities that address transfer from English to the partner language. The materials do include the Supporting Diverse Learners section of the Teacher Guide. This section states, "Both metacognitive and metalinguistic awareness are powerful tools to help students self-regulate their academic learning and language acquisition." The materials lack resources and strategies to integrate metalinguistic skills into lesson activities.

Depth and Coherence of Key Concepts

4.1	Depth of Key Concepts	3/3
4.1a	Practice opportunities over the course of a lesson and/or unit (including instructional assessments) require students to demonstrate depth of understanding aligned to the TEKS.	**1/1**
4.1b	Questions and tasks progressively increase in rigor and complexity, leading to grade-level proficiency in the mathematics standards.	**2/2**

The materials provide practice opportunities over the course of a lesson and/or unit (including instructional assessments) that require students to demonstrate depth of understanding aligned to the TEKS. Questions and tasks progressively increase in rigor and complexity, leading to grade-level proficiency in the mathematics standards.

Evidence includes, but is not limited to:

Practice opportunities over the course of a lesson and/or unit (including instructional assessments) require students to demonstrate depth of understanding aligned to the TEKS.

- Material includes practice opportunities throughout each lesson and unit, including instructional assessment, that require students to demonstrate depth of understanding. The Lesson Activity Routines embed structures within the lessons' tasks for student thinking. For example, in Unit 6, Lesson 5, Activity 1, the Narrative states the task, "The purpose of this activity is for students to solve multi-step distance problems using centimeters, meters, and kilometers. This narrative allows students to think about which units are most helpful for communicating at a distance (MP6). When the distance is short, like the length of a single footstep, centimeters or meters both work well. For a longer distance, like the distance a person walks in a day, it is reasonable to use meters or kilometers, but the number of centimeters is very large and more difficult to visualize. To add movement or make this activity interactive, consider providing groups of two or four with a centimeter ruler or meter stick to measure their or a classmate's step before working on the task. While students could use the measurements of their steps to complete the table, the arithmetic may be more complex and, as a result, it may be harder to observe patterns."
- Materials include a study of concepts and procedures and connect to the standards in the TEKS guide. The Design Principles section of the *Teacher Resource Guide* states, "Each unit, lesson, and activity has the same overarching design structure: the learning begins with an invitation to the mathematics, is followed by a deep study of concepts and procedures, and concludes with an opportunity to consolidate understanding of mathematical ideas." For example, Unit 2, Lesson 4, Activity 2 directs students to go back and forth between equations, situations, and diagrams, interpreting the diagrams and equations and creating situations that these diagrams and equations represent. This activity allows students to demonstrate depth of understanding of the Lesson 4 objective, "... for students to solve division problems when the quotient is a fraction or mixed number."

- The materials include a variety of assessments that require students to demonstrate learning at a depth of understanding aligned with the TEKS as correlated in the TEKS guide. In grade 5, end-of-unit assessments are provided and include multiple question types that "vary in difficulty and depth of knowledge," according to the Assessment section of the *Teacher Resource Guide*.
- The Coherent Progression section of The Principles of IM Curriculum Design in the *Course Guide* explains the materials designed with concept progression in mind. It states, "The basic architecture of the materials supports all learners through a coherent progression of the mathematics, based both on the standards and research-based learning trajectories. Activities and lessons are parts of a mathematical story that spans units and grade levels. This coherence allows students to view mathematics as a connected set of ideas that makes sense."

Questions and tasks progressively increase in rigor and complexity, leading to grade-level proficiency in the mathematics standards.

- Questions and tasks in the materials increase in rigor and complexity, building on previous knowledge within and across grade levels. For example, in Unit 5, students expand their understanding of decimals, progressing from reading, writing, and comparing decimals to performing operations on them. . The learning progression is strategically designed to develop conceptual understanding, procedural fluency, and application skills, preparing students for future concepts. Tasks prompt students to apply their understanding to new problems and situations.
- The materials include questions and tasks that increase in rigor and complexity at the lesson level. For example, the Unit 5, Lesson 8 slideshow included in the digital materials features a lesson on rounding decimals that begins with warm-up questions that involve generating decimal estimates that are "too low," "about right," and "too high" for a given point on a number line. In Activity 1, the materials direct students to label tick marks on number lines and reason about the possible value of a point on the number line, determining which two decimals the point lies between, which of those decimals is closer, and how much closer. Activity 2 involves rounding numbers to different places, first using the number lines provided and then using place value reasoning, supported by number lines if students choose to use them. Activity 3 and the Cool-Down questions provide extra rounding practice.
- The materials include a learning progression to build a new understanding of previous foundations within and across grade levels. For example, in Unit 5, the Narrative explains how the concept relates to concepts learned in the prior grade and how they will build upon and extend the concept to reach grade-level proficiency. In this unit, students expand their knowledge of decimals to read, write, compare, and round decimals to the thousandths. They also extend their understanding of place value and numbers in base ten by performing operations on decimals to the hundredths. In grade 4, students wrote fractions with denominators of 10 and 100 as decimals. They recognized that the notations 0.1 and 1/10 express the same amount and are both called "one-tenth." They used hundredths grids and number lines to represent and compare tenths and hundredths. Diagrams help students

visualize the magnitude of each decimal place and compare decimals. Next, the materials include opportunities for students to apply their understanding of decimals and whole-number operations to add, subtract, multiply, and divide decimal numbers to the hundredths, using strategies based on place value and the properties of operations. Materials include a variety of assessment questions that progressively increase in rigor and complexity, leading to grade-level proficiency in the mathematics standards. As stated in the Design Principles section of the *Teacher Resource Guide*, "It is our intent to create a problem-based curriculum that fosters the development of mathematics learning communities in classrooms, gives students access to the mathematics through a coherent progression, and provides teachers the opportunity to deepen their knowledge of mathematics, student thinking, and their teaching practice." For example, as stated in the Assessment section of the *Teacher Resource Guide*, the End-of-Course Assessment and Resources consist of three portions, which demonstrate progression in rigor and complexity: items that assess vital work of the grade, fluency items that target the critical fluencies of the grade, and one or more in-depth problem that leads students to apply the fundamental ideas they have learned over the year.

- The learning progression moves from concrete understanding to representation to abstract thinking. Grade 5 tasks prompt students to apply their conceptual understanding and procedural fluency to new problems and situations. For example, the Unit 7 Section Level Planning Guide states, "This section introduces students to the coordinate grid. Students begin by drawing rectangles based only on verbal descriptions. They do so without a grid, then on an unmarked grid, and finally on a coordinate grid."

Depth and Coherence of Key Concepts

4.2	Coherence of Key Concepts	12/12
4.2a	Materials demonstrate coherence across courses/grade bands through a logically sequenced and connected scope and sequence.	**2/2**
4.2b	Materials demonstrate coherence across units by explicitly connecting patterns, big ideas, and relationships between mathematical concepts.	**3/3**
4.2c	Materials demonstrate coherence across units by connecting the content and language learned in previous courses/grade levels and what will be learned in future courses/grade levels to the content to be learned in the current course/grade level.	**3/3**
4.2d	Materials demonstrate coherence at the lesson level by connecting students' prior knowledge of concepts and procedures from the current and prior grade level(s) to new mathematical knowledge and skills.	**4/4**

The materials demonstrate coherence across grade bands through a logically sequenced and connected scope and sequence. Materials demonstrate coherence across units by explicitly connecting patterns, big ideas, and relationships between mathematical concepts. Materials demonstrate coherence across units by connecting the content and language learned in previous grade levels and what will be learned in future grade levels to the content to be learned in the current grade level. Materials demonstrate coherence at the lesson level by connecting students' prior knowledge of concepts and procedures from the current and prior grade levels to new mathematical knowledge and skills.

Evidence includes, but is not limited to:

Materials demonstrate coherence across courses/grade bands through a logically sequenced and connected scope and sequence.

- The Teacher Resource Guide includes a Scope and Sequence. Materials include a unit description, which explains the sequence of the unit and how the previous grade level connects to the current unit. For example, Unit 1: Finding Volume describes the progression of learning related to finding volume from third grade to fifth grade. The materials inform third grade includes concrete representation of area through representation of the square units in drawings. Students progress to more abstract representations of area with labeled sides of a rectangle and using a formula to find area. In fifth grade, the focus is on finding volume using the area of the base times the height.
- The Scope and Sequence included in the *Course Guide* of the materials provides unit narratives that outline how the concepts progress throughout the unit and detail how the concepts build upon previous learning. The Scope and Sequence overview includes the Learning Goals Section that explains how the unit's learning goals and concepts align with previous and current grade-level concepts. For example, the Unit 4 Learning Goal focuses on students using the standard algorithm to multiply multi-digit whole numbers. They divide whole numbers up to four digits by two-digit divisors using strategies based on place value and properties of operations. In this unit, students multiply multi-digit whole numbers using the

standard algorithm and begin working toward end-of-grade expectations for fluency. They also find whole-number quotients with up to four-digit dividends and two-digit divisors. In grade 4, students used strategies based on place value and properties of operations to multiply a one-digit whole number and a whole number of up to four digits and to multiply a pair of two-digit numbers. They decomposed the factors by place value and used diagrams and algorithms using partial products to record their reasoning. In grade 5, students build on those strategies to make sense of the standard algorithm for multiplication. The Coherent Progression section of the *Course Guide* explains that the material notes are designed to align student learning within and across grade levels. It states, "The basic architecture of the materials supports all learners through a coherent progression of the mathematics, based both on the standards and research-based learning trajectories. Activities and lessons are parts of a mathematical story that spans units and grade levels. This coherence allows students to view mathematics as a connected set of ideas that makes sense."

- The Dependency Chart Section of the *Course Guide* outlines how previously learned concepts are connected across grade levels and in the current grade level. It explains, "An arrow indicates that a particular unit is designed for students who already know the material in a previous unit. Reversing the order of the units would have a negative effect on mathematical or pedagogical coherence."

Materials demonstrate coherence across units by explicitly connecting patterns, big ideas, and relationships between mathematical concepts.

- The grade 5 Scope and Sequence Narrative in the Digital Review describes the learning goal of the unit or the big idea and describes the connections within patterns and relationships of concepts. For example, "The big ideas in grade 5 include developing fluency with addition and subtraction of fractions, developing an understanding of multiplication and division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions), extending division to two-digit divisors, developing an understanding of operations with decimals to hundredths, developing fluency with whole number and decimal operations, and developing an understanding of volume. “
- The materials include visual models for concept development, connecting patterns to big ideas, and abstract relationships within mathematical concepts. For example, in grade 5, Unit 6, when learning more about decimal and fraction operations, the Unit Narrative states, "Previously, students learned to convert from a larger unit to a smaller unit. Here, they learn to convert from a smaller unit to a larger unit. They observe how the digits shift when multiplied or divided by a power of 10 and learn to use the exponential notation for powers of 10 to represent large numbers."
- The materials connect big ideas across units. The materials include a Unit Narrative overview that explains the big ideas, tools, and representations used throughout the unit. The unit narrative explicitly connects to previous units or grade levels where students learned prior knowledge needed for the upcoming unit. For example, in grade 5, Unit 6, the big idea objective is to deepen understanding of place-value relationships of numbers in base ten, unit conversion, operations on fractions with unlike denominators, and multiplicative comparison.

To demonstrate a connection to prior knowledge, the Unit Narrative states, "In grade 4, students learned the value of each digit in a whole number is 10 times the value of the same digit in a place to its right. Here, they extend that insight to include decimals to the thousandths." The grade 5 Scope and Sequence Narrative outlines the learning goals and connections within mathematical concepts. Grade 5 is divided into eight units: Finding Volume, Fractions as Quotients and Fraction Multiplication, Multiplying and Dividing Fractions, Wrapping Up Multiplication and Division with Multi-Digit Numbers, Place Value Patterns and Decimal Operations, More Decimal and Fraction Operations, Shapes on the Coordinate Plane, and Putting it All Together. The materials connect current learning to previous and future concepts. For example, Unit 1 builds on students' understanding of area, multiplication, and geometric language to develop an understanding of volumeUnit 5 expands on grade 4 knowledge of fractions and decimals through instruction on decimals to the thousandths. In grade 6, students add, subtract, multiply, and divide multi-digit decimals.

Materials demonstrate coherence across units by connecting the content and language learned in previous courses/grade levels and what will be learned in future courses/grade levels to the content to be learned in the current course/grade level.

- The grade 5 Scope and Sequence in the Digital Review describes the previous grade content and makes connections to future content learned. For example, it states, "In grade 3, students learned that the area of a two-dimensional figure is the number of square units that cover it without gaps or overlaps. They first found areas by counting squares and began to intuit that the area is additive. Later, they recognized the area of a rectangle as a product of its side lengths and found the area of more complex figures composed of rectangles."
- The grade 5 *Course Guide* provides descriptions of each unit. The materials include connections to content learned in the previous grade level. It also makes connections with what will be learned in the future and connects language from the previous grade level to the current unit. For example, "In this unit, students expand their knowledge of decimals to read, write, compare, and round decimals to the thousandths. They also extend their understanding of place value and numbers in base ten by performing operations on decimals to the hundredth. In IM Grade 4, students wrote fractions with denominators of 10 and 100 as decimals. They recognized that the notations 0.1 and express the same amount and are both called 'one-tenth.' Students used hundredths grids and number lines to represent and compare tenths and hundredths. Students rely on diagrams and their understanding of fractions to make sense of decimals to the thousandths. They see that 'one thousandth' refers to the size of one part of a hundredth partitioned into 10 equal parts and that its decimal form is 0.001. Diagrams help students visualize the magnitude of each decimal place and compare decimals. Students then apply their understanding of decimals and whole-number operations to add, subtract, multiply, and divide decimal numbers to the hundredths, using strategies based on place value and the properties of operations. Students see that the reasoning strategies and algorithms they used to operate on whole numbers are also applicable to decimals. For example, addition and subtraction can be done by attending to the place value of the digits in the numbers, and multiplication and division can still be understood in terms of equal-size groups.”

Materials demonstrate coherence at the lesson level by connecting students' prior knowledge of concepts and procedures from the current and prior grade level(s) to new mathematical knowledge and skills.

- The Teacher Resource Guide outlines each unit through a Scope and Sequence, detailing previous learning and new objectives. Unit 4 focuses on multi-digit multiplication using the standard algorithm and introduces division with up to two-digit divisors. It builds upon grade 4 concepts of place value strategies, diagrams, and algorithms for multiplication and division. For example, Unit 4 states, "In this unit, students multiply multi-digit whole numbers, using the standard algorithm, and begin working toward end-of-grade expectations for fluency. They also find whole-number quotients with up to four-digit dividends and two-digit divisors. In IM Grade 4, students used strategies based on place value and the properties of operations to multiply a whole number of up to four digits by a one-digit whole number and to multiply a pair of two-digit numbers. They decomposed the factors by place value and used diagrams and algorithms using partial products to record their reasoning. Here, students build on those strategies to make sense of the standard algorithm for multiplication. They recognize that it is also based on place value but record the partial products in a condensed way. In grade 4, students also found whole-number quotients using place-value strategies and the relationship between multiplication and division. They decomposed dividends in various ways and found partial quotients. The numbers they encountered then were limited to four-digit dividends and one-digit divisors. In this unit, they extend that work to include two-digit divisors. As they build their facility with multi-digit multiplication and division, students solve problems about area and volume and reinforce their understanding of these concepts."
- Materials demonstrate coherence at the lesson level by connecting students' prior knowledge of concepts and procedures of the current grade to new knowledge and skills through the lesson warm-ups. A Typical IM Lesson section of the *Teacher Resource Guide* states, "A warm-up that helps students get ready for today's lesson might serve to remind them of a context they have seen before, get them thinking about where the previous lesson left off, or preview a context or idea that will come up in the lesson so that it doesn't get in the way of learning new mathematics." For example, in grade 5, Unit 3, Lesson 2, the Warm-Up states, "The warm-up also enables the teacher to listen to students as they share their interpretations of the various representations of fraction multiplication, and use their developing vocabulary to describe the characteristics of fractional products."
- The *Teacher Resource Guide* provides a unit breakdown, informing how current grade-level concepts are interconnected throughout the unit. Warm-up activities revisit prior grade concepts and support the current unit's objectives. For example, Number Talk routines focus on multiplying powers of 10 and develop skills in using partial products and quotients. The Centers in the materials integrate concepts across grades, such as the Creating Line Plots Center, designed for grades 2–5. The center progresses through stages from basic measurement to more complex tasks like analyzing data with addition, subtraction, or multiplication questions based on line plots. Student journal prompts include reflection and a deeper understanding of math concepts, connecting current and prior learning. . Pictorial

representations and illustrations support prior knowledge when introducing new concepts. For example, in grade 5, Unit 4, Lesson 1, the materials direct students to apply previous strategies to estimate and compute products efficiently.

Depth and Coherence of Key Concepts

4.3	Spaced and Interleaved Practice	8/8
4.3a	Materials provide spaced retrieval opportunities with previously learned skills and concepts across lessons and units.	**4/4**
4.3b	Materials provide interleaved practice opportunities with previously learned skills and concepts across lessons and units.	**4/4**

The materials provide spaced retrieval opportunities with previously learned skills and concepts across lessons and units. Materials provide interleaved practice opportunities with previously learned skills and concepts across lessons and units.

Evidence includes, but is not limited to:

Materials provide spaced retrieval opportunities with previously learned skills and concepts across lessons and units.

- Materials provide opportunities for frequent retrieval practice of skills and concepts across lessons through the lesson warm-ups. The A Typical IM Lesson section states that one of the purposes for the warm-ups provided in every lesson is "to get them thinking about where the previous lesson left off." It also states, "The warm-ups provide opportunities for students to bring their personal experiences as well as their mathematical knowledge to problems and discussions." For example, in grade 5, Unit 3, Lesson 2, the Warm-Up provides an opportunity to recall previously learned fraction multiplication skills and concepts. The Narrative states, "This warm-up prompts students to carefully analyze and compare different diagrams that represent products of fractions. In making comparisons, students have a reason to use language precisely (MP6). The warm-up also enables the teacher to listen to students as they share their interpretations of the various representations of fraction multiplication and use their developing vocabulary to describe the characteristics of fractional products."
- Materials provide opportunities for spaced retrieval practice for previously learned skills and concepts across lessons and units through the use of centers. As stated in the "How To Use These Materials" section of the *Teacher Resource Guide*, "Centers are intended to give students time to practice skills and concepts that are developed across the year. There are 2 types of centers. Addressing centers address the work of a lesson or section of a unit. Supporting centers review prior unit or prior grade-level understandings and fluencies." For example, the grade 5, Unit 4, Section Level Planning Guide suggests "Center: The Largest Product, Stages 3–4" as the center for "ongoing practice."
- The materials offer spaced retrieval opportunities for previously learned skills across lessons and units. For example, in Unit 4, students focus on multi-digit multiplication and division, applying these skills to problem-solving in areas like area and volume. Unit 8 revisits major grade-level goals, featuring sections dedicated to deepening understanding of multiplication algorithms, real-world volume problems, and operations with decimals and fractions. In Unit 2 of grade 5, for instance, fraction strips and diagrams are used to interpret fractions as

quotients and extend multiplication concepts involving fractions. Warm-ups across lessons serve to reinforce skills and concepts, encouraging students to reflect on previous lessons and engage actively in mathematical discussions and problem-solving. For example, in grade 5, Unit 3, Lesson 2, the Warm-Up focuses on fraction multiplication, fostering precise language use and comparative analysis of fraction representations.

- Materials also provide spaced retrieval opportunities for previously learned concepts across lessons and units. For example, Unit 8 states, "In this unit, students revisit major work and fluency goals of the grade, applying their learning from the year. In section A, students deepen their understanding of the standard algorithm for multiplication and practice using it to find the value of products. They also revisit algorithms that use partial quotients to divide whole numbers. In Section B, students solve real-world problems about volume and have opportunities to model with mathematics. Section C focuses on operations with decimals and fractions. In the final section, students review major work of the grade as they create activities in the format of the warm-up routines they have encountered throughout the year (Notice and Wonder, Estimation Exploration, Number Talk, True or False, and Which One Doesn't Belong?). This unit's sections are standalone and do not require to be completed in order. Within a section, lessons can also be completed selectively and without completing prior lessons. The goal is to offer ample opportunities for students to integrate the knowledge they have gained and to practice skills related to the expected fluencies of the grade."

Materials provide interleaved practice opportunities with previously learned skills and concepts across lessons and units.

- The materials provide interleaved practice across lessons, where students apply previously learned skills and concepts in varied contexts. In Unit 5, students focus on decimals, including reading, writing, comparing, and rounding decimals to the thousandths. They use diagrams to visualize decimal magnitudes and apply strategies based on place value to add, subtract, multiply, and divide decimals to the hundredths. Practice problems include opportunities for using diverse strategies, requiring students to explain their reasoning.
- The Number Talk warm-up routine supports computational fluency and conceptual understanding by prompting students to evaluate expressions and share strategies collaboratively. SFor example, students extend their knowledge from Unit 2, where they interpreted fraction products using rectangle side lengths, to Unit 3, where they apply skills in multiplying and dividing fractions and whole numbers. The materials include practice opportunities for skills and concepts across units. For example, students use knowledge of skills and concepts interpreting the product of a whole number and a fraction in terms of the side lengths of a rectangle addressed in Unit 2, "Fractions as Quotients and Fraction Multiplication," to connect finding the product of two fractions, dividing a whole number by a unit fraction, and dividing a unit fraction by a whole number in Unit 3 "Multiplying and Dividing Fractions." The Unit 3 Narrative states, "Previously, students made sense of multiplication of a whole number and a fraction in terms of the side lengths and area of a rectangle." In grade 5, students make sense of the multiplication of two fractions in the same way and interpret area

diagrams with two unit fractions for their side lengths, then a unit fraction and a non-unit fraction, and then two non-unit fractions.

- Purposeful Representations are utilized throughout the materials, providing embedded interleaved practice opportunities for previously learned skills and concepts across lessons, units, and grade levels. According to the *Course Guide* provided in the materials, Purposeful Representations are a key structure utilized in the course. The materials explain how mathematical representations in the materials serve two main purposes: to help students develop an understanding of mathematical concepts and procedures and to help them solve problems. Across lessons and units, the materials introduce students to representations and guide students to use those that make sense to them.

Balance of Conceptual and Procedural Understanding

5.1	Development of Conceptual Understanding	18/18
5.1a	Questions and tasks require students to interpret, analyze, and evaluate a variety of models and representations for mathematical concepts and situations.	**12/12**
5.1b	Questions and tasks require students to create a variety of models to represent mathematical situations.	**2/2**
5.1c	Questions and tasks provide opportunities for students to apply conceptual understanding to new problem situations and contexts.	**4/4**

The materials include questions and tasks that require students to interpret, analyze, and evaluate a variety of models and representations for mathematical concepts and situations. Materials include questions and tasks that require students to create a variety of models to represent mathematical situations. Materials include questions and tasks that provide opportunities for students to apply conceptual understanding to new problem situations and contexts.

Evidence includes, but is not limited to:

Questions and tasks require students to interpret, analyze, and evaluate a variety of models and representations for mathematical concepts and situations.

- Questions and tasks provided throughout each unit require students to interpret, analyze, and evaluate a variety of models and representations for mathematical concepts and situations. The Key Structures in This Course section of the *Teacher Resource Guide* includes a list of concrete representations and suggested uses of each. According to this section, "Across lessons and units, students are systematically introduced to representations and encouraged to use representations that make sense to them. As their learning progresses, students are given opportunities to make connections between different representations and the concepts and procedures they represent." For example, in Unit 1, Lesson 1, the Activity 1 questions ask students to compare two models by answering, "Which is bigger?" The materials prompt students to interpret, analyze, and evaluate the given 3-D models and then explain why one is bigger than the other.
- Materials include models and representations with questions that require students to interpret, analyze, and evaluate them. The first lessons that cover a concept start with models to build conceptual understanding. The Design Principles section of the *Teacher Resource Guide* states, "Representations that are more concrete are introduced before those that are more abstract." For example, in Unit 3, Lesson 2 starts with Represent Unit Fraction Multiplication, where questions ask students to interpret and analyze models and representations, and progresses later on in Lesson 7, focusing on Generalize Fraction Multiplication, where questions ask students to evaluate models and representation. In Unit 3, Lesson 7 Activity 1, question 3 asks, "Diego drew this diagram for the product 9/11×5/8. How can the diagram help Diego find the value of 9/11×5/8?"

- Materials include Lesson Activities with tasks that require students to interpret, analyze, and evaluate a variety of models and representations. For example,Unit 4, Lesson 2, Activity 1 states, "The purpose of this activity is for students to use a diagram to help calculate the product of a three-digit number and a two-digit number. The diagram helps to organize the individual products that can be used to find the larger product. During the activity synthesis, students connect the diagram to the distributive property when they explain how the sum of the individual products gives the larger product." Activity 2 explains that the diagrams used will relate to the partial products and standard algorithm methods that students will learn in future lessons. The Student-Facing Task Statement questions at the end of both activities ask students to interpret, analyze, and evaluate given diagrams.

Questions and tasks require students to create a variety of models to represent mathematical situations.

- The Standards for Mathematical Practice describe how the materials provide opportunities for students to create various models to represent mathematical situations. As stated in the *Teacher Resource Guide,* How to Use These Materials section, "The Standards for Mathematical Practice (MP) describe the types of thinking and behaviors students engage in as they are doing mathematics." Several "I Can" statements are listed to describe the types of actions students engage in with particular Mathematical Practices, and many involve creating various models to represent mathematical situations. For example, "I can model a situation using a representation such as a drawing, equation, line plot, picture graph, bar graph, or a building made of blocks. I can think about the real-world implications of my model. I can make connections between multiple mathematical representations." In Unit 5, Lesson 2, Activity 1 provides an example task and questions for students to create models on the digital canvas to represent fractions.
  The units include questions and tasks requiring students to create various models to represent mathematical situations. As the Design Principles section of the *Teacher Resource Guide* states, "Across lessons and units, students are systematically introduced to representations and encouraged to use representations that make sense to them. As their learning progresses, students are given opportunities to make connections between different representations and the concepts and procedures they represent." For example, in grade 5, Unit 5, Lesson 1 Activity 1 Narrative Task, "The purpose of this activity is for students to share what they know about one tenth and one hundredth, and consider what they might know about one thousandth. The materials prompt students to make a poster showing what they know about these numbers and then discuss different representations they made.

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

- Materials include questions and tasks that allow students to apply conceptual understanding to new situations. As the Design Principles section of the *Teacher Resource Guide* states, "Opportunities to connect new representations and language to prior learning support students in building conceptual understanding. Access to new mathematics and problems

prompts students to apply their conceptual understanding and procedural fluency to novel situations. Warm-ups, practice problems, centers, and other built-in routines help students develop procedural fluency, which develops over time." For example, in Unit 3, Lesson 4 Activity 1, the student-facing task statement states, "A city is designing a park on a rectangular piece of land. 2/3 of the park will be used for different sports. 1/2 of the land set aside for sports will be soccer fields. Draw a diagram of the situation." This task asks students to apply conceptual knowledge of multiplying fractions to a new situation.

- Questions and tasks allow students to apply conceptual understanding to new contexts. The Design Principles section of the *Teacher Resource Guide* states, "There are three aspects of rigor essential to mathematics: conceptual understanding, procedural fluency, and the ability to apply these concepts and skills to mathematical problems with and without real-world contexts. These aspects are developed together and are interconnected in the materials to support student understanding." For example, in Unit 3, Lesson 1 Activity 1, the Advancing Student Thinking task states, "If students do not draw a diagram that represents the situation, suggest they draw a diagram to show how much of the pan of macaroni and cheese is left. Then ask: 'How can you adapt your diagram to show that one-third of one-half of the pan was eaten?'" This task requires students to apply a conceptual understanding of multiplying fractions using a diagram to represent a new context.
- The material includes questions throughout each unit that provide opportunities for students to apply conceptual understanding to new situations and contexts. For example, in Unit 3, Section A Practice Problems, question 4 asks, "Jada has 8 pennies. Each one weighs 5/2 grams. How much do Jada's pennies weigh altogether?" Students must apply their conceptual knowledge of multiplying fractions to a new situation and context to answer this question.

Balance of Conceptual and Procedural Understanding

5.2	Development of Fluency	12/12
5.2a	Materials provide tasks that are designed to build student automaticity and fluency necessary to complete grade-level tasks.	**2/2**
5.2b	Materials provide opportunities for students to practice the application of efficient, flexible, and accurate mathematical procedures within the lesson and/or throughout a unit.	**3/3**
5.2c	Materials provide opportunities for students to evaluate procedures, processes, and solutions for efficiency, flexibility, and accuracy within the lesson and throughout a unit.	**6/6**
5.2d	Materials contain embedded supports for teachers to guide students toward increasingly efficient approaches.	**1/1**

The materials provide tasks designed to build student automaticity and fluency necessary to complete grade-level tasks. Materials provide opportunities for students to practice the application of efficient, flexible, and accurate mathematical procedures within the lesson and throughout a unit. Materials provide opportunities for students to evaluate procedures, processes, and solutions for efficiency, flexibility, and accuracy within the lesson and throughout a unit. Materials contain embedded supports for teachers to guide students toward increasingly efficient approaches.

Evidence includes, but is not limited to:

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

- Materials provide tasks that are designed to build student automaticity and fluency in the Design Principles of the *Teacher Resource Guide*. "There are three aspects of rigor essential to mathematics: conceptual understanding, procedural fluency, and applying these concepts and skills to mathematical problems with and without real-world contexts. These aspects are developed together and are therefore interconnected in the materials in ways that support student understanding."
- Materials provide tasks that are designed to build student automaticity and fluency. According to the Design Principles of the *Teacher Resource Guide*, "Warm-ups, practice problems, centers, and other built-in routines help students develop procedural fluency, which develops over time." The center's activities target specific skills or concepts that build fluency. The section also states, "In addition to lessons and assessments, units have aligned center activities to support the unit content and ongoing procedural fluency. Access to new mathematics and problems prompt products to apply their conceptual understanding and procedural fluency to novel situations." For example, in Unit 6, Lesson 7, the Warm-Up is a Number Talk that helps students develop strategies to find multiples of 12 mentally using place value strategies and the distributive property. A center example is "How Close?" where

students use fluency strategies of the four operations with selected numbers to get closest to a target number.

- Materials provide concrete and pictorial support for students to create mental images of numbers and facts to develop automaticity. For example, in Unit 4, Lesson 2, the Warm-Up states, "The purpose of this warm-up is for students to compare and contrast different diagrams that can be used to represent and calculate products of two-digit numbers. Students used these partial product diagrams in grade 4. They will extend them to represent the product of a three-digit number and a two-digit number later in the lesson."

Materials provide opportunities for students to practice the application of efficient, flexible, and accurate mathematical procedures within the lesson and/or throughout a unit.

- The materials include tasks that offer multiple entry points. Students can choose different strategies to solve and build conceptual understanding. The materials provide opportunities for practicing and applying procedural skills for fluency. The Design Principles section of the *Teacher Resource Guide* states, "Each unit, lesson, and activity has the same overarching design structure: the learning begins with an invitation to the mathematics, is followed by a deep study of concepts and procedures, and concludes with an opportunity to consolidate understanding of mathematical ideas. The invitation to the mathematics is particularly important because it offers students access to the mathematics. It builds on prior knowledge and encourages students to use their own language to make sense of ideas before formal language is introduced, both of which are consistent with the principles of Universal Design for Learning." For example, in Unit 4, Lesson 1, Activity 2 states, "The purpose of this activity is for students to multiply a three-digit number by a two-digit number using a strategy that makes sense to them. The expressions are scaffolded so that students can use one calculation to help with the next, particularly when they look for the final product, which is 18×149. This activity encourages students to compare the strategies they used with the strategies that their classmates used and to discuss the similarities and differences. The intent of this activity is not to create a list of strategies for students to choose from. Instead, students have an opportunity to think about how the properties of operations and place value understanding were used in each strategy."
- The materials include warm-ups and activity tasks that ask students to apply mathematical procedures or strategies offered by peers within the lessons and throughout the units. For example, in Unit 4, Lesson 3, Activity 2, the narrative states, "The purpose of this activity is for students to consider two different ways of recording partial products in an algorithm that they worked with in a previous course. The numbers are the same as in the previous activity to allow students to make connections between the diagram and the written strategies. Students examine two different ways to list the partial products in vertical calculations, corresponding to working from left to right and from right to left. Regardless of the order, the key idea behind the algorithm is to multiply the values of each digit in one factor by the values of each digit in the other factor."
- Materials provide opportunities for students to practice the application of mathematical procedures that are efficient and accurate in the warm-ups, activities, and lesson practice

problems. For example, Unit 4, Lesson 14, Activity 1 Narrative states, "The purpose of this activity is for students to identify and correct common errors using an algorithm that uses partial quotients. One of the errors involves subtraction, and two of them involve multiplication. Students may choose to correct the errors and continue the work that is there, or they may choose to find the quotient in a different way that makes sense to them. When students determine where the errors are and explain their reasoning, they critique and construct viable arguments (MP3)."

Materials provide opportunities for students to evaluate procedures, processes, and solutions for efficiency, flexibility, and accuracy within the lesson and throughout a unit.

- The materials include strategic questions for teachers to use during instruction. Questions prompt students to consider alternative strategies and think critically about the most efficient approach, find an alternate solution, and apply a procedure to all situations. For example, in Unit 4, Lesson 14, Activity 2, the Narrative states, "The purpose of this activity is for students to divide three- and four-digit dividends by two-digit divisors. As the dividend size increases, students have the option to subtract multiples of 100 of the divisor. To calculate efficiently, this becomes essential for a quotient like 8,715÷21 as it will take a lot of partial quotients that are multiples of 10 to reach the full quotient. Using an algorithm that uses partial quotients for larger numbers also requires fluency with subtraction." Four division practice problems with 2-digit divisors follow.
- The materials include activities that allow students to analyze procedures, processes, and solutions for completed problems. For example, in Unit 4, Lesson 14, the Activity 1 Narrative states, "The purpose of this activity is for students to identify and correct common errors in using an algorithm that uses partial quotients. One of the errors involves subtraction, and two of them involve multiplication. Students may choose to correct the errors and continue the work that is there, or they may choose to find the quotient in a different way that makes sense to them." The materials explain that when students determine where the errors are and explain their reasoning, they critique and construct viable arguments.
- The materials intentionally include tasks that ask students to solve problems using multiple appropriate strategies, particularly in the lesson warm-ups. As stated in the A Typical IM Lesson section of the *Teacher Resource Guide*, "A warm-up that is meant to strengthen number sense or procedural fluency asks students to do mental arithmetic or reason numerically or algebraically. It gives them a chance to make deeper connections and become more flexible in their thinking." For example, in Unit 6, Lesson 7, the Warm-Up states, "This warm-up helps students develop strategies to find multiples of 12 mentally using place value strategies and the distributive property. This prepares students for converting measurements in feet to measurements in inches."

Materials contain embedded supports for teachers to guide students toward increasingly efficient approaches.

- Materials provide lesson narratives as embedded support for teachers to guide students toward increasingly efficient approaches. As stated in the Design Principles section of the *Teacher Resource Guide*, "This is how key components of the materials support teachers in understanding the mathematics they are teaching, the students they are teaching, or in some cases, both. The narratives included in the materials provide teachers with a deeper understanding of the mathematics and its progression within the materials." For example, in Unit 4, Lesson 2, the Lesson Narrative of the warm-up gives the teacher guidance, stating, "The purpose of this warm-up is for students to compare and contrast different diagrams that can be used to represent and calculate products of two-digit numbers. Students used these partial product diagrams in grade 4. They will extend them to represent the product of three-digit and two-digit numbers later in the lesson. These rectangular diagrams use the intuition and properties of area to support representing multiplication. However, a genuine area diagram would be difficult to read, so the individual pieces are not drawn to scale." The Activity Synthesis directs teachers to ask students, "How might Diagram C help calculate the product 42×33?" The materials provide a sample response and direct teachers to discuss that this is the type of diagram that will be used throughout the next several lessons. Teachers are encouraged to explain that the diagram's purpose is to help see different ways to calculate products of numbers.
- The materials include explicit modeling of efficient strategies. As stated in the Design Principles section of the *Teacher Resource Guide*, "In addition to tasks that provide access to the mathematics for all students, the materials guide teachers on how to ensure that during the tasks, all students are provided the opportunity to engage in the mathematical practices." For example, in Unit 4, Lesson 2, the Activity 1 Narrative provides teacher guidance, having teachers say, "In these problems, write each product inside the part of the diagram that represents that product." Then, teachers demonstrate by writing 1,200 inside the rectangle with sides marked 30 and 40.
- The materials explain why a tool is appropriate and efficient for solving a task. As stated in the Design Principles section of the *Teacher Resource Guide*, "The teacher course guide makes explicit the selection of a representation when appropriate, so that teachers understand the reasoning behind certain representation choices in the materials." For example, in Unit 5, the Section Level Planning Guide explains, "In this section, students reason about decimals to the thousandth place. They begin by representing decimals on gridded area diagrams, where the large square has a value of 1, and each small square within represents 1/100. Students learn that if they partition each small square into tenths, each part represents a thousandth of the large square. The diagram highlights the relationships between place values. For instance, each thousandth is 1/10 of a hundredth, and each hundredth is 10 thousandths. It also helps to illustrate the structure of the number in its expanded form. In this case, the shaded region includes 3 tenths, 6 hundredths, and 8 thousandths, which can be written as (3×0.1)+(6×0.01) + (8×0.001). This awareness helps to prepare students for multiplication of a decimal by a whole number later in the unit."

Balance of Conceptual and Procedural Understanding

5.3	Balance of Conceptual Understanding and Procedural Fluency	14/16
5.3a	Materials explicitly state how the conceptual and procedural emphasis of the TEKS are addressed.	**0/2**
5.3b	Questions and tasks include the use of concrete models and manipulatives, pictorial representation (figures/drawings), and abstract representations.	**6/6**
5.3c	Materials include supports for students in connecting, creating, defining, and explaining concrete and representational models to abstract (symbolic/numeric/algorithmic) concepts.	**8/8**

The materials do not explicitly state how the conceptual and procedural emphasis of the TEKS are addressed. Questions and tasks include using concrete models and manipulatives, pictorial representation, and abstract representations. Materials include support for students in connecting, creating, defining, and explaining concrete and representational models to abstract concepts.

Evidence includes, but is not limited to:

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

- The materials provide a TEKS guide, but the lessons do not explicitly state how the conceptual and procedural emphasis of the TEKS are addressed. According to the *Teacher Resource Guide*, "Each unit is organized around two or three learning goals that describe the mathematical focus. Unit goals are aligned to the standards. Each section in a unit includes section learning goals that describe the focus of each section. The section learning goals are aligned to the unit learning goals."
- The materials do not explicitly state how the conceptual and procedural emphasis of the TEKS are addressed. According to the *Teacher Resource Guide*, "Three aspects of rigor are essential to mathematics: conceptual understanding, procedural fluency, and applying these concepts and skills to mathematical problems with and without real-world contexts. These aspects, developed together, are interconnected in the materials to support students' understanding." The materials do not explicitly state or explain how the TEKS are emphasized or addressed in the materials. For example, in Unit 7, Lesson 1, the Activity 1 Narrative states, "The purpose of this activity is for students to use the structure of the coordinate grid to communicate and draw shapes... As they go through each round, students notice that a grid can be used to locate and describe a rectangle more precisely. Gridlines with numbers allow for even more precise descriptions (MP6)." This activity connects the mathematical concepts to the procedures, but it does not explicitly state how the conceptual and procedural emphasis of the TEKS are addressed.

Questions and tasks include the use of concrete models and manipulatives, pictorial representation (figures/drawings), and abstract representations.

- The lessons and units include hands-on questions and tasks with concrete models and manipulatives that represent mathematical concepts. The Design Principles section of the *Teacher Resource Guide* states, "Representations that are more concrete are introduced before those that are more abstract." For example, Unit 1, Lesson 2, Activity 1 and Launch guide teachers to use manipulatives so that students can explore and find the volume of prisms. "Give 24 connecting cubes to each group. 'In this activity, you will use unit cubes to build objects and describe how you would measure the volume.'" This activity is followed by questions that require students to build an object with cubes, count them to find the volume, and explain the method they used to count the cubes. An example of concrete models used in a task is in Unit 5, Lesson 2, in which the Learning Goals state, "Represent fractions and decimals to thousandths on the hundredths grids. Write fractions and decimals to thousandths to represent shaded amounts on hundredths grids." The questions that follow in Activity 1 require students to shade hundredths grids to represent decimals.
- The lesson material questions and tasks incorporate detailed pictorial representations that represent the mathematical concepts. The Design Principles section of the *Teacher Resource Guide* states that each lesson warm-up is "followed by instructional activities in which students are introduced to new concepts, procedures, contexts, or representations, or make connections between them." For example, in Unit 5, Lesson 6, Activity 2, the Narrative states, "The purpose of this activity is for students to label number lines where the end tick marks are tenths or hundredths written as decimals...Students also choose one of the number lines to compare two numbers, preparing them for the comparison work in the next activity and future lessons." Questions that follow require students to label number lines as the pictorial representation of decimals, as well as select appropriate number lines to demonstrate given decimals.
- The lesson and unit materials include abstract representations in questions and tasks, such as symbolic notations, numeric expressions, and algorithms to illustrate concepts. The Design Principles section of the *Teacher Resource Guide* states, "In later grades, these familiar representations are extended so that as students encounter larger numbers, they can use place-value diagrams and more symbolic methods, such as equations, to represent their understanding." For example, in Unit 5, Lesson 9, the Activity 1 Narrative states, "The purpose of this activity is for students to apply what they have learned about comparing decimals to find numbers that lie between two other decimal numbers." The Activity Synthesis guides teachers to "Display the inequality: 0.99<—<0.999 'What are some possible numbers that will make this true?' (0.995, 0.991, 0.997) 'What do you notice about all the possible numbers?' (They all have 9 tenths and 9 hundredths and also some thousandths.)..." The questions that follow ask students to complete abstract representations of decimal comparison inequality statements.

Materials include supports for students in connecting, creating, defining, and explaining concrete and representational models to abstract (symbolic/numeric/algorithmic) concepts.

- The materials include opportunities for students to consolidate their understanding of mathematical concepts and procedures through modeling, creating, and discussion, specifically through the Activity Synthesis, which is included at the end of each lesson. The Design Principles section of the *Teacher Resource Guide* states, "The activity ends with a synthesis to ensure students have an opportunity to consolidate their learning by making connections between their work and the mathematical goals." For example, in Unit 1, Lesson 3, Activity 1, the Narrative states, "The purpose of this activity is for students to build and determine the volume of rectangular prisms from images. In the activity synthesis, students look at two related prisms to encourage them to think about 8 cubes as a layer." The Activity Synthesis asks students to create rectangular prisms and find their volume by counting cubes. In Activity 2 that follows, students make the connection from the concrete cubes and images to abstract expressions and equations to determine volume.
- The materials include opportunities for students to define and explain the connection of models to abstract concepts through modeling, discussion, and practice. For example, the Key Structures in the Course section of the *Teacher Resource Guide* states, "Encourage students to use language to construct meaning from representations with prompts such as: 'Explain where you see (length, ten, oranges) in the (figure, equation, table). How do you know it represents the same thing?""For example, in Unit 7, the Lesson 1 Narrative states, "In this lesson, students discover the usefulness of the numbers on a coordinate grid by trying to communicate to their partner the size and location of a rectangle. It gives students a reason to attend to the features of the grid and to use language precisely (MP6). Then, they further exploit the coordinates, using them to pick one rectangle out of a set of closely related rectangles all lying in different locations on the coordinate grid. Students are formally introduced to the terms *coordinate grid*, *axes*, *horizontal axis*, and *vertical axis*."
- Unit 7, Lesson 1 Activity Synthesis supports students' connections. It states, "'Here are some of the words and phrases you used as you worked with your partners. We may add additional words or phrases that are important to include on our display as we continue to share and discuss the activity. You could use the language on the display to explain your thinking.' As students share responses, update the display by adding (or replacing) language, diagrams, or annotations. Ask previously selected students to explain their thinking. 'How did the gridlines help you?' (They helped us draw the shapes more accurately.) 'How did the numbers help you?' (We could use them to describe where the shape was located.) Display the image from the warm-up: 'This grid, with numbers labeling the gridlines, is called a coordinate grid. We are going to learn more about the coordinate grid in the next few lessons. How would you describe the coordinate grid?' (It has vertical lines with numbers on them and horizontal lines with numbers on them. It has squares on it. There are two of each number except 0. The horizontal and vertical lines intersect.)"
- The lesson materials provide students with multiple practice opportunities consisting of tasks and questions connecting concrete and representational models to abstract concepts in a progressive order throughout units to work towards mastery. As stated in the Design Principles section of the *Teacher Resource Guide*, "As their learning progresses, students are given

opportunities to make connections between different representations and the concepts and procedures they represent. Over time, they will see and understand more efficient methods of representing and solving problems, which supports the development of procedural fluency." For example, Unit 1, Lesson 1 explores "What is Volume?" and begins with students creating and modeling with cubes. It progresses to pictorial representations of "Volumes of Prism Drawings" in Lesson 3. It continues with students connecting the representations to the abstract expressions and equations in Lesson 6, "Expressions for Volume."

Balance of Conceptual and Procedural Understanding

5.4	Development of Academic Mathematical Language	14/14
5.4a	Materials provide opportunities for students to develop their academic mathematical language using visuals, manipulatives, and other language development strategies.	**3/3**
5.4b	Materials include embedded guidance for the teacher addressing scaffolding and supporting student development and use of academic mathematical vocabulary in context.	**2/2**
5.4c	Materials include embedded guidance for the teacher to support the application of appropriate mathematical language to include vocabulary, syntax, and discourse to include guidance to support mathematical conversations that provide opportunities for students to hear, refine, and use math language with peers and develop their math language toolkit over time as well as guide teachers to support student responses using exemplar responses to questions and tasks.	**9/9**

The materials provide opportunities for students to develop their academic mathematical language using visuals, manipulatives, and other language development strategies. Materials include embedded guidance for the teacher addressing scaffolding and supporting student development and using academic mathematical vocabulary in context. Materials include embedded guidance for the teacher to support the application of appropriate mathematical language to include vocabulary, syntax, and discourse to include guidance to support mathematical conversations that provide opportunities for students to hear, refine, and use math language with peers and develop their math language toolkit over time as well as guide teachers to support student responses using exemplar responses to questions and tasks.

Evidence includes, but is not limited to:

Materials provide opportunities for students to develop their academic mathematical language using visuals, manipulatives, and other language development strategies.

- Materials provide opportunities for students to develop their academic mathematical language. The A Typical IM Lesson of the *Teacher Resource Guide* states, "The purpose of each activity is described in its narrative." Units include learning goals in the Lesson Narratives for students to develop academic mathematical language centered around visuals, such as diagrams. For example, Unit 3, Lesson 2 Warm-Up states, "This warm-up prompts students to carefully analyze and compare different diagrams that represent products of fractions. In making comparisons, students have a reason to use language precisely (MP6). The warm-up also enables the teacher to listen to students as they share their interpretations of the various representations of fraction multiplication, and use their developing vocabulary to describe the characteristics of fractional products." In this warm-up, the materials prompt students to evaluate the models to determine which one doesn't belong and communicate using academic mathematical language about these models.
- According to the section A Typical IM Lesson, a unit activity can serve multiple purposes to develop academic mathematical language, such as introducing a new concept and the

associated language, introducing a new representation, formalizing a definition of a term for an idea informally encountered before, and practicing using mathematical language. For example, in Unit 1, Lesson 1, the Activity 1 Narrative states, "The purpose of this activity is for students to recognize that objects with the same volume take up the same amount of space. The word *bigger* is intentionally vague to elicit ideas about length, width, and height and encourage students to reason about the number of cubes. Monitor for the language students use to explain their choices, such as *longer*, *wider*, *taller*, or reference to the number of cubes. Students may choose to use connecting cubes to build the objects to compare and clarify their arguments (MP5). As students discuss and justify their decisions, they can create viable arguments and critique one another's reasoning (MP3). The discussion and comparison of students' arguments helps illustrate the need for precise mathematical vocabulary and prepares students to learn the meaning of volume (MP6)." This activity requires students to develop an academic mathematical language using cube manipulatives.

- Materials provide a lesson synthesis at the end of a lesson to help students consolidate learning, including connections around mathematical language, using various language development strategies. As stated in the A Typical IM Lesson section, "Teachers can use this time in any number of ways, including posing questions verbally and calling on volunteers to respond, asking students to respond to prompts in a written journal, asking students to add on to a graphic organizer or concept map, or adding a new component to a persistent display like a word wall."

Materials include embedded guidance for the teacher addressing scaffolding and supporting student development and use of academic mathematical vocabulary in context.

- Materials provide embedded guidance for teachers addressing scaffolding, supporting student development, and using academic mathematical vocabulary in context. According to the *Teacher Resource Guide*, "Mathematical Language Routines (MLRs) are instructional routines that provide structured but adaptable formats for amplifying, assessing, and developing students' language. The MLRs included in this curriculum were selected because they simultaneously support students' learning of mathematical practices, content, and language." As stated in the Supporting Diverse Learners section of the *Teacher Resource Guide*, "To support students who are learning English in their development of language, this curriculum includes instruction devoted to fostering language development alongside mathematics learning, fostering language-rich environments where there is space for all students to participate." The materials describe four design principles guiding teachers to promote mathematical language use and development.
- The materials include scaffolds teachers can use for students as they develop and use academic vocabulary. As stated in the Supporting Diverse Learners section of the *Teacher Resource Guide*, "Sentence frames can support student language production by providing a structure to communicate about a topic. Helpful sentence frames are open-ended, to amplify language production, not constrain it. The table shows examples of generic sentence frames that can support common disciplinary language functions across a variety of content topics." Several sentence frames and starters are listed in a chart for teacher guidance. For example,

the materials use sentence frames and discussion starters to scaffold the use of vocabulary when speaking and writing about mathematics within the lesson. For example, in Unit 3, Lesson 3, Activity 1, Support for Students with Disabilities states, "Synthesis: Invite students to identify which details were needed to solve the problem. Display the sentence frame, "The next time I write division equations, I will pay attention to____."

- The Supporting Diverse Learners section of the *Teacher Resource Guide* offers embedded guidance for teachers. Principle 2 focuses on strengthening opportunities for students to describe their mathematical thinking to others orally, visually, and in writing. The materials state that "All students benefit from repeated, strategically optimized, and supported opportunities to articulate mathematical ideas into linguistic expression to communicate their ideas to others."

Materials include embedded guidance for the teacher to support the application of appropriate mathematical language to include vocabulary, syntax, and discourse to include guidance to support mathematical conversations that provide opportunities for students to hear, refine, and use math language with peers and develop their math language toolkit over time as well as guide teachers to support student responses using exemplar responses to questions and tasks.

- The materials include embedded teacher guidance to prepare for and facilitate student discourse grounded in quality tasks and concepts that use appropriate academic vocabulary, specifically through the Mathematical Language Routines provided in select activities in each unit. This guidance for discourse includes vocabulary and syntax to support conversations through the use of sentence starters and sentence frames.
- To support mathematical conversations, Unit 2, Lesson 1, Activity 1 Launch states, "Display the prompt without the questions. ___ sandwiches are shared equally by ____ people." The Support for English Language Learners guides teachers, "MLR1 Stronger and Clearer Each Time. Synthesis: Before the whole-class discussion, give students time to meet with 2–3 partners to share and get feedback on their response to how much sandwich each person gets. Invite listeners to ask questions, press for details, and suggest mathematical language. Give students 2–3 minutes to revise their written explanation based on the feedback they receive."
- The materials include guidance for teachers to support conversations that provide opportunities for students to hear, use, and refine math language with peers. The *Teacher Resource Guide* states, "The materials foster conversation so that students voice their thinking around mathematical ideas and support the teacher in using those ideas to meet the mathematical goals of the lessons." Materials include support for teachers to facilitate mathematical conversations that allow students to hear, refine, and use language with peers to develop their mathematical language toolkit over time. The Supporting Diverse Learners section of the *Teacher Resource Guide* states, "Students are expected to say or write mathematical explanations, state assumptions, make conjectures, construct mathematical arguments, and listen to and respond to the ideas of others. To advance the mathematics and language learning of all students, the materials purposefully engage students in sense-making and using language to negotiate meaning with their peers." For example, grade 5, Unit 6,

Lesson 5, Activity 2 Support for English Language Learners states, "MLR1 Stronger and Clearer Each Time. Synthesis: Before the whole-class discussion, give students time to meet with 2–3 partners to share and get feedback on their response to who ran farther, Tyler or Clare. Invite listeners to ask questions, press for details, and suggest mathematical language. Give students 2–3 minutes to revise their written explanation based on the feedback they receive."

- The materials provide a set of discussion questions, tasks, and exemplar responses in each lesson throughout all units that support discourse facilitation. The Student-Facing Task Assessment questions provided at the end of each activity include a "Note for Evaluating Student Response" to each question, which gives the teacher an exemplary response. For example, Unit 1, Lesson 7, Activity 2 Note for Evaluating Student Response provides teacher guidance with the exemplar answer, "Problem 2: Each box is 5×4×9=180; that's 180 cubic centimeters for each juice box. 180×10=1,800 cubic centimeters. Jada cannot fit all ten boxes because 1,800 cubic centimeters is bigger than the 1,500 cubic centimeters of space that Jada has left in her backpack."

Balance of Conceptual and Procedural Understanding

5.5	Process Standards Connections	6/6
5.5a	Process standards are integrated appropriately into the materials.	1/1
5.5b	Materials include a description of how process standards are incorporated and connected throughout the course.	2/2
5.5c	Materials include a description for each unit of how process standards are incorporated and connected throughout the unit.	2/2
5.5d	Materials include an overview of the process standards incorporated into each lesson.	1/1

The materials include process standards that are integrated appropriately into the materials. Materials include a description of how process standards are incorporated and connected throughout the course. Materials include a description for each unit of how process standards are incorporated and connected throughout the unit. Materials include an overview of the process standards incorporated into each lesson.

Evidence includes, but is not limited to:

Process standards are integrated appropriately into the materials.

- The materials include a How to Use These Materials section that contains The Math Process Standards Chart. The chart outlines the TEKS process standards that are integrated in the materials.
- The materials include evidence of the process standards within the Activity Narrative description of each lesson. The mathematics process standards aligned to the lesson are in parentheses at the end of the description.

Materials include a description of how process standards are incorporated and connected throughout the course.

- The How to Use These Materials section describes how process standards are incorporated and connected throughout the course. It states, "The Math Process Standards describe the types of thinking and behaviors students engage in as they are doing mathematics." For example, "Students have an opportunity to explore the tools before they are asked to use them to represent mathematical situations in later lessons."
- The online materials include evidence of a description of how process standards, or mathematical practices, are connected throughout the course. In the How to Use These Materials section of the Teacher Guide, there is a Math Process Standards Chart section that states, "Teachers will notice that some instructional routines are generally associated with certain mathematical practices." Following, there is a description of how instructional

routines throughout the course align with mathematical practices. The chart also demonstrates how process standards connect throughout the course.

Materials include a description for each unit of how process standards are incorporated and connected throughout the unit.

- The materials include a description for each unit of how process standards are incorporated and connected throughout the unit. In the How to Use These Materials section, there is a Math Process Standards Chart. This chart correlates the process standards present in each unit of the materials and each lesson.
- The materials include a Process Standards Integration Document for the TEKS and illustrate how the process standards build and connect throughout the units by connecting the student expectation with a narrative description of how the process standard(s) are represented in the units.

Materials include an overview of the process standards incorporated into each lesson.

- The materials include a description for each unit of how process standards are incorporated in the lessons. In the How to Use These Materials section, there is a Math Process Standards Chart. This chart provides a useful overview of how the process standards are incorporated into each lesson.
- Mathematical Process Standards are found in the warm-up activity of every lesson throughout the units. In the A Typical IM Lesson section, the materials state that the warm-ups "place value on students' voices as they communicate their developing ideas, ask questions, justify their responses, and critique the reasoning of others."

Productive Struggle

6.1	Student Self-Efficacy	15/15
6.1a	Materials provide opportunities for students to think mathematically, persevere through solving problems, and to make sense of mathematics.	**3/3**
6.1b	Materials support students in understanding, explaining, and justifying that there can be multiple ways to solve problems and complete tasks.	**6/6**
6.1c	Materials are designed to require students to make sense of mathematics through doing, writing about, and discussing math with peers and teachers.	**6/6**

The materials provide opportunities for students to think mathematically, persevere through solving problems, and make sense of mathematics. Materials support students in understanding, explaining, and justifying that there can be multiple ways to solve problems and complete tasks. Materials are designed to require students to make sense of mathematics through doing, writing about, and discussing math with peers and teachers.

Evidence includes, but is not limited to:

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

- Materials provide opportunities for students to think mathematically. According to the Design Principles included in the *Course Guide* of materials, "Teachers also guide students in understanding the problem they are being asked to solve, ask questions to advance students' thinking in productive ways, provide structure for students to share their work, orchestrate discussions so students have the opportunity to understand and take a position on the ideas of others, and synthesize the learning with the whole class at the end of activities and lessons."
- Materials provide students opportunities to think mathematically through the teacher questions provided in the Advancing Student Thinking section of the lessons. According to the Design Principles section of the *Teacher Resource Guide*, "Effective teaching requires being able to support students as they work on challenging tasks without taking over the process of thinking for them (Stein et al., 2000)." As the teacher gains insight into student learning, "The Advancing Student Thinking section provides teachers questions that advance student understanding of mathematical concepts, strategies, or connections between representations." For example, in Unit 3, Lesson 1, Activity 1, Advancing Student Thinking, the materials state, "If students do not draw a diagram that represents the situation, suggest they draw a diagram to show how much of the pan of macaroni and cheese is left. Then ask: 'How can you adapt your diagram to show that one-third of one-half of the pan was eaten?'" This question requires students to think mathematically about the conceptual multiplication of unit fractions.
- Materials provide opportunities for students to persevere through solving problems. According to the Design Principles included in the *Course Guide*, "The curriculum materials include

classroom structures that support students in taking risks, engaging in mathematical discourse, productively struggling through problems, and participating in ways that make their ideas visible. It is through these classroom structures that teachers will have daily opportunities to learn about and leverage their students' understandings and experiences and how to position each student as a capable learner of mathematics."

- Materials are a "problem-based instructional framework" and provide opportunities for students to persevere through problem-solving and engage in productive struggle. As stated in the Design Principles section of the *Teacher Resource Guide*, "The curriculum materials include classroom structures that support students in taking risks, engaging in mathematical discourse, productively struggling through problems, and participating in ways that make their ideas visible." For example, in Unit 2, Lesson 4, Activity 1 asks students to write situations that represent division equations or diagrams. The Lesson Narrative states, "Students go back and forth between equations, situations, and diagrams, interpreting the diagrams and equations and creating situations that these diagrams and equations represent."
- Materials provide opportunities for students to make sense of mathematics. According to the Design Principles included in the *Course Guide* of materials, "Students learn mathematics by doing mathematics, rather than by watching someone else do mathematics or being told what needs to be done. Doing mathematics can be defined as learning mathematical concepts and procedures while engaging in mathematical practices—making sense of problems, reasoning abstractly and quantitatively, making arguments and critiquing the reasoning of others, modeling with mathematics, making appropriate use of tools, attending to precision in their use of language, looking for and making use of structure, and expressing regularity in repeated reasoning. By engaging in the mathematical practices with their peers, students have the opportunity to see themselves as mathematical thinkers with worthwhile ideas and perspectives."
- Materials provide opportunities for students to think mathematically in Unit 5, Lesson 19. The narrative states, "The purpose of this lesson is for students to interpret and evaluate multiplication expressions with decimals and whole numbers. The purpose of this lesson is to solidify this understanding as they match many different expressions for a single product and choose one to find the value. They think strategically about which expression to use."
- The materials include opportunities for students to make sense of math using various strategies and contexts. The materials include problems with real-world context. As stated in the Design Principles section of the *Teacher Resource Guide*, "Doing mathematics can be defined as learning mathematical concepts and procedures while engaging in the mathematical practices—making sense of problems..." For example, in Unit 2, Lesson 14, Activity 1, Problem Card 1 asks, "A paper towel is rectangular. The length of the paper towel is 11 inches. What is the area of the paper towel?" Students make sense of this problem in a real-world context.

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

- Materials support students in understanding that there can be multiple ways to solve problems and complete tasks. For example, in Unit 4, Lesson 3, the narrative states, "The purpose of this lesson is for students to multiply multi-digit whole numbers using partial products. In previous lessons, students multiplied three-digit numbers and two-digit numbers using strategies based on place value and the properties of operations. Students used diagrams to illustrate and explain their partial product calculations. In this lesson, students move from diagrams to an algorithm that records partial products, which they used in an earlier course when multiplying a two-digit number by a two-digit number."Materials support students in understanding there can be multiple ways to solve problems and complete tasks. Materials include lessons and units that introduce students to representations and encourage them to make sense of them. The Design Principles section of the *Teacher Resource Guide* states, "...students are given opportunities to make connections between different representations and the concepts and procedures they represent. Over time, they will see and understand more efficient methods of representing and solving problems, which supports the development of procedural fluency." For example, in Unit 4, Lesson 11, Activity 2, the narrative states, "The purpose of this activity is for students to consider efficient ways to use the partial quotients strategy." Materials support students in explaining that there can be multiple ways to solve problems and complete tasks. For example, Unit 5, Lesson 19 Warm-Up states, "The purpose of this Number Talk is for students to demonstrate strategies and understandings they have for place value relationships and the properties of operations as they find the value of different products. The products all have the same value, 6, and also all have a decimal factor of 0.1 or 0.01. The whole number factors are organized differently, encouraging students to think flexibly about how to find products of a whole number and a decimal."
- The materials provide students opportunities to justify and support their mathematical strategies and findings in problems and tasks in the material's lessons. For example, in Unit 4, Lesson 9, the narrative states, "The purpose of this lesson is for students to use whole-number multiplication to solve problems. In previous lessons, students learned to use the standard algorithm to multiply multi-digit numbers. In this lesson, they solve problems that involve multiplication. Students are not asked to use a particular algorithm when they solve these problems. Some of the numbers in the problems are large and cumbersome and lend themselves well to using the standard algorithm for multiplication. Other products have 10 factors and smaller factors, which lend themselves well to mental calculations or the use of multiplication's associative and commutative properties. Use this lesson as an opportunity to observe the strategies your students are applying."
- The materials include opportunities that require students to justify that there are multiple ways to solve a problem and complete tasks. The Design Principles section of the *Teacher Resource Guide* defines doing math as "...making arguments and critiquing the reasoning of others..." For example, in Unit 1, Lesson 5, Activity 1, Question 2 asks, "Find the volume of each prism. Explain or show your reasoning."

Materials are designed to require students to make sense of mathematics through doing, writing about, and discussing math with peers and teachers.

- Materials are designed to require students to make sense of mathematics through doing math with peers and teachers. The Design Principles section of the *Course Guide* outlines the collaborative structure of the materials and emphasizes the concept of "learning mathematics by doing mathematics." For example, in Unit 4, Lesson 9, the Lesson Synthesis states, "Today, we used different strategies to solve multiplication problems. When is it most helpful to use the standard algorithm for multiplication? Take a minute to think about which of these problems you would use the standard algorithm to solve. Then share your strategy with your partner. Different problems call for different strategies, and we each might choose a different way to solve each of these problems. We could use the standard algorithm to solve all these problems, but we don't have to."
- Materials are designed to require students to make sense of mathematics through writing about math with peers and teachers. The Key Structures in this Course section of the *Course Guide* explains that the materials embed writing opportunities through open-ended written response questions and journaling. "Writing can be a useful catalyst in learning mathematics because it not only supplies students with an opportunity to describe their feelings, thinking, and ideas clearly, but it also serves as a means of communicating with other people (Baxter et al., 2002; Liedtke & Sales, 2001; NCTM, 2000). NCTM (1989) suggests that writing about mathematics can help students clarify their ideas and develop a deeper understanding of the mathematics at hand." The materials provide journal writing prompts and written response questions that require students to write about their mathematical ideas and justify or explain their thinking. For example, in Unit 1, Lesson 4, Activity 1, students are asked, "Find the volume of each prism. Explain or show your reasoning."
- Materials are designed to require students to make sense of mathematics through discussing math with peers and teachers. For example, in Unit 4, Lesson 3, Which One Doesn't Belong Warm-Up, students are tasked with comparing and discussing four representations of multiplication. The materials prompt students to discuss the concept with peers and the teacher. "Pick one that doesn't belong. Be ready to share why it doesn't belong. Discuss your thinking with your partner. Share and record responses. Why doesn't B belong? Does the value of expression B match the value represented in any of the diagrams?"
- Materials are designed to require students to make sense of math through discussion with peers and teachers. For example, Unit 1, Lesson 3, Activity 1 Launch states, "Now, you will each pick a card, build the prism, and find its volume. Explain how you found the volume to your partner and then pick another card."

Productive Struggle

6.2	Facilitating Productive Struggle	10/10
6.2a	Materials support teachers in guiding students to share and reflect on their problem-solving approaches, including explanations, arguments, and justifications.	**6/6**
6.2b	Materials offer prompts and guidance to assist teachers in providing explanatory feedback based on student responses and anticipated misconceptions.	**4/4**

The materials support teachers in guiding students to share and reflect on their problem-solving approaches, including explanations, arguments, and justifications. Materials offer prompts and guidance to assist teachers in providing explanatory feedback based on student responses and anticipated misconceptions.

Evidence includes, but is not limited to:

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

- Materials support teachers in guiding students to share and reflect on their problem-solving approaches, including explanations. As stated in the Key Structures in this Course section of the *Teacher Resource Guide*, "Opportunities for each of these areas (speaking, writing, reading, listening) are intentionally embedded directly into the curriculum materials through the student task structures and supported by the accompanying teacher directions." For example, in Unit 3, Lesson 6 Activity 1, the narrative states, "The purpose of this activity is for students to relate the structure in an expression to an area diagram. As students work with their partners, make sure both partners have an opportunity to explain how the diagram represents each expression verbally." The Activity Synthesis directs students to "Explain or show how each expression can represent the area of the shaded region in square units."
- The materials guide students to share their problem-solving approaches using explanations. For example, Unit 6, Lesson 20 Activity 2 states, "Students have seen multiple strategies that always will work, including calculating the product, thinking about the product on the number line, and using the distributive property to explain how the size of a product compares to the sizes of its factors. Students must use language precisely in their explanation."
- Materials support teachers in guiding students to share and reflect on their problem-solving approaches, including arguments. For example, in Unit 3, Lesson 18 Activity 2, the narrative states, "When partners share their work and discuss any disagreements they critique each other's reasoning." The Activity Synthesis guides teachers that for each set of problems, students should "Trade papers with your partner, and check your partner's equations. If you disagree, work to reach an agreement."
- Materials prompt students to reflect on their problem-solving approaches. For example, Access for English Language Learners in Unit 5, Lesson 4 Activity 1 suggests, "Give students 2–3 minutes to revise their written explanation based on the feedback they receive."

- The materials provide opportunities for students to reflect on their problem-solving approaches with explanations and arguments. For example, Unit 5, Lesson 12 Activity 1 states, "When students share their explanation of Han's calculations with a partner and revise their work after receiving feedback, they critique the reasoning of others and improve their arguments."
- Materials support teachers in guiding students to share and reflect on their problem-solving approaches, including justifications. The How to Use These Materials section of the *Teacher Resource Guide* states one of the "I can" statements students can make while engaging in a Mathematical Practice is, "I can explain or show my reasoning in a way that makes sense to others." For example, Unit 3, Lesson 12, Activity 1 Narrative states, "When students decide whether or not they agree with Priya's work and explain their reasoning, they critique the reasoning of others."
- The materials provide opportunities for students to share and reflect on their problem-solving approaches with justifications. For example, Unit 5, Lesson 8 Activity 1 states, "As students discuss and justify their decisions, they share a mathematical claim and the thinking behind it."

Materials offer prompts and guidance to assist teachers in providing explanatory feedback based on student responses and anticipated misconceptions.

- Materials offer prompts to assist teachers in providing explanatory feedback based on student responses and anticipated misconceptions. For example, Unit 5, Lesson 1, Activity 1 Narrative prompts teachers, "If students show tenths, hundredths or thousandths on a number line or with base-ten diagrams, highlight these representations in the synthesis, as they are familiar from grade 4."
- Materials offer guidance to assist teachers in providing explanatory feedback based on student responses and anticipated misconceptions. For example, Unit 6, Lesson 2 Cool-Down guides teachers to look for two anticipated misconceptions, "Students do not use correct exponential notation or do not correctly write the power of ten in standard form. Students do not read, represent, and describe the relative magnitude of multi-digit whole numbers up to 1 million." The Next Day Supports states, "Create a poster with a diagram representing the cool-down from this lesson."
- Materials offer teacher guidance in providing explanatory feedback based on student responses and anticipated misconceptions in each lesson cool-down. As stated in the Assessment section of the *Teacher Resource Guide*, "When appropriate, guidance for unfinished learning, evidenced by the cool-down, is provided in two categories: next-day support and prior-unit support. This guidance is meant to provide teachers ways to continue grade-level content while giving students the additional support they may need." For example, in Unit 6, Lesson 3, Cool-Down guides teachers to respond to student thinking by checking for misconceptions about students not recognizing or explaining a relationship. It offers Next Day Supports, for example, "Give students access to meter sticks during activity 1 of the next lesson." It offers Prior Unit Support in "Grade 4, Unit 5, Section B: Measurement Conversion."