Publisher Name	Program Name
Cosenza & Associates, LLC	*Math*
Subject	**Grade Level**
Mathematics	8

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

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

Quality Review Overall Score: **219 / 227**

Quality Review Summary

Rubric Section	Quality Rating
1. Intentional Instructional Design	**52 / 53**
2. Progress Monitoring	**22 / 28**
3. Supports for All Learners	**32 / 32**
4. Depth and Coherence of Key Concepts	**22 / 23**
5. Balance of Conceptual and Procedural Understanding	**66 / 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.
- 3.3 Support for Emergent Bilingual Students: Materials provide guidance for teachers in bilingual/ESL programs, support academic vocabulary and comprehension, and include resources for metalinguistic transfer in dual language immersion programs.
- 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.
- 4.3 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.
- 5.3 Balance of Conceptual Understanding and Procedural Fluency: Materials explicitly state how the conceptual and procedural emphasis of the TEKS are addressed, include

questions and tasks that use concrete models, pictorial representations, and abstract representations, and provide supports for students in connecting and explaining these models to abstract concepts.

- 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, providing descriptions of how they are incorporated and connected throughout the course, within each unit, and 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 unit overviews that provide essential background content knowledge for teaching the unit concepts effectively
- 2.1 Instructional Assessments: Materials do not have diagnostic assessments at the unit and lesson levels with varied tasks and questions.
- 4.2 Coherence of Key Concepts: Materials do not explicitly connect patterns between mathematical concepts.

Summary

Cosenza & Associates, LLC is a Mathematics 6–8 program. It provides a detailed, year-long scope and sequence that allows comprehensive planning for educators and incorporates the application of the TEKS. Daily instructional guidance maintains consistent sequences and routines, including teacher modeling, hands-on activities, partner work, and both guided and independent practice. Each lesson begins with an exploration, where students work through activities to demonstrate beginning levels of understanding. Next, materials provide explanations and independent practice before presenting a real-world performance task, differentiated to help learners at all levels. Additionally, the program includes teacher support for addressing common misconceptions students might have regarding mathematical concepts.

Campus and district instructional leaders should consider the following:

- Teachers engage the learner throughout each lesson phase by providing support: worked-out examples, detailed instructions, sentence stems to guide teachers, sentence stems to prompt students, and teacher "look-fors" to monitor student understanding. However, the materials do not include diagnostic assessments; teachers are encouraged to observe students to assess their initial understanding.
- The materials support learners who demonstrate grade level proficiency and who fall below grade level proficiency; still, teachers may need to supplement supports for students working above grade-level proficiency. Materials mention enrichment activities in pacing guides and set aside days for "enrichment."

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 Texas Essential Knowledge and Skills (TEKS), English Language Proficiency Standards (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/or templates for unit and lesson internalization. Materials include resources and guidance to support administrators and instructional coaches with implementing the 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.

- *Math - Grade 8 (Teacher Course)* provides the *Grade 8 Mathematics Scope and Sequence* PDF, which outlines the "Year-at-a-Glance," Texas Essential Knowledge and Skills (TEKS) and English Language Proficiency Standards (ELPS) alignments, "Rationale for Unit Progression," and a bulleted list of new concepts and knowledge for grade 8.-
- The grade 8 "Year-at-a-Glance" specifies the Texas Essential Knowledge and Skills (TEKS) and English Language Proficiency Standards (ELPS) covered in each unit, ensuring alignment with state standards and providing a clear framework for instruction. For example, "Unit 1" covers TEKS 8.1A, 8.1C, 8.1E, 8.2A, 8.2B, 8.2C, and 8.2D. ELPS covered in "Unit 1" include 1.F, 2.C, 3.B, and 4.C. Materials provide a comprehensive pacing guide, which lists all grade 8 TEKS in one chart and all grade 8 ELPS in another. Charts specify which unit(s) covers each. For example, 8.4C is taught in "Unit 4." ELPS 1.A is addressed in "Units 3 and 7."-
- The "Rationale for Unit Progression" explains "Units in the 2024 Grade 8 Mathematics materials are strategically sequenced with tight connections to the Texas Response to the

Curriculum Focal Points (TxRCFP) to create TEKS-aligned instructional materials in a logical progression." An additional chart compares the TxRCFP and the units within the curriculum. This rationale also includes explanations for concepts and knowledge "to be learned in Grade 8 Mathematics." The bulleted list includes "Formulas are equations whose variables can be substituted with values or whose variables can be solved for, even in geometric and financial applications."

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 include a *Grade 8 Mathematics Pacing Guide* with options for 165, 180, and 210-day calendars, including "suggestions for scope changes to accommodate shortened semesters and testing schedules without interrupting the flow of necessary learning." The pacing guide details each daily focus, including unit, lesson, topic, TEKS, and ELPS, ensuring that the continuity of essential learning within the course is maintained.
- The pacing guide includes a table for 165 instructional days and ensures all content is covered efficiently. Specifically, materials explain "For Unit 7, reduce the number of instructional days for Lesson 1 from 6 days to 4 days to recapture up to two instructional days."-
- The pacing guide includes a table for 180 instructional days with suggestions to adjust the "time spent on specific units without disrupting the sequence of instruction and content coherence." For example, in "Unit 9 Representing and Analyzing Data," materials suggest teachers "reduce the number of instructional days for all lessons in the unit by 1 day each to recapture up to seven instructional days."
- The pacing guide includes a table for 210 instructional days and provides guidance on modifying the curriculum's scope and sequence, including 3–5 days of enrichment/extension opportunities after each unit test; for example, Days 78–81 offer enrichment/extension lessons for proportional and non-proportional situations.

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

- The "Rationale for Unit Progression" states, "Units in the 2024 Grade 8 Mathematics materials are strategically sequenced with strong connections to the Texas Response to the Curriculum Focal Points (TxRCFP), thereby creating TEKS-aligned instructional materials in a logical progression."
- The "Year-at-a-Glance" and the *Scope and Sequence* include a progression chart that shows how units connect to the TEKS, skills, and recurring topics across lessons. Materials explain skills previously taught, skills to be taught in the current grade, and skills to be addressed in subsequent grade levels. "Unit 9 Lesson 1 Lateral and Total Surface Area of Prisms" shows that the main lesson student expectation is 8.7B which is connected to grade 7 student expectation 7.9D. Materials also give evidence for each unit's placement and connections to other units in the scope and sequence. For example, "Unit 4 builds from the single-variable concepts and skills students have learned in previous grade levels and honed in the first three

units of the course to begin to develop the idea of slope as a constant rate of change." In addition, "Unit 10 ends the course by applying what students have learned about positive rational numbers and operations to real-world problems of personal financial literacy such as credit and the financial implications of post-secondary education."

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

- The *Grade 8 Mathematics Teacher's Guide* provides a “Unit Internalization Protocol,” which includes checklists for reading, connecting, and anticipating steps teachers take to prepare for an entire unit. For example, the first step of the unit protocol prompts the teacher to “Read the information provided for the unit and make notes for your ‘three weeks from now’ self.” Teachers also begin with the end in mind by unpacking the unit assessments, answering “What will students need to know and be able to do to succeed in learning the content and processes in this unit?” and “As you read through the unit overview, how does learning build and connect throughout the unit?”
- The *Grade 8 Mathematics Teacher's Guide* provides a “Lesson Internalization Protocol,” which includes checklists for reading, connecting, and anticipating steps teachers take to prepare for the entire lesson. Teachers "read through the digital lesson pages and make notes for your ‘three weeks from now’ self.” Teachers also "connect lessons to culminating tasks" by “interpreting student performance on assessments, how these reflect levels of proficiency, and scoring information about student strengths, weaknesses, gaps, and common misconceptions." Furthermore, teachers answer “What will students need to know and be able to do to succeed in learning the content and processes in this lesson?”
- The *Grade 8 Mathematics Teacher's Guide* includes "Recommended Use of All Materials,” which outlines and details how educators can integrate “Technology,” “Enrichment/Extension,” “Research-Based Instructional Strategies,” and “Scaffolds” in each lesson/unit. For example, the “Research Based Instructional Strategies (RBIS)” states that lessons should be "designed to begin with a rigorous conceptual exploratory application to ground procedural learning that occurs later in the lesson."

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

- The *Grade 8 Implementation Guide* offers a comprehensive materials list, including graphing technology, color tiles, and paper bags. However, materials do not provide a comprehensive chart identifying how many/how much or for which lesson.
- The material includes "Implementation Challenge(s).” For example, “Grade 8 mathematics is a course taught not only by teachers certified in mathematics but also by those certified for all core subjects… teacher content knowledge is a common stumbling block to excellent implementation of instructional materials." Therefore, the *Grade 8 Implementation Guide* provides two resources to support administrators and instructional coaches during conversations with individual teachers or teachers in PLC: a “Plan-Do-Study-Act” cycle chart and an “Observation Protocol and Checklist.” The implementation model utilizes four

components: “Design,” “Facilitate,” “Analyze,” and “Improve.” In addition, materials include "Teacher Conversations to Support Implementation,” a guide that provides an observation checklist "to assess effectiveness and provide constructive feedback to teachers." For example, before a lesson, coaches are provided with questions to help prompt teachers for successful lessons. This checklist works for any lesson. An example of conversation starters includes these instructions: “Have a conversation with the teacher prior to the lesson. Potential conversation starters include: What are you most excited for students to learn/do/talk about during this lesson?” The checklist also offers prompts for observers during and after the lesson.

- The *Grade 8 Implementation Guide* offers continuous support for administrators and instructional coaches via a monthly email newsletter that contains “timely course-specific reminders" and “Implementation Challenge(s).” Coaches also have access to free webinars by appointment or in person. (In-person professional development is available and may incur an additional cost.)

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**

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

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.

- The *Math - Grade 8 (Teacher Course)* houses individual unit teacher materials. Each unit organizer shows the unit introduction, unit overview, prior learning supports, and resources. Additional PDF documents include a unit document and unit letters in English and Spanish.
- A “Prior Learning Supports” chart identifies previously learned concepts and strategies, Texas Essential Knowledge and Skills (TEKS), and English Language Proficiency Standards (ELPS) alignment, objectives, and academic vocabulary. Materials connect TEKS from previous grades with the current unit. For example, “Unit 1 also extends what students know about classifying, comparing, and ordering rational numbers from 6th and 7th grades to classifying, comparing, and ordering real numbers in 8th grade."-
- Each unit document provides components for effective instruction including objectives and pacing calendars. For example, the grade 8 “Unit 1” document objectives include, “I can... add and subtract rational numbers fluently, solve problems by adding and subtracting rational numbers, and multiply and divide rational numbers fluently."
- Documents list vocabulary in the unit but include no evidence of definitions or explanations. (Materials do provide these definitions at the lesson level.) Vocabulary instruction strategies are also located in the course-level materials. The *Grade 8 Mathematics Teacher’s Guide* provides a six-step process for developing academic vocabulary. For example, students "restate the example, description, and/or explanation in their own words." Students also articulate vocabulary in their own words, include examples and non-examples, and list relevant facts or characteristics. For example, the vocabulary words listed to use with the “Frayer Model” template for “Unit 1” are the following: scientific notation, standard decimal form, irrational number, number line, rational number, real number, and whole number.
- At the unit level, materials do not include evidence of pedagogical background concept knowledge necessary to teach the concepts effectively or to support generalist teachers with

the foundational knowledge and implications. Details were included at the lesson level, but not the unit level.

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

- *Grade 8 Unit Teacher Materials* provide family support documents in both Spanish and English. Teachers can download editable letters and revise their content as necessary. The parent letter gives a summary of the unit. Units offer visual representations to demonstrate how students are exposed to this concept or use written expression to describe the unit goal. In "Unit 8," parents read "Your student will focus on geometric concepts, including the Pythagorean Theorem."
- Parent letters provide specific strategies and activities to support student learning at home. For example, "Unit 8" guidance includes "Involve your students in noticing geometric figures in the real world such as parallel lines and transversals made by streets" and "Talk with your student about their grade 8 mathematics assignments, including discussion of what they understand and what they have questions about."
- Unit tables, printed on the letter, allow parents to track progress by providing the following columns: "Unit Activity," where lessons are listed by number and content; "Assignments," where parents chart student work for each lesson; and "Grades Earned," where parents write scores from lessons. For example, "Unit Activity" in "Unit 8" lists five lessons with titles and the unit test. Parents record activities and student scores for each lesson.

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**

The 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 (e.g., homework, extension, enrichment).

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.

- In *Grade 8 Mathematics Teacher Course*, each comprehensive “Lesson Overview” includes the following: a focus question, “I can” statements, Texas Essential Knowledge and Skills (TEKS), English Language Proficiency Standards (ELPS), and “Process Standards.” For example, in the “Unit 3, Lesson 1” overview, the focus question asks “How can I model and solve one-variable equations with variables on both sides of the equal sign?” The "I can" statements correspond with the learning objectives for one-variable equations; the first statement says, "I can… model and solve one-variable equations with variables on both sides of the equal sign."
- The lesson overview explains prior learning supports, lesson planning tips, suggested time allocations for each component, teacher and student materials, and instructional assessments. For example, in “Unit 3, Lesson 1,” prior learning supports include “In 6th grade students solved equations and inequalities with one variable and one step.”
- The “Lesson Plan” Section of the “Lesson Overview” includes three components: “Exploration,” “Explanation,” and “Performance Task.” A “Lesson Components” table provides links to all necessary materials for each component. For example, the “Unit 3, Lesson 1” document states “Exploration: Play the instructional video to launch instruction.

Guide students through the activity. Provide students with the Blackline Master of the Student Pages or assign the Google slides as appropriate. Use the Answer Key as necessary." Links from the "Lesson Component" table include a video, the "Blackline Master (Student Page)," the "Blackline Master (Answer Key)," and Google Slides. "Exploration" also includes detailed instructional hints to support Emergent Bilingual and question stems to support productive struggle. The next section, "Explanation," begins with the following: "Assign students the ePub to provide direct instruction on the content along with guided practice through examples and a set of practice questions." The final section of the plan, "Performance Task," includes resources for instructional assessments at varying levels, as well as a unit test. "Unit 3, Lesson 1" explains, "As a formative assessment, use the performance task to determine what students know about the topic. Performance tasks have four versions: on-level, simplified, enriched, and scaffolded. Allow students to work in pairs or small groups if desired. If there are multiple performance tasks, select one or encourage self-differentiation by allowing students to select a task based on their interests and comfort levels."

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

- In the *Grade 8 Course Level Document*, each unit overview provides scheduling options for 165, 180, and 210-day calendars along with options to accommodate different scheduling needs. The unit document lists lessons that correspond to each day in a table format. For example, according to the 165-day pacing guide, "Unit 2, Lesson 1" occurs on instructional days sixteen and seventeen.
- In addition, each unit provides a "Lesson Overview," which specifies a time frame for each component, allowing time for students to complete tasks. For example, in "Unit 2 Lesson 1," the allotted time for instruction is 70–85 minutes and is broken down into the following sections: "Exploration" (20-25 minutes), "Explanation and Practice" (20-25 minutes), and "Performance Task" (30-35 minutes).

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

- The *Grade 8 Mathematics Implementation Guide* provides a "Materials List" outlining the items needed to ensure students' success. Items listed include graphing technology, color tiles, paper bags, centimeter cubes, and large boxes.
- Each grade 8 unit overview contains a link to unit documents listing general materials for the unit. For example, the "Unit 7" document lists materials necessary for the successful execution of the entire unit: *Grade 8 Mathematics Teacher Course*, graphing technology/scientific calculators, patty paper, and rulers..-
- Each "Lesson Overview" breaks down the materials list into two parts: "Teacher Materials" and "Student Materials." For example, in "Unit 2, Lesson 2," teacher materials include graphing technology or scientific calculators (1 per student), color tiles (50 per student group—see "Exploration" for specific numbers of each color), paper bags (1 per student group), centimeter cubes (100 per student in green, blue, and red), a large box (approximately

six), a gallon zip lock bag (approximately six), a pack of playing cards (approximately six), and a fair 6-sided number cube (approximately six).” Student materials include pencil and paper.
- In addition, the *Grade 6 Mathematics Teacher Course* lesson materials link all online resources to deliver the lesson effectively. For example, “Unit 7, Lesson 1, Exploration” links all resources referenced, including the lesson video, the activity sheet, and the answer key.

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

- The *Grade 8 Mathematics Teacher Course* provides guidance through all three major components of the lessons: “Exploration,” “Explanation,” and “Performance Task.” In the “Exploration” Section, the “Blackline Masters (Student Pages)” provide independent/small group practice as a student activity. For example, in “Unit 1, Lesson 1,” students work together to complete a table displaying relationships between scientific notation and decimal value. Teacher materials offer questions to support student reasoning and productive struggle through questioning by asking clarifying question(s), focusing questions, advancing questions, and assessing questions. For example, in “Unit 1, Lesson 1,” a clarifying question would be “When you say _____, what do you mean?”
- In “Explanation,” teachers use the online textbook to “provide direct instruction.” After working through sample problems in “Unit 1, Lesson 1,” teachers "assign the practice questions to students” and “use student responses to gauge their proficiency with the content."
- Each lesson concludes with a “Performance Task,” a culminating exercise that expands upon and enhances the goals set. Each performance task includes four versions tailored to different levels of proficiency, ensuring a clear demonstration of student mastery: on-level (for proficient students), scaffolded (for somewhat proficient students), simplified (for students who are not yet proficient), and enriched (for highly proficient students). In “Unit 2, Lesson 2,” the “Performance Task” guides teachers on providing extended practice: "Differentiate tasks based on instructional assessments in the previous portions of the lesson.”
- Materials also include the *Grade 8 TEKS Companion Guide* to present “mini-lessons to supplement classroom activities and instructional tasks.” For example, “Unit 2, Lesson 4” includes a box labeled, "You try it." Within that practice box, students verify if Marty created a simulation for a random sample. The *Grade 8 TEKS Companion Guide* also includes practice problems at the end of each lesson. These problems can be used for in-class practice or homework. For example, in “Unit 2, Lesson 6,” students complete eight practice problems after finishing the guided lesson.

Progress Monitoring

2.1	Instructional Assessments	18/24
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.	**8/12**
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.	**4/6**
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 formative and summative) that vary in types of tasks and questions. The materials do not include diagnostic assessments at the unit and lesson level 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. Formative and summative assessments are aligned to the TEKS and objectives of the course, unit, or lesson. Diagnostic assessments are not aligned to the TEKS and objectives of the course, unit, or lesson. Instructional assessments 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.

- The *Grade 8 Mathematics Assessment Guide* explains two types of assessment provided to teachers. A table informs teachers about lesson-level formative and unit-level summative assessments within the curriculum. The table describes the definition of each assessment, its purpose, administration guidance, and examples.
- For example, the purpose of the lesson-level assessment is to “provide teachers with feedback to make instructional decisions for the remainder of the lesson and/or next lesson.” Examples of lesson-level formative assessments include "Blackline Master” PDFs, “ePub” interactive questions, and “Performance Tasks." Lesson-level formative assessments are found in the “Exploration,” “Explanation,” and “Performance Task” portions of each lesson. One example from “Unit 8, Lesson 1.” “Exploration-Blackline Master Models, Diagrams, the Coordinate Plane, and the Pythagorean Theorem” provides a variety of squares. Students must determine which would form right triangles and then justify their answers. Next, students choose line segments from a grid and determine each length.

- In the “Unit 2, Lesson 1” “Explanation” Section, “Assessment Strategies” guide teachers to monitor formative assessments by asking assessing questions: “Which data set in the practice problems had the greatest variation? How do you know? Which data set in the practice problems had the least variation? How do you know?”
- Also, in “Unit 2, Lesson 1,” the “Performance Task” engages students in *Food Drive*, where they analyze a table to find the difference between the mean and the mean absolute deviation for data from a canned food drive. The levels of differentiation for this particular task, which allow students to demonstrate mastery at an equitable level, include simplified task (for students who are not proficient), scaffolded task (for somewhat proficient students), on-level task (for proficient students), and enriching task (for highly proficient students).
- In the *Grade 8 Mathematics Teacher Course*, an “End of Unit Assessment” serves as a tool for educators to conduct summative evaluations and provides a variety of question types and tasks. For example, in the “Unit 1” “End of Unit Assessment,” thirteen of the fifteen questions are in multiple-choice format, and the remaining two questions require arranging numbers in ascending or descending order. The “Unit 4” assessment provides multiple-choice questions, written response tasks, and drawings for comparing fractions. The “Unit 9” test contains multiple-choice and short-answer questions with exact answers (like fill-in-the-blank). For example, question 6 asks, "What is the surface area of the cube below with a side length of 10.2 feet?” End-of-unit assessments provide no evidence of diverse question formats such as multi-select, drag-and-drop, or hot spots.
- Materials offer a digital platform with an item bank of practice problems, including single-choice, multiple-choice, ordering, association, fill-in-the-blanks, fill-in-the-blanks with dropdown, fill-in-the-blanks with drag-and-drop, descriptive, comprehension, audio recording, drawing, drag-drop image, and situational judgment.
- The *Grade 8 Mathematics Assessment Guide* provides no evidence of diagnostic assessments.

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

- In the *Grade 8 Mathematics Assessment Guide*, documents explain two types of assessments provided to teachers: "lesson-level formative and unit-level summative." Materials provide definitions of each, along with their purpose of providing baseline data regarding a student’s foundational knowledge or proficiency. Materials also provide administration guidance: pinpointing misconceptions, assessing progress, and steering instructional choices.
- The lesson-level formative assessment, defined as an "assessment during the lesson (consistently during the lesson)," provides teachers with “feedback to make instructional decisions for the remainder of the lesson and/or next lesson."
- The summative assessment, defined as an "assessment at the end of the unit of instruction (once per unit)," allows students “to demonstrate mastery of learning objectives."
- The *Grade 8 Mathematics Assessment Guide* provides no evidence of diagnostic assessments.

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

- The *Grade 8 Mathematics Pacing Guide* provides recommendations regarding the time allocated for completing assessments and suggestions for dividing lengthy assessments into multiple sessions across days or class periods. For example, in the 180-day calendar, the "Unit 4 Test" is given on Day 54, whereas the "First Semester Summative Assessment" requires two days: Days 89 and 90. The "Unit 1" document provides a "Time allotments for lesson pacing" table, which suggests allowing 45–90 minutes per unit test.
- The *Grade 8 Mathematics Assessment Guide* includes guidance for both lesson-level formative and unit-level summative assessments with the following information: assessment type, purpose, administration guidance, and examples and formats. The lesson-level formative administration guidance recommends teachers "follow directions in lesson plans for group or individual administration." The unit-level summative assessment administration guidance states "individual; on paper or digitally at the teacher's discretion."
- The *Grade 8 Mathematics Assessment Guide* explains how to interpret student responses. It guides teachers by stating "For multiple-choice items answered incorrectly, determine whether the distracter chosen represents a misconception, calculation error, or indicates guessing. For free-response items, awarding partial credit is recommended. Determine at what point in the solution process the student's error occurred and award credit for correct thinking in process."
- Each "Unit Lesson" incorporates a performance task to ensure consistency and standardization in administration among students. In the lesson plan overview, performance guidance for teachers suggests "If there are multiple performance tasks, select one or encourage self-differentiation by allowing students to select a task based on their interests and comfort levels." For example, in "Unit 8, Lesson 3," proficient students should receive the "on-level task", and students who are not yet proficient should receive the "simplified task."

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

- The *Grade 8 Mathematics Teacher Course* lists TEKS assessments, providing the lesson number, lesson title, Texas Essential Knowledge and Skills (TEKS), and English Proficiency Standards (ELPS). This format is consistent across the entire *Math – Grade 8 course*. For example, in "Unit 3 Teacher Materials," the table lists "Lessons 1 through 4." "Lesson 1" addresses student expectation 8.2C. "Lesson 2" covers 8.2B; "Lesson 3" addresses 8.2A; and "Lesson 4" includes 8.2D. Then, the "Unit Test" lists all TEKS in the unit from each lesson.
- The *Grade 8 Mathematics Assessment Guide* affirms that every "formative assessment in the Exploration, Explanation, and Performance Task portions of the lesson are aligned to the TEKS of the lesson." Each lesson overview demonstrates this alignment in the "Texas Essential Knowledge and Skills (TEKS)" table. For instance, within the "Exploration" component of "Unit 7, Lesson 1," materials list TEKS 8.10A, 8.10C, and 8.1D.

- The “Unit Lessons” provide “Blackline Masters” for each “Exploration” portion of the lesson, which are aligned to lesson objectives. For example, in “Unit 3, Lesson 1,” the “Blackline Master” gives students various modalities for working on 8.8C.
- According to the *Grade 8 Mathematics Assessment Guide*, educators can utilize the “ePubs” (the online platform) for interactive lesson components aligned with the TEKS standards, whether for formative or summative purposes. In the “Unit 3, Lesson 1” “Explanation,” the materials provide a “Student-centered Learning Option” link, which opens the online *TEKS Companion Guide* and addresses student expectation 8.8C. The information provided shows “Tell Me More,” which includes a detailed explanation and related vocabulary, two examples, and ten practice problems.
- The TEKS in the “Performance Task” align to those listed in the unit and lesson materials. For example, “Unit 3, Lesson 1” provides “8.8C Performance Task” *Flowerbeds* and “8.8C Performance Task” *Snacks*.
- Materials provide unit answer keys for each unit assessment, which include “detailed answers including TEKS alignment of all assessment items." The table for each answer key includes the following information: “Item Number,” “Reporting Category,” “Readiness or Supporting,” “Content/Student Expectation,” “Process Student Expectation,” and “Correct Answer.” For example, the “Unit 3 Test Answer Key” document shows item number one is a supporting standard for content student expectation 8.8C and process student expectation 8.1C.
- Materials do not provide diagnostic assessments.

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

- The *Grade 8 Mathematics Assessment Guide* explains "The Performance Task section of each lesson provides a differentiated rich task for students based on their readiness as demonstrated in the Exploration and Explanation portions of the lesson and any previous lessons related to the learning of the current lesson." These tasks allow students to complete standards-aligned items at various levels of complexity based on their readiness: simplified task (for students who are not proficient), scaffolded task (for somewhat proficient students), on-level task (for proficient students), and enriched task (for highly proficient students). Materials provide no evidence of depth of knowledge or levels of complexity other than the four versions of the “Performance Task.”
- The assessments provided after each grade 8 unit present a summative evaluation that comprises multiple-choice, text entry, or open-response questions designed to follow the standards. For example, the “Unit 2 Test” includes eight multiple-choice questions and two open-ended response questions. Assessment scoring and item analysis information provide the teacher with additional information to determine the next steps to move each student toward mastery of learning objectives. For instance, it specifies that in the case of incorrectly answered multiple-choice questions, the aim is to ascertain whether the selected distractor signifies a misconception, computational mistake, or a random guess.
- The *Grade 8 Mathematics Assessment Guide* explains different assessment item types contained within the curriculum’s digital platform, which allows teachers to use a variety of question types that go beyond multiple-choice: single-choice, ordering, association, match the following, fill-in-the-blank (also with dropdown and drag-and-drop), descriptive,

comprehension, audio recording, drawing, drag-drop image, and situational judgment. Materials allow teachers to create assessments using an online item bank.

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.

- The *Grade 8 Mathematics Assessment Guide* states “For multiple-choice items answered incorrectly, determine whether the distracter chosen represents a misconception, calculation error, or indicates guessing. For free-response items, awarding partial credit is recommended. Determine at what point in the solution process the student’s error occurred and award credit for correct thinking in the process.” The guide prompts teachers to ask, "Did the student master TEKS by answering the vast majority of questions aligned to the TEKS correctly? What pattern(s) do you see in their incorrect answers?"
- “Performance Tasks” provide guidance for interpreting and responding to students and provide the teacher with additional information to determine the next steps to move each student toward mastery of learning objectives. Materials prompt teachers to interpret student responses by offering a "Look For . . ." Section. For example, in the “8.8C Performance Task” *Flowerbeds* in “Unit 3, Lesson 1,” teachers look for the “use of an equation to represent the equal perimeters of the figures: $2x + 12 = 4x – 20$ or the equivalent.” Teachers also look for “properly labeled drawings of the two flowerbeds" and “an appropriate solution strategy to determine the values of the missing sides of the isosceles triangle and the side lengths of the square."
- The *Grade 8 Mathematics Teacher Guide* includes the section “Providing Students Effective Feedback (Wiliam, 2011),” which encourages teachers to provide feedback that “supports students’ productive struggle– not remove it.” Feedback "should focus on a specific task, rather than the student, and provide ways to improve.” The *Grade 8 Mathematics Teacher Guide* also includes a bulleted list of common misconceptions to look for in grade 8 math students.

- In materials referencing unit assessments, no evidence is found of interpreting or responding to student performance.

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

- In the *Math - Grade 8 (Teacher Course)*, materials provide lesson narratives for the "Exploration" and "Explanation" components that include guidance on how to respond when students are struggling or succeeding with the material. For example, in "Unit 2, Lesson 2" "Exploration," teachers "play the instructional video to launch instruction, guide students through the activity, provide students with the Blackline Master of the Student Pages or assign the Google Slides as appropriate, and use the Answer Key as necessary." The "Exploration" guidance provides questions to support students' reasoning and instructional hints for content mastery. In the "Explanation" component, teachers "allow time for students to read the Tell Me More section and stepped-out examples." This section includes the following: "Student-Centered Learning Options," "Explicit Instruction Options," and "Instructional Hints." For example, "Unit 2, Lesson 1" materials include the instructional hint "Have students create a simple foldable at the end of the exploration activity to summarize how they think the mean absolute deviation is determined on the front and capture an example to demonstrate on the inside of the foldable. Have students affix the foldable in their math journal or interactive notebook."-
- Teachers are further guided to use the answers to class discussions and work to assign a leveled performance task to the students based on their understanding. Levels include simplified tasks (used for students who are not yet proficient), scaffolded tasks (used for somewhat proficient students), on-level tasks (used for proficient students), or enriching tasks (used for highly proficient students). Students work in pairs or small groups to select a task based on their interests and comfort levels. "Performance Task" materials include a bulleted "Look for . . ." list to guide teachers in providing feedback. In the "Unit 4, Lesson 1" "Performance Task," teachers look for "a correct rate of change, slope, for all points along the line of ¾" and "evidence the student understands the rate of change, or slope, is a ratio of vertical change to horizontal and that similar triangles can be used to determine the slope between points."
- The *Grade 8 Mathematics Teacher Guide* contains a "Unit Internalization Protocol" and a "Lesson Internalization Protocol." These protocols each consist of three segments: Read through digital pages and make notes, connect information to culminating tasks, and anticipate where students may need support. Teachers address student performance on assessments, identify levels of proficiency, and process information about student strengths, weaknesses, gaps, and common misconceptions. Materials challenge teachers to decide "What will you do when students already know what you will be teaching? What will you do when students have difficulty learning?"

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

- The *Grade 8 Mathematics Assessment Guide* provides a "Progress Tracking Tool," which lists all the TEKS for grade 8 and gives five opportunities for students to track their assignment scores for each student expectation. Then, students calculate an overall progress number. Materials instruct students to use this tracking tool weekly to monitor progress toward mastering grade 8 mathematics goals. On the last page of the "Progress Tracking Tool," students write their strengths, what they are currently tracking, and their next goal. "Students can use this digital platform to keep track of their progress if their teacher chooses to use digital assignments exclusively."

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**
3.2b	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/or paired (scaffolded) lessons for students who have not yet reached proficiency on grade-level content and skills. Materials include pre-teaching or embedded supports for unfamiliar vocabulary and references in text (e.g., figurative language, idioms, academic language). 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.

- In *Math - Grade 8 (Teacher Course)*, lesson-level materials guide teachers in assigning "Performance Tasks," designed for students to reinforce their mastery of lesson content. Materials "differentiate tasks based on instructional assessments in the previous portions of the lesson," and "Performance Tasks" differentiate instruction for varying levels of difficulty. For example, each task provides four versions: simplified (for students who are not yet proficient), scaffolded (for somewhat proficient students), on-level (for proficient students), and enriched (for highly proficient students). In simplified and scaffolded tasks, students complete fewer questions and activities with the same data or problem. For example, in "Unit 4, Lesson 1," the on-level students analyze a situation to determine whether a slide on a playground is straight given multiple points on a coordinate grid, and justify their answer. The simplified task asks, "What is the slope, or rate of change, of segment BM? What is the slope, or rate of change, of segment MT? Are these values for the two parts of the slide equivalent? Justify your reasoning." The scaffolded task provides the guiding steps before the on-level questions: "Draw in the slide between points B and T on the plane. Select 2 points on the line. Use an appropriate strategy to determine the rate of change between these two points." As each step is broken down, students repeat the process and compare the slope. Embedded in the "Performance Task" "Teacher Guidelines," materials provide teaching methods, including visual aids and manipulatives, to aid students working towards achieving proficiency in skills expected at their grade level.

- In every lesson, materials include the "Exploration" and "Explanation" Sections with two types of guiding questions teachers ask students: "Clarifying Questions" and "Focusing Questions." These questions support teachers in scaffolding student learning, enrichment, and quick assessments. For example, questions support students by having them clarify their thinking and work through problems with the teacher. Guidance in the "Unit 4, Lesson 1" "Exploration" suggests asking students who have not yet reached proficiency "When you say _____, what do you mean?" as a "Clarifying Question." Additionally, the "Focusing Questions" ask, "What is this problem about? Which right triangle are you working with right now?"
- The *Grade 8 Mathematics Teacher's Guide* includes a lesson internalization protocol with a section for teachers to anticipate where students may struggle and think through a plan to support students who have not yet reached proficiency. It states, "Anticipate where students may need support. As you read through the lesson information, these may include parts of the lesson with a heavy reading load, practice problems that surprised you (for which students will need background knowledge or require more thinking than usual before you could answer), and learning mentioned in the unit overview that requires students to connect processes to concepts and skills." Materials also prompt teachers with, "What student support themes emerge in your notes about the lesson? How will you provide just-in-time support for students while teaching this lesson at the level of the TEKS for grade 8 mathematics?" Materials include in-class differentiation for students who have not mastered the content, stating, "Use the mini-lesson in the Grade 8 Math TEKS Companion Guide for that TEKS/SE as an intervention or reteach activity."

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

- The *Grade 8 Mathematics Teacher Guide* provides vocabulary instruction with explicit steps. Each "Lesson Overview" instructs teachers to "introduce the new term(s) by providing a student-friendly example, description, and/or explanation." Students restate the example, description, and/or explanation in their own words and create a non-linguistic representation of the term(s). Materials guide teachers to "engage students periodically in activities that deepen their understanding of the term(s)," to "involve students in discourse during which they discuss the term(s) with one another," and to "involve students periodically in games that allow them to play with the term(s)."
- The *Grade 8 Mathematics Teacher Guide* "Lesson Overviews" suggest, "One way to support students' acquisition of new vocabulary terms is to pre-teach the vocabulary terms using a strategy such as a Frayer model." Each vocabulary word links to a printable Frayer model template, partially filled out, to assist students in enhancing their comprehension of the vocabulary. A blank Frayer Model template is also supplied to document any additional terminology students encounter during the unit.
- Materials include pre-teaching or embedded supports for unfamiliar vocabulary and in-text references. For example, the "Tell Me More" Section for TEKS 8.4A includes definitions of the academic term *slope*. Additionally, teachers are encouraged to have students develop their own definitions and draw pictures, and, as an additional embedded support, the *Grade 8 TEKS*

Companion Guide "provides a personal glossary at the end of the book where students can build their own illustrated glossary of terms."

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

- In *Math - Grade 8 (Teacher Course)*, lesson-level materials guide teachers in assigning "Performance Tasks," designed to conclude with an enrichment or extension task, typically project-based learning; research projects; or creative assignments, to reinforce mastery of lesson content. Materials "differentiate tasks based on instructional assessments in the previous portions of the lesson," and "Performance Tasks" differentiate instruction for varying levels of difficulty. For example, materials provide two versions for students who have already demonstrated proficiency: on-level (for proficient students), and enriched (for highly proficient students). Each task has more rigorous questions and activities for students to complete with the same data/problem given at all performance levels. For example in "Unit 4, Lesson 1," students determine if a slide on a playground is straight given multiple points on a coordinate grid, and justify their answer. The enriching task adds an additional question, "Mr. Miller decides to change the height of the slide. If he moves the top height of the slide to be 8 feet off the ground, how will the slope of the slide be affected?"
- In *Math - Grade 8 (Teacher Course)*, each lesson has an "Explanation" Section and an "Exploration" Section that provide questioning strategies to "support student reasoning and productive struggle." Within each section, there are four types of questions and one is focused on "Advancing Questions (ask and walk away)," included to enhance critical thinking skills and encourage independent exploration. For example, guidance in the "Unit 4, Lesson 1" "Exploration" Section nudges students by asking, "What do you notice about the ratios in the table? Is this true in every case?" In the "Explanation" Section of the same lesson, the "Advancing Question" asks, "If the ratios, or slopes, you calculated are the same/different, why are they the same/different?"
- Materials provide "Enrich/Extend" days scheduled in the 180-day and 210-day pacing guides and "Enrichment and Extension" days in each unit. For example, in the "Unit 6 Overview," a table shows the TEKS associated with each lesson. After the unit test, materials list the lesson as "Enrichment and Extension" but provide no additional information. In the pacing guide, materials suggest topics but provide no specific instruction. For example, after the "Unit 6" test, the 210-day pacing guide provides three "Extend/Enrich" days that address two-variable statistics but provide no explicit instruction.

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 (e.g., guided, independent, collaborative) and include guidance for teachers and recommended structures (e.g., whole group, small group, individual) 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 *Math - Grade 8 (Teacher Course)* materials include "Teaching Hints" with prompts and guidance that aid in communicating the concept. For example, the "Unit 5, Lesson 2" "Teaching Hints" provide teacher guidance to explain concepts. For example, "Provide students the opportunity to compare and contrast proportional linear relationships with non-proportional linear relationships in a variety of representations. Use graphics organizers such as a Venn diagram or T-chart to compare and contrast the attributes of the two types of linear relationships." The "Unit 5, Lesson 1" "Teaching Hints" suggest the teacher "make explicit the vocabulary connections from 7th grade to 8th grade. The constant of proportionality is synonymous with a constant of variation. Proportional relationship is synonymous with direct variation."
- The *Math - Grade 8 (Teacher Course)* provides "Lesson Overviews" that divide each lesson into three components: "Exploration" and "Explanation" Sections and "Performance Tasks." Materials direct teachers to see subsections for lesson components and guidance and provide links that connect to teacher guidance. In the "Unit 4, Lesson 4" "Exploration" Section, materials include teacher guidance in the "Blackline Master" to facilitate independent practice, evaluate student comprehension prior to the performance assessment, and provide questions to ask students. For example, the questions offered "support student reasoning and productive struggle." For example, the "Clarifying Question" asks, "When you say _____, what do you mean?" and the "Focusing Questions" ask, "What is this problem about? Which representation will you create next?" Materials instruct teachers to ask "Advancing Questions (ask and walk away)" such as, "How can you determine the y-intercept in this case? How do

you know the slope in this situation? How does knowing the slope and y-intercept help you graph/write an equation?" Then, to check understanding, materials include "Assessing Questions" such as, "How do you know whether a linear situation is proportional?" The "Unit 4, Lesson 4" "Explanation" Section's guidance provides more prompts to support the teacher in explanations or communications as concepts develop."

- The *Grade 8 Mathematics* "ePub" provides a range of illustrated examples, segments for students to engage actively, and sets of practice exercises. For example, in "Unit 7, Lesson 2," materials explain four diverse examples of varying question types and levels of conceptual comprehension followed by a segment comprising ten practice problems.

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

- The *Math - Grade 8 (Teacher Course)* provides "Unit Overviews" with detailed introductions and summaries. Materials explain the interconnectedness between the current unit's learning objectives and the preceding and subsequent learning modules. Furthermore, it furnishes practical applications derived from previous lessons, providing teacher guidance for the instructional delivery to improve student comprehension. For example, the "Unit 6 Overview" states, "In Unit 6, the focus shifts to using linear functions to model a bivariate data set that seems to follow a linear trend. Students qualitatively estimate whether the shape of data in a scatterplot suggests a linear trend. If it does, then students qualitatively estimate a trend line that seems to best model the shape of the data in the scatterplot. From there, students may use any two points on the line to write a linear function that models the data set and then use that model to make predictions from the data set."
- The *Math - Grade 8 (Teacher Course)* provides "Lesson Overviews" that divide each lesson into three components: "Exploration" and "Explanation" Sections and "Performance Tasks." Materials direct teachers to "see the subsections below for lesson components and guidance for instruction" and provide links that connect to teacher guidance. Each lesson starts with the "Exploration" Section which links to a video, activity, and accompanying slideshow. Videos showcase practical scenarios, demonstrate problem-solving techniques, and allow time for journal responses. For example, the "Exploration" Sections's instructions for "Unit 4, Lesson 2" state, "Facilitate student group exploration and reflection. Instructional Hint: Encourage students to consider whether a continuous graph (a line) or a discrete graph (unconnected points) makes more sense for the situation described." The "Explanation" Section contains an "ePub" (online textbook) that offers students step-by-step solutions to multiple examples and exercises for application with explicit instructions and teacher guidance. For example, the "Unit-5, Lesson 1" "Explanation" Section includes three comprehensive worked-out examples in "ePub," and instructions provide a "Student-Centered Learning Option," which states, "Allow time for students to read the Tell Me More and the stepped-out examples. As needed, support student reasoning and productive struggle through questioning. Bring students back together as a whole group to debrief the content and examples." In the "Formative Assessment" Section, teachers assign practice questions and examine student responses to gauge their proficiency. Next, a "Performance Task" is offered for each lesson with four varying

levels with guidance on assigning them or allowing students to select a task based on their interests.

- *Grade 8 Course Level Documents* contain a problem-solving template that offers teacher guidance and recommendations for facilitating effective lessons to engage students in problem-solving, reasoning, and sense-making. The template includes two versions: one with a narrative and one that is blank. Each template provides six sections: "Analyze," "Formulate," "Determine," "Justify," "Evaluate (reasonableness)," and "Evaluate (process)." On the blank template, for example, the first section reads, "Analyze the given information." On the narrative template, the first section reads, "Analyze the given information" but then includes guiding questions that focus student attention on the actions, operations, and information from the problem.

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.

- Each "Unit Exploration" lesson contains an instructional video where students engage in independent and group work to analyze and reflect on new concepts using the coordinating "Blackline Master." In the "Unit 5, Lesson 1" "Exploration" Section, teachers facilitate student exploration and reflection by grouping "students in a visibly random way (e.g. playing cards, drawing straws, spinner, etc.) into groups no larger than three students per group."
- In the "Explanation" Section, students link to an "ePub" document that provides guided practice via worked-out examples with step-by-step explanations and practice problems. Materials provide a "Student-Centered Learning Option," where teachers allow time for students to read through materials and "as needed, support student reasoning and productive struggle through questioning." Then, teachers "bring students back together as a whole group to debrief the content and examples." Another alternative is an "Explicit Instruction Option," where teachers lead students through each of the same components of the "ePub." To conclude the lesson, teachers assign practice questions and analyze responses to determine proficiency.
- In *Math - Grade 8 (Teacher Course)*, lesson-level materials guide teachers in assigning "Performance Tasks," designed to conclude with an enrichment or extension task, typically project-based learning; research projects; or creative assignments, to reinforce mastery of lesson content. Teacher guidance suggests that "Performance Tasks" be collaborative work, as materials state, "Allow students to work in pairs or small groups if desired." Materials provide four versions of proficiency, and each task has questions and activities for students to complete with the same data/problem given at all performance levels. Each of the tasks provides teacher guidance and structure for effective implementation. In the "Unit 5, Lesson 2" "Performance Task," "Beach Rentals," guidance includes getting students to use multiple representations for each rental situation, including equations, tables, and/or graphs.

Supports for All Learners

3.3	Supports for Emergent Bilingual Students	11/11
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.	**2/2**
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 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. 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.

- *Math - Grade 8 (Teacher Course)* materials include "Guiding Principles to Support Emergent Bilinguals," which suggests "planning multimodal lessons that grow students' listening, speaking, reading, and writing skills as they acquire more complex English language." In addition, each lesson is "aligned to at least one ELPS" and offers various supports to help emergent bilingual students effectively build and enhance their academic content knowledge through oral communication.
- Each "Exploration" Section contains teacher guidance on supporting emergenct bilingual students with vocabulary and sentence stem suggestions. In "Unit 2, Lesson 1," students engage in small groups with their peers, a safe environment to sharpen their skills using the English language while they are learning about mathematics. Students engage in conversations using sentence stems such as, "When you say ____, what do you mean?" "Unit 3, Lesson 1" scaffolds guidance specific to the content taught for Beginner, Intermediate, Advanced, and Advanced High levels. For example, if a student is at the Beginning level for

speaking, materials suggest teachers pair each student with a partner who speaks the same first language to promote conversation. Teachers are instructed to allow students at this level to write in their native language and to create word walls to introduce English terms for mathematical conversations. In the "Unit 5, Lesson 3" "Exploration" Section, students "narrate, describe, and explain what they know about equivalent expressions with increasing specificity and detail." Question scaffolds provide student direction; for instance, "How would you describe what two equivalent expressions look like?"

- The *Grade 8 Mathematics Teacher Guide* includes a six-step process for building academic vocabulary. These steps guide emergent bilingual students to improve their writing and speaking. For instance, in the second step, students are urged to explain content "using their own words," and the fifth step promotes discussing new vocabulary with peers. Materials also provide Frayer models hyperlinked to lesson vocabulary terms.
- The *Grade 8 Mathematics Teacher Guide* includes "Guidance for Teachers to Provide Linguistic Accommodations and Support Emergent Bilinguals," which explains that "differentiated supports are required to effectively support and engage students in the use of increasingly more academic language." A table that contains four levels of language proficiency (Beginning, Intermediate, Advanced, and Advanced High) explains actions for teachers in each of the four domains of language acquisition (Listening, Speaking, Reading, and Writing). For example, if a student is at the Beginning level for speaking, materials suggest "Make use of visuals in connection with spoken academic vocabulary."

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

- Materials provide "Guiding Principles to Support Emergent Bilinguals," which suggests "planning multimodal lessons that grow students' listening, speaking, reading, and writing skills as students acquire more complex English language." For example, in "Support for Emergent Learners" from "Unit 1, Lesson 4," teachers "support students' development of basic sight vocabulary in written classroom materials." Materials suggest adding the following terms to begin the word wall, and then adding more words as lessons progress: *add*, *equal*, *less than*, *greater than*, *number*, *some*, *use*, and *every*. Teachers are also encouraged to use anchor charts to help students visualize the connections. Each "Lesson Overview" also details corresponding ELPS and their processes included in that particular lesson. For example, in the "Unit 5" "Lesson 1 Overview," targeted ELPS include "4.G Cross-curricular second language acquisition/reading." Students read a variety of texts with increasing levels of comprehension. No matter the stage of English language acquisition, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's English language proficiency level. Students participate in shared reading, retelling or summarizing, responding to questions, and taking notes.
- *Math - Grade 8 (Teacher Course)* includes a scope and sequence that aligns to the TEKS and ELPS, specifically ELPS standards connected to each lesson. Every lesson "aligns with at least one ELPS" and provides different forms of assistance to help emergent bilingual students develop and improve their academic content understanding through verbal, written, and reading formats. For example, in "Unit 3, Lesson 1," the aligned ELPS is 1.A.

- Each "Lesson Overview" details corresponding ELPS with processes included in that particular lesson. For example, in the "Unit 5" "Lesson 3 Overview," targeted ELPS include "1.D Cross-curricular second language acquisition/reading." No matter the stage of English language acquisition, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's English language proficiency level. Students speak using learning strategies: requesting assistance, employing non-verbal cues, and using synonyms and circumlocution (conveying ideas by defining or describing when exact English words are not known).

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.

- *Math - Grade 8 (Teacher Course)* materials include instructions in each lesson's "Exploration" Section and "Support for Emergent Bilingual Students," which provide students with accessible language while they learn new and essential language in the process. Supports allow students to expand and internalize English vocabulary by engaging in classroom communication with their teacher and peers.
- In the "Unit 4, Lesson 4" "Exploration" Section, students work in small groups with their peers, which provides a safe environment to enhance and confirm students' understanding of increasingly complex and elaborated spoken language. Students alternate between speaking and listening to conversations about mathematics. Each listener must summarize what the speaker said before switching roles. The "Unit 9, Lesson 1" materials include a variety of print, electronic, audio, and visual media to build and reinforce concept attainment. Teachers lead class discussions using these questions: "How did the net help you understand what the surface area of a prism is? How is surface area of a prism related to the concept of composite area of a 2-dimensional figure?"
- The *Grade 8 Mathematics Teacher Guide* explains "to support students' acquisition of new vocabulary terms, pre-teach the vocabulary terms using a strategy such as a Frayer model." Materials provide access to partially completed templates of the Frayer model and blank templates. Students visit previously learned vocabulary and concepts completing a six-step routine to improve retention through spoken and written communication and develop academic vocabulary. Steps are as follows: the teacher introduces the new term with a student-friendly explanation, students restate the term in their own words, students then create a non-linguistic representation of the term, students participate in vocabulary enrichment activities, students discuss the term with one another, and students play games with the term.
- Some areas of the materials provide teacher guidance on providing linguistic accommodations for various levels of language proficiency. In "Unit 3, Lesson 1," scaffolded guidance specifies content taught for Beginner, Intermediate, Advanced, and Advanced High. For example, if a student is at the Advanced level for speaking, teachers are instructed to "Provide the table of terms and ask students to use academic vocabulary to summarize what another person in their peer group said." One example of the translations given in the table mentioned is *integer/numero entero*. This level supports students in making cross-linguistic

connections through oral and written discourse.

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

- This product is not listed for dual language immersion programs, but it assists emergent bilingual students without targeted language proficiency levels. In each lesson, materials provide opportunities for students to increase comprehension and use academic vocabulary as they express opinions, scaffolded with sentence stems. For example, "Unit 8, Lesson 2" provides students with the following supports: "I think ____ because..." and "I agree because..."
- Materials include resources to support emergent bilingual students in each "Unit Document," which lists and details related English Language Proficiency Standards (ELPS) found in the unit. For example, the grade 8 "Unit 1 Document" lists ELPS 1.A (Cross-curricular second language acquisition/speaking). Next, materials include details of this standard and strategies to develop it in all content areas. The student uses language "strategies to develop an awareness of his or her own learning processes in all content areas." Materials include exercises using videos and audio to help students enhance their understanding of language structure and improve their speaking abilities in two languages, English and Spanish. The materials also provide a link and guidance to utilize resources on the Texas Education Agency's website to support emergent bilingual students.
- The *Grade 8 Mathematics Teacher Guide* provides a six-step routine to improve retention through spoken and written communication and develop academic vocabulary. Steps are as follows: the teacher introduces the new term with a student-friendly explanation, students restate the term in their own words, students then create a non-linguistic representation of the term, students participate in vocabulary enrichment activities, students discuss the term with one another, and students play games with the term. Within each "Lesson Overview," Frayer model templates provide support to develop academic vocabulary.

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 offer 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.

- The *Math - Grade 8 (Teacher Course)* provides practice opportunities that scaffold mathematical contexts to more in-depth understandings and require students to solve real-world problems, incorporating tangible representations. For example, in the "Unit 4, Lesson 1" "Exploration" Section, questions begin with labeling leg lengths of similar triangles on a coordinate grid in a mathematical context. The questions increase in rigor by asking for an explanation: "Use the coordinate grid to determine the lengths of the vertical leg and horizontal leg in the set of nested triangles below. Use your measurements to complete the table." Students continue to determine the slope and compare it to the unit rate of the proportional relationship. Depth of understanding matches the expectation of TEKS standard 8.4A, using similar right triangles to develop an understanding of slope, comparing the change in y-values to the change in x-values. In "Unit 10, Lesson 1," students assess various investment accounts to determine interest and value. Students also evaluate a college savings account and respond to the question, "What are at least two action steps Nevaeh could take to increase the amount of money she will have in a college savings account?"
- Materials consist of a variety of assessments in which students engage in real-world practice problems and multiple-choice questions. "Performance Tasks" within each lesson require students to demonstrate depth of understanding as they justify their answers. For example, in the "Unit 4, Lesson 1" "Performance Task," students analyze a slide when given three points on it: "Is the slide straight for all parts along the slide? Justify your reasoning." The "Unit 7, Lesson 1" "Performance Task" evaluates in-depth student performance, scoring the following components: procedural, conceptual, and communication.

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

- To increase rigor and complexity in each unit lesson, embedded questions promote a strategic progression of learning where new understanding is built on previous foundations. Each lesson is set up to go through three phases: "Exploration" and "Explanation" Sections, and "Performance Tasks." For example, in the "Unit 4, Lesson 1" "Explanation" Section, students discover how slope can be used as the rate of change by analyzing and responding to "Tell Me More" and "You Try It" Sections. Next, the teacher models and explains several worked-out examples. "Instructional Hints" direct teachers to incorporate the Frayer Model to build students' understanding of key academic vocabulary terms. In the "Unit 8, Lesson 2" "Exploration" Section, students work with the Pythagorean Theorem and its converse. Students begin by determining the missing length, given two sides. The work leads to a more rigorous question at the end: "Explain how you know the lengths 8 inches, 10 inches, and 13 inches do not form the sides of a right triangle." In the "Explanation" Section, the more rigorous questions demand increased complexity: "In a recent storm an 18-foot utility pole broke and fell leaving a 5-foot tall portion upright and the broken section blocking the road. How far out does the other broken portion of the pole reach?"
- Materials provide students options for on-level practice, progressing up to and sometimes surpassing the rigor of the TEKS. Task options include simplified, scaffolded, on-level, and enriching; all tasks provide scaffolded questions to guide student success. For example, the "Unit 8, Lesson 1" "Performance Task" gives students a scenario in which Jamal is making sails for his sailboat. Students know the sails must be right triangles. Students analyze four pre-cut sails to determine "Which of the red sails, if any, should Jamal select to finish the sails for his sailboat? How can Jamal be sure that both triangles making his sails are right triangles? What is the total area of the two sails he uses on his sailboat?"
- The *Grade 8 TEKS Companion Guide* includes questions that progressively increase in rigor and complexity, leading to grade-level proficiency. For example, materials for TEKS 8.6C start with students labeling a missing length of a right triangle when given two measurements and increase in complexity to students determining all three measurements for the triangle. Students increase rigor and complexity as they justify their work.

Depth and Coherence of Key Concepts

4.2	Coherence of Key Concepts	11/12
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.	**2/3**
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 courses/grade bands through a logically sequenced and connected scope and sequence. Materials demonstrate coherence across units by explicitly connecting big ideas and relationships between mathematical concepts. Materials do not explicitly connect patterns between mathematical concepts. 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. 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.

Evidence includes, but is not limited to:

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

- Materials demonstrate coherence across courses as highlighted in the *Grade 8 Mathematics Scope and Sequence*, which connects new mathematical knowledge and skills to prior understandings. Materials include a "Year-at-a-Glance" table showing logically sequenced topics across each unit. For example, in "Unit 3," students model and solve one-variable equations; students connect understanding to writing and identifying situations that correlate with one-variable equations. Scope and sequence materials also include the "Rationale for Unit Progression," which contains reasoning for the sequence and connection of units throughout the course, including how unit concepts build upon one another within the year. The rationale explains how materials are strategically sequenced, including the following: "Unit 3 focuses on symbolic manipulation of equations and inequalities to solve for a single variable. Unit 4 builds from the single-variable concepts and skills students have learned in previous grade levels and honed in the first three units of the course to begin to develop the idea of slope as a constant rate of change in linear relationships and the meaning of both x- and y-intercepts of linear functions." Materials include *Texas Response to Curriculum Focal Points* (TxRCFP) connections in corresponding unit rationales.

- Within course documents, each unit begins with teacher materials that include the following: a table matching lessons and TEKS, a unit introduction, a unit overview, and a table showing prior learning supports. For example, the "Unit 3 Overview" explains that in grades 6 and 7, students learned one-variable, one-step equations and inequalities and one-variable, two-step equations and inequalities. Materials then provide learning expectations for grade 8; for example, "In 8th grade, students write, model, and solve one-variable equations with variables on both sides of the equal sign and write one-variable inequalities with variables on both sides of the inequality symbol. Students also write contextual problems given a one-variable equation or inequality with variables on both sides of the equal sign or inequality symbol." Further explanations detail future learning in high school algebra, showing the coherence across course and grade bands for unit concepts.
- In the "Unit 2, Lesson 1" "Prior Learning Supports" Section, a table shows that grade 8 standards include 8.11B. The adjacent column explains prior learning "summarizing numeric data with numerical summaries" in grade 6 (6.12C) and grouping data using "comparative dot plots or box plots" in grade 7 (7.12A).

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

- *Grade 8 Math Scope and Sequence* includes a structured progression of mathematical concepts and explains how each unit builds on the previous one. For example, "Unit 4" focuses on slope and y-intercepts, and "Unit 5" centers on proportional and non-proportional situations. In "Unit 6," students apply those topics to two-variable statistics.
- Teacher materials for each unit include the following sections that explain coherence with the big ideas and relationships between mathematical concepts: "Unit Introduction," "Unit Overview," and "Prior Learning Supports." Each "Unit Introduction" highlights the big ideas taught in the unit and establishes connecting relationships of the unit's mathematical concepts to prior learning. For example, the "cornerstone of Unit 5" is functional relationships. "In prior learning experiences, students investigated and applied proportional and non-proportional linear relationships. In this unit, those special types of linear relationships are compared and contrasted to draw conclusions about the linear function family and develop attributes of a functional relationship." Then, each "Unit Overview" explains the relationships of the mathematical concepts in the unit to other units throughout the course, in addition to what the concepts looked like in previous grades and how they will look in future grades. For example, the "Unit 5 Overview" reminds teachers that in grade 6, students learned about dependent relationships between two variables, and in grade 7, students studied two-variable proportional relationships. Now, "In 8th grade, students formalize functional relationships as a specific relationship between independent and dependent variables using linear relationships in both proportional and non-proportional situations." Materials make connections to future learning by explaining that these concepts "lay the foundation for solving systems of equations in high school Algebra 1." Each unit's "Prior Learning Supports" table breaks down information for each unit lesson. The table provides the lesson and lesson title, grade-level TEKS, and related prior TEKS if applicable. For example, "Unit 5, Lesson 2"

provides instruction on TEKS standards 8.5F and 8.5H, which connects to the grade 6 previous standard 6.6C.

- Lessons within each unit build on one another. For example, the "Unit 4" introduction states, "Students use similar right triangles to develop the notion that the slope of a line is the same regardless of the two points chosen on the line to calculate the slope and then use multiple representations to determine and interpret the slope and y-intercepts of a linear function." In the first lesson, students are introduced to finding slopes using right triangles. "Lesson 2" reviews graphing proportional relationships. Then, in the last two lessons, students apply their knowledge to multiple representations of linear relationships.
- The "Unit 7, Lesson 3" "Prior Learning Supports" Section explains big ideas and relationships from previous grades that relate to current concepts; for example, "In 7th grade, students generalized critical attributes of similarity, including similar triangles, as a geometric extension of their study of ratio and proportion. In 8th grade, students extend their knowledge of similar figures to dilations on the coordinate plane." However, course materials do not explicitly discuss mathematical patterns, nor do materials explain the connections across units of patterns between mathematical concepts.

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.

- *Math - Grade 8 (Teacher Course)* provides coherence across units by connecting content in each lesson with the "Overview of Process Standards." The *Grade 8 Prior Learning Guide* at the beginning of each unit identifies coherence across the TEKS in previous grade levels and connects them to the current grade. For example, in "Unit 1, Lesson 1," standard 8.2C is partnered with the grade 5-related standard 5.2A. Standards, which are written out, detail connections between TEKS. Coherent progression is maintained in units. For instance, "Unit 4" focuses on slope and y-intercepts, "Unit 5" centers on proportional and non-proportional situations, and "Unit 6" merges those topics into two-variable statistics.
- Materials demonstrate coherence across units by connecting current unit mathematical concepts and language to what will be learned in past and future grade levels. Materials reinforce and build upon previously learned content, reinforcing the vocabulary and academic language applicable to that strand. For example, in grade 8, consistent vocabulary terms like *independent* and *dependent variables* introduced in grade 6 and practiced in grade 7 are utilized in "Unit 5" materials. Simultaneously, the skills from grade 7 of writing linear equations connect to content in grade 8 with linear functions. The "Unit Introduction" states, "In prior learning experiences, proportional and non-proportional linear relationships were investigated and applied by students. In this unit, those special types of linear relationships are compared and contrasted to draw conclusions about the linear function family and develop attributes of functional relationships." In "Unit 4, Lesson 2," the task for students is graphing proportional relationships. Materials indicate where this topic will be applied in Algebra 1 and Algebra 2. For example, in Algebra 2, "students will use rates of change to classify linear, quadratic, and cubic functions and average rates of change to make predictions from other nonlinear function types."

- *Math - Grade 8 (Teacher Course)* provides coherence across units by connecting content in each "Unit Overview." "Unit Overviews" connect the current learning to prior and future learning across the grade levels. For example, the "Unit 3 Overview" explains that in 6th grade, students wrote, modeled, and solved one-variable, one-step equations and inequalities. In grade 7, students wrote, modeled, and solved one-variable, two-step equations and inequalities. Now, in grade 8, "students write, model, and solve one-variable equations with variables on both sides of the equal sign and write one-variable inequalities with variables on both sides of the inequality symbol." Later, in high school Algebra 1, "students will write, model, and solve one-variable linear equations using the distributive property and other algebraic properties."

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.

- *Math - Grade 8 (Teacher Course)* provides coherence at the lesson level in the "Prior Learning Supports" Section. For example, the "Unit 2, Lesson 1" "Prior Lesson Supports" Section explains that the concept of mean absolute deviation is new in grade 8. "However, students previously determined the mean of a data set and compared data spreads" in both grades 6 and 7. In "Unit 9, Lesson 2," the "Prior Learning Supports" Section explains how in grade 5, students explored volume and learned volume formulas for rectangular prisms and cubes. In grade 6, students wrote equations using the volume for right rectangular prisms. In grade 7, students extended their knowledge of volume to rectangular and triangular pyramids and prisms. Now, in grade 8, students learn about the volume of round solids: cylinders, cones, and spheres.
- Each lesson overview provides sections that connect prior learning to lesson content, including the "Lesson Introduction," "Lesson Overview," and "Teaching/Instructional Hints." For example, the "Unit 6, Lesson 1" "Teaching Hints" Section explains that as fifth graders, students were introduced to Quadrant I of the Cartesian coordinate plane. In grade 6, students learned about integers, positive and negative rational numbers, and all four quadrants of the coordinate plane. In grade 7, students graphed proportional and non-proportional linear relationships. In grade 8, students use scatter plots and extend their knowledge of scatterplots to look for linear patterns. Next, students use trend lines from scatterplots to make predictions.
- Materials demonstrate coherence throughout in the form of a problem-solving graphic organizer. Consistently, lessons in grade 6 provide this tool so that students "analyze, formulate, determine, justify, and evaluate" in a common template. This visual assists students in organizing information from a word problem, enabling the achievement of conceptual understanding. Additionally, lessons within each unit build on one another. For example, "Unit 7" materials explain connections in lesson concepts. "Lesson 1" introduces translations, reflections, and rotations; "Lesson 2" introduces dilations. "Lesson 3" adds depth to dilations through similarity. Then, in the last lesson, students apply their learning to make generalizations about transformations and dilations.

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

Evidence includes, but is not limited to:

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

- Materials provide spaced retrieval opportunities with previously learned skills within lessons of one unit and across units. The *Grade 8 Mathematics Scope and Sequence* shows where Texas Essential Knowledge and Skills (TEKS) are taught in multiple units. For example, the mathematical process standard 8.1F is taught in "Units 2, 4, 5, 7, and 8." The number and operations standard 8.2D is addressed solely in "Unit 1." The scope and sequence document details one content TEKS standard that repeats in units; 8.8D is introduced in "Unit 7" and appears again in "Unit 8."
- Materials include a "Rationale for Unit Progression" within the scope and sequence document. This rationale explains how the units are sequenced to build on each other. For example, "Unit 7 combines geometric and algebraic representations for congruence transformations and dilations and addresses the same two Texas Response to Curriculum Focal Points (TxRCFP) as Unit 5. Unit 8 continues along the geometric strand, using equations and inequalities to explore angle relationships in triangles and angles formed by parallel lines and transversals."
- Materials provide spaced retrieval opportunities with previously learned skills across lessons. For example, in the "Blackline Master" from the "Unit 3, Lesson 2" "Exploration" Section, students write the equation or inequality and then, "If the problem results in an equation, solve the equation using graphs, tables, or symbolic methods." Students refer to learning from "Unit 3, Lesson 1" to complete the second part of the problem. *Math - Grade 8 (Teacher Course)* provides the *Grade 8 Mathematics Assessment Guide*. In this platform, teachers have the opportunity to provide spaced retrieval of skills. "Item Types Available in our Digital Platform" states, "All the practice problems in the lesson-level ePubs are available to be assigned through our digital platform. Additionally, teachers will be able to use our item bank(s) to create assessments of their own."
- Spaced retrieval opportunities with previously learned skills and concepts within units are provided by materials and units. This is included in the *Math - Grade 8 (Teacher Course)* under course level documents in the *Grade 8 Mathematics Scope and Sequence* document where TEKS taught in multiple units are identified. Spaced retrieval opportunities for skills or concepts across units are provided. In the grade 8 pacing guide, various timelines provide evidence of when a

review lesson can occur within the curriculum. For example, in "Unit 6" of "Two-Variable Statistics" in the 165-day pacing calendar, two review lessons have been scheduled to spiral previously taught content.

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

- The materials adopt a non-spiraling method, concentrating on individual concepts rather than revisiting and intertwining them across lessons. The materials include practice sets that focus on one concept or skill at a time. For example, the "Unit 8 Test Answer Key" identifies multiple "Process Student Expectations" mixed in from previous units. For example, the "Unit 8 Assessment" covers the content Texas Essential Knowledge and Skills (TEKS), but also identifies process standards 8.1A five times, 8.1B and 8.1E twice each, 8.1F three times, and 8.1G one time. The process standards are not formally assessed but are listed next to the content standards tested in each question.
- Materials provide interleaved practice opportunities across units. For example, in the "Unit 9, Lesson 4" "Performance Task," "Earth Models," the focusing standard is 8.7A, but materials also list additional TEKS that were previously taught and are covered in this task: 7.3A and 8.7C. Materials provide interleaved practice opportunities with previously learned skills across lessons in the "Explanation" Sections. For example, in "Unit 4, Lesson 3," students first identify the slope from a graph and then progress to identifying the slope using tables and word problems. Materials include practice opportunities where students select and utilize diverse strategies to promote the most efficient strategy rather than relying on a single approach for every problem. For example, students recall angle and triangle relationships from grade 6 and grade 7. This understanding of content is reinforced in "Unit 8, Lesson 3," with methods of setting up and solving a multi-step equation with variables on both sides.
- The *Grade 8 Scope and Sequence* includes a "Rationale for Unit Progression," which provides evidence of how each unit progresses logically to help ensure student success. More specifically, it states how content and skills are practiced across lessons and units by spiraling those skills. For example, it states, "Unit 4 builds from the single-variable concepts and skills students have learned in previous grade levels and honed in the first three units of the course to begin to develop the idea of slope as a constant rate of change in linear relationships and the meaning of both x- and y- intercepts of linear functions." Concepts are revisited in different contexts throughout a unit or course. For example, angle relationships previously taught in the year are engaged during "Unit 8" with an activity that reinforces the concepts of angle and triangle relationships.
- Materials include review lessons within units that include interleaved practice opportunities with previously learned skills and concepts across units within the course. For example, the "Unit 6" "Spiral Review 1" states, "This spaced retrieval and interleaved practice opportunity across lessons and units addresses the following TEKS from previous instruction: Unit 2, Lesson 1: 8.11B; Unit 6, Lesson 1: 8.5C, 8.11A; and Unit 6, Lesson 2: 8.5D, 8.11A."

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

- Each unit document lists items that will be required throughout the unit for students to use as they create, interpret, analyze, and evaluate a variety of models and representations related to the mathematical concepts covered. For example, the grade 8 "Unit 2" document lists the following items to deepen and enhance student learning of one-variable statistics: color tiles, paper bags, centimeter cubes, large boxes, gallon zip-close bags, decks of playing cards, and number cubes. Lessons provide questions and tasks that prompt students to engage with models and representations as they interpret, analyze, and evaluate concepts. For example, the "Unit 3, Lesson 1" "Teaching Hints" Section prompts the use of algebra tiles to model solving one-variable equations before the same equations are solved using the algorithm.
- Materials present students with three parts to each lesson: the "Exploration" and "Explanation" Sections and "Performance Tasks." Lesson explorations provide instructional videos and "Blackline Masters" activities to guide students through interpreting and analyzing concepts. For example, the "Unit 1, Lesson 2" "Exploration" Section requires students to use a number line to place irrational numbers in the most appropriate spot as they interpret the value of the number. Students must justify the value of the irrational numbers and explain how they know which two whole numbers each irrational number fits in between. For instance, in the "Unit 3, Lesson 1" "Exploration" Section, students use algebra tiles to solve the equations. Students are prompted to "sketch the tiles at each step, write the verbal description of the actions you made with the tiles, and identify the property of equality that justifies those actions." As lessons progress, lesson explanations guide students through analyzing and evaluating models and representations.

- *Math - Grade 8 (Teacher Course)* includes performance tasks at the lesson level that require students to interpret and analyze representations for mathematical concepts. For example, in the "Unit 7, Lesson 2" "Performance Task," "Kite Patterns," students analyze a drawing that shows a dilation and look at a table that shows coordinate points for both drawings. Students use measurements to determine the scale factor and justify their answers. In the "Unit 5, Lesson 4" "Performance Task," "Bike Riding," students evaluate images from a graphing calculator, showing intersecting lines where two cyclists cross paths. Students must determine how many minutes and how far each friend rides before their paths intersect. Students then justify their reasoning. In the "Unit 9, Lesson 3" "Performance Task," "Sugar Cone Cupcakes," students analyze representations of a cone to determine how much total cake each cupcake will contain after baking and assembling and justify their reasoning.

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

- *Math - Grade 8 (Teacher Course)* provides the "Problem-Solving Template," a course document, for teachers and students to use throughout the year on all lessons. In the second step of the template, the process explicitly states to formulate a plan or strategy with visual models and manipulatives to use throughout the process. Options for visual models include fraction strips, percent bars, and number lines; students also have the option to act out the problem. Each lesson overview contains a "Teaching Hints" Section, which prompts teachers to provide students a variety of models to represent mathematical situations. For example, the "Unit 3, Lesson 1" "Teaching Hints" Section prompts teachers to have students use algebra tiles to represent variables, constants, and coefficients in equations.
- In unit lessons, students create various models to represent their understanding of concepts. For instance, throughout "Unit 3, Lesson 1," students justify their reasoning for their answers. The lesson uses algebra tiles to represent equations, and students can model, solve, and justify equations with the tiles. Instructions prompt teachers to give hints and reminders to students to select tools and strategies to represent their thinking in the mathematical situation. In "Unit 6, Lesson 1," students work with linear equations and read and create representations, like scatterplots, identifying relationships.
- At the end of each lesson, "Performance Tasks" provide students with opportunities to model mathematical representations and answer questions related to mathematical situations. For example, in the "Unit 3, Lesson 3" "Performance Task," "Wedding Candles," students represent two equations using a table or a graphing calculator to determine where data lines will intersect. Students work to answer the following questions: "How tall will the candles be when they are burned to an equal height? Justify your reasoning." In the "Unit 9, Lesson 1" "Performance Task," "Manufacturing Tissue Boxes," guidance for teachers includes reminding students to understand how they can use models, such as making a net of the prism or using a 3D solid of the shape to manipulate, analyze the information, and justify their solution.

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

- Questions provide opportunities to apply conceptual understanding. In the TEKS Companion 8.5A, students represent linear proportional situations with tables, graphs, and equations. Two stepped-out examples provide models for students before they complete the independent practice questions at the end of the lesson. Questions include the following: "Which linear equation best represents the same linear relationship (as the graph)?" and "Which linear equation best represents the same linear relationship (as the table)?" In the TEKS Companion 8.8A, students write one-variable equations and inequalities. Then students complete independent practice questions that include the following: "Which equation can be used to find *d*, the number of days it will take before both bloggers have the same number of followers?" and "Which situation is represented by this equation?"
- Questions included in unit tests require students to apply conceptual understanding to new, real-world situations. For example, in the "Unit 5 Test," after students have studied proportional and non-proportional situations, test questions include "Which of the following is NOT proportional to the ratio of hybrid vehicles to cars sold?" and "Which table below does not represent *y* as a function of *x*?" In the "Unit 8 Test," students use their knowledge of relationships involving angles and triangles. Students answer this question: "A 39-foot ladder leans against a building. The bottom of the ladder is 15 feet from the base of the building. How far up the side of the building does the ladder reach?"
- Each lesson in the *Grade 8 TEKS Companion Guide* contains a "Performance Task" that requires students to apply lesson knowledge to a new real-world problem and answer related questions. Guiding questions prompt students through their understanding process and require justifications for explanations. For example, in the "Unit 3, Lesson 1" "Performance Task," "Building Flowerbeds," students write and solve equations to determine how much lumber is needed to make two flower beds of differing shapes but with the same perimeter. In the "Unit 6, Lesson 3" "Performance Task," "Cell Phone Plans," students apply their understanding of proportional and non-proportional relationships to analyze and compare two plan options. Students then determine the best plan for a customer to choose and justify their reasoning.

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 that are 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/or 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.

- In *Math - Grade 8 (Teacher Course)*, each lesson's "Exploration" Section and "Blackline Masters" activities provide tasks designed to build student automaticity by prompting them to repeat the skill or process in a variety of situations. The *Teacher Guide* explains in "Research-Based Instructional Strategies" that materials spiral procedures throughout the course to build fluency. Each lesson's "Exploration" Section offers focusing questions that support teachers in guiding students through the process. The lesson's "Explanation" Section provides questions and tasks at varying difficulty levels to build fluency and automaticity, strengthening students' understanding of grade-level content. The *Implementation Guide* states that worked-out examples provide students with opportunities to build procedural fluency.
- For example, in the "Unit 7, Lesson 2" "Exploration" Section, students dilate two shapes: a triangle by ⅔ and a quadrilateral by 4. A table is provided to guide students in recording each original point and then each dilated point. Focus questions guide students, asking, "How do you see the figure changing due to dilation's scale factor?" and "If you know the figure is changing, how can you find the location of the vertices?" This routine provides automaticity as students process attributes in a structured order. In the "Unit 9, Lesson 2" "Exploration" Section, students cut out several shapes to calculate the net, lateral surface area, total surface area, and volume of different nets. Materials provide a table with four sections, one for each calculation; students repeat this process for two models. The "Instructional Hints"

Section suggests completing a Venn diagram, a familiar graphic organizer, to compare the surface area to the volume of a cylinder. One question provided to guide students is: "What formula would be helpful in this situation?"

- In the "Explanation" portion of the lesson, students work in the *Grade 8 TEKS Companion Guide*, "ePub." Each lesson begins with a "Tell Me More" Section that provides vocabulary and models and moves to stepped-out examples. Materials explicitly state, "The TEKS Companion Guides provide explanatory narratives and worked out examples with problems for students to practice to build procedural fluency." For example, the "Unit 3, Lesson 1" "Explanation" Section begins with the "Tell Me More" Section, which uses a familiar process of using triangles and circles or number lines to model equations. Three stepped-out examples model solving for *x*, explaining the algorithm. Independent practice also moves from basic equations to math concept-based problems to real-world problems. For example, students begin with "6x - 7 = 8x + 23," and once they get to the final question, they must apply their knowledge of setting up equations to determine angle measurements in an isosceles triangle.

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

- Within each unit, grade 8 materials provide opportunities for students to practice applying mathematical procedures, beginning with basic skills and moving to more interconnected, complex skills. *Math - 8 (Teacher Course)* contains mathematical procedural routines to reinforce and apply grade-level content. Each lesson in the unit is individually structured in the concrete-representational-abstract framework to increase students' efficiency and accuracy of the skill. For instance, unit lessons begin with a conceptual hands-on exploratory session to ground students in new content. Next, the "Explanation" component provides examples, reflection, and practice problems. Finally, each unit lesson concludes with a differentiated performance task that allows students to practice applying mathematical procedures and demonstrate academic growth. By repeating this process in each unit, materials develop procedural skills and fluency in practical application.
- For example, in the "Unit 3, Lesson 1" "Exploration" Section, students complete a table related to modeling and solving one-variable equations. Students solve an equation and each step of the way they complete the chart to show the following: the equation, a sketch of algebra tiles, a verbal description of the process, and the property of equality used. The first example is completed as students understand the expectations of the mathematical process. The students complete three more examples with the table as a guide. Next, they solve four equations without the table, and finally, they answer debriefing questions. The "Teaching Hints" Section prompts teachers to direct students to algebra tiles as representations of variables, constants, and coefficients in equations. The "Explanation" portion of the lesson refers students to the *TEKS Companion Guide* ("ePub") and begins with the "Tell Me More" Section, which models solving equations with triangles (for *x*) and circles (for 1), explains the standard algorithm for division, and defines key vocabulary. Two stepped-out examples accurately model the algorithm; students solve for the value of *x*. The third example uses two complementary triangles and asks students to calculate angle measures. Students increase efficiency in levels of accuracy as they complete tasks, from basic skills problems to real-

world situation problems. For example, students begin with "6*x* - 7 = 8*x* + 23," and by the last question, students determine the measure of one angle in an isosceles triangle. The final portion of the lesson, the "Performance Task," "Movie Snacks," presents students with the task of determining possible snacks for three different people at a movie theater without knowing the price of candy. Materials offer flexibility as students choose a strategy to help them: equation/inequality solving procedures, guess and check, a graphing device, or other methods.

- In the "Unit 7, Lesson 1" "Exploration" Section, students use patty paper and coordinate grids to deepen their understanding of reflections, rotations, and translations. Students complete tables marking coordinates for each original point and each new point. The "Teaching Hints" Section prompts students to think in terms of algebraic equations in connection to 360-degree rotations and clockwise and counterclockwise rotations. The "Explanation" portion of the lesson refers students to the *TEKS Companion Guide* ("ePub"). To begin, the "Tell Me More" Section provides details for students regarding rotations of varying degrees and connections. The model provides efficiency and accuracy of mathematical procedures as students again complete tables of related coordinates. Three stepped-out examples accurately model rotations on coordinate planes. In independent practice, students become more efficient with levels of accuracy of procedures as they complete tasks, from basic skills problems to real-world problems. For example, students begin writing algebraic rules that describe the rotations provided. Students continue to analyze more complex situations. For example, given a shape, students must explain how the figure will be transformed and in which quadrant it will be. The final portion of the lesson, the "Performance Task," "Logo," presents students with the task of investigating three logos that have been enlarged and determining if the orientation was preserved. Materials offer flexibility as students choose strategies to help with solutions, including graph paper, a graphing device, or applying other prior classroom strategies.

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

- Materials provide opportunities for students to evaluate procedures, processes, and solutions throughout the course. For example, teachers and students can access the "Problem-Solving Template," a course document available for use in every lesson. Of the six sections in the template, one section directs students to evaluate the reasonableness of a solution for accuracy by asking, "How do you know your solution is reasonable?" Students use rounding, estimation, and thinking of the unit concepts to see if their answers make sense. The next section directs students to evaluate the problem-solving process for efficiency by asking how the structure helped them to arrive at a reasonable solution and decide what they would do differently next time. Additional support from the *Grade 8 TEKS Companion Guide Teacher Manual* explains effective ways to teach unit lessons. Teachers are instructed to "frame the problem in terms of a problem-solving process" before working through the stepped-out examples. One detailed problem-solving process provides these steps: analyze the problem, formulate a plan, determine a solution, justify your solution, and evaluate for reasonableness. Supporting questions for the evaluative steps include identifying what mathematical process made the solution valid and identifying how the problem-solving process helped determine

the solution. Instruction also explains that teachers stop during problem-solving to ask students how they know to do a step and to consider different approaches.

- Strategic questions prompt teachers to discuss alternative strategies with students during problem-solving. Students think critically to determine the most efficient approach, find an alternate solution, and/or apply a learned procedure to all situations. Debriefing questions require students to explain why solutions work and make connections in mathematical concepts, allowing students to evaluate the process. For example, in the "Unit 3, Lesson 1" "Exploration" Section, the debriefing question asks, "How did the actions you took with the tiles compare to the symbolic representations? How does solving equations with integer coefficients compare to solving equations with decimal coefficients?" In the "Unit 8" "Exploration" Section, students watch the instructional video and respond to a prompt in their math journal: "How can a process column be used to help determine an arithmetic sequence?" After explaining, students compare answers with peers. Materials provide opportunities to evaluate procedures and solutions for accuracy in the "Tell Me More" Section, the first page of each lesson of the *TEKS Companion Guide*. Specifically in the "Unit 7, Lesson 3" "Explanation" Section, materials explain similar figures and attributes. Students must decide if it is enough information to know that two angles are congruent; will the triangles be congruent? They must explain their justification. Questions provided in this lesson that prompt students to think critically include, "What is true about the angles in similar figures."
- Materials provide opportunities to evaluate procedures and solutions for efficiency in "Performance Tasks." For example, in the "Unit 1, Lesson 4" "Performance Task," "Mock Trial," students use the table to compare the rational numbers that are represented in different mathematical expressions. Students will use mental number skills to explain comparisons. In the end, students evaluate their solutions and justify their reasoning. The tasks are intentionally designed for flexibility with students solving problems using multiple appropriate strategies. For instance, in the "Unit 3, Lesson 1" "Performance Task," "Snacks," students calculate possible prices for candy items at the movie theater. After the task, students consider the implications of adding bottled water to the total purchase and justify their reasoning.

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

- The *TEKS Companion Guide Teacher Manual* provides embedded supports for teachers entitled, "What's an Effective Way to Teach a Lesson?" Teachers are instructed to "frame the problem in terms of a problem-solving process" before working through the stepped-out examples in the lesson: analyze the problem and formulate a plan. Once students have worked through the problem-solving process, teachers ask students to evaluate how using a problem-solving process helped determine their solution. Guidance is also provided throughout independent practice to increase efficient approaches. For example, teacher questions include "What would happen if you were given that information in a different representation?" and "How did you know you needed to do that?" Additional support can be found in the *Grade 8 Teachers Guide* at the beginning of each unit. Materials support teachers by providing a "Unit Introduction," "Unit Overview," and "Prior Learning Supports." Information

provided explicitly states concepts to be covered in the unit and connects the grade 8 Texas Essential Knowledge and Skills (TEKS) to the TEKS covered in prior grades. Teachers also receive information on how the unit connects to past learning and how it will connect in the future. Within the unit teacher materials, explanations relate one lesson to the next and how the unit ties together to support the learner.

- At the lesson level, the *Grade 8 Math Companion Guide* lesson materials provide embedded supports for teachers to guide students, including "Lesson Overview," "Learning Outcomes," "Prior Learning Supports," "Teaching Hints," and more. Explicit modeling of efficient strategies is provided within these materials. The "Unit 7, Lesson 1" "Teaching Hints" Section provides an example of a visual approach for teachers to model with students. Cardboard coordinate planes are created and the teacher models how students use a pushpin to rotate shapes. In "Unit 3, Lesson 2" the "Instructional Hints" Section explains how teachers encourage students to connect to word problems by putting themselves in the situation and trying to relate to the action. In addition, each lesson's "Exploration" Section provides guiding questions for teachers to use to promote student thinking throughout the task. For example, the "Unit 3, Lesson 1" "Exploration" Section provides multiple prompts, including, "Are there any like terms? Would the distributive property help in this case? Once you have the variable term isolated, how can you represent division with the Algebra tiles?"
- The *Grade 8 Math TEKS Companion Guide* also prompts teachers to explicitly model efficient strategies in the "Explanation" Section of each lesson. Each lesson has between two and four stepped-out examples to support students in efficiently approaching problems with a variety of strategies. Detailed explanations for success with each item type are provided. For instance, in the "Explanation" Section of "Unit 3, Lesson 3," explicit instructions guide students through three examples, writing one-variable equations and inequalities. In the first example, students are prompted and then guided to "Write an equation that can be used to determine x, the number of items each grade must sell so that the total amount raised is the same for both grades." In each lesson's "Performance Task" Section, "Teacher Notes" provide links that detail the task. For example, the "Unit 4, Lesson 4" "Performance Task," "Growing Bamboo," includes a section that explains the task and provides the answer. Then another section, "Mathematically Speaking," provides explicit instruction about strategies students might use. Next, materials provide the teacher with a stepped-out "Possible Solution," including tables and written explanations to accompany algorithms. At the end of the teacher materials, teachers are provided with tips to look for as students approach task completion. For example, in this task, teachers check for a correctly determined rate of change.

Balance of Conceptual and Procedural Understanding

5.3	Balance of Conceptual Understanding and Procedural Fluency	16/16
5.3a	Materials explicitly state how the conceptual and procedural emphasis of the TEKS are addressed.	**2/2**
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 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. Materials include supports for students in connecting, creating, defining, and explaining concrete and representational models to abstract (symbolic/numeric/algorithmic) concepts.

Evidence includes, but is not limited to:

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

- The *Grade 8 Mathematics Teacher's Guide* provides recommendations for the use of all materials; the provided checklist mentions a balance of conceptual and procedural emphasis. "All lessons are designed to begin with a rigorous conceptual exploratory application to ground procedural learning that occurs later in the lesson. Procedures spiral throughout the course to build fluency." Unit and lesson materials further detail how the Texas Essential Knowledge and Skills (TEKS) are addressed.
- *Math - Grade 8 (Teacher Course)* provides teacher materials at the beginning of each unit that explicitly state the TEKS. The teacher materials include a table, showing the TEKS covered in each lesson; "Unit Introduction," providing conceptual emphasis; "Unit Overview," relating the procedural relationships between prior learning and future connections; and "Prior Learning Supports," detailing grade-level TEKS and related TEKS from lower grades. In "Unit 6 Teacher Materials," the "Unit Overview" connects concepts from grades 5 and 6 (using scatterplots to graph two-variable data sets and independent/dependent variables) to grade 8 "Unit 6" materials (linear functions to model a bivariate data set). Teacher materials at the unit level also provide a clear explanation of mathematical concepts—the "why" behind mathematical procedures. For instance, the "Unit 6" overview continues, "Students qualitatively estimate whether the shape of data in a scatterplot suggests a linear trend." Materials clearly state how these same skills and content will need to be applied by students in future grades; in Algebra, students will use formal regression methods to calculate a line of best fit for a data set."
- Grade 8 lesson overviews explicitly state learning outcomes as related to the knowledge and skills. Each lesson begins with "I can" statements that detail key concepts to be covered. For example, the "Unit 7, Lesson 3" "Learning Outcomes" Section states, "I can describe and apply

the relationships among corresponding sides of similar shapes. I can describe and apply the relationships among corresponding angles of similar shapes. I can establish and apply facts about the angle-angle criterion of similar triangles" During the lesson's "Explanation" Section, the "Tell Me More" Section explicitly states the conceptual emphasis of the TEKS. Next, stepped-out examples are solved and explained so that "students see the rationale of why this step is being done and how to execute that step." Additionally, in every lesson, the "You Try It!" Section walks students through a problem to check their understanding of the procedure. For example, the "Unit 5, Lesson 3" "Tell Me More" Section defines a function (standard 8.5G). Students learn how to determine if a relationship is a function or not, using tables, diagrams, and graphs. Three stepped-out examples detail procedures for analyzing functional relationships.

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

- Questions and tasks include the use of concrete models and manipulatives. In *Math - Grade 8 (Teacher Course), the* "Teaching Hints" Section offers strategies and explanations that support teachers in conveying concepts to students. The "Unit 7, Lesson 1" "Teaching Hints" Section prompts teachers to create a cardboard coordinate grid to teach rotations. Students will trace a figure on patty paper and place it on the coordinate place. A pushpin attaches the origin so students can rotate the figure the desired distance and see the new coordinates for the rotation. During the lesson's "Exploration" Section, students use patty paper to trace figures for each transformation to complete the "Blackline Masters" independent practice. Students develop conceptual knowledge of reflections, rotations, and transformations moving to abstract representations, tables, and symbols.
- The student activities move from pictorial representations to abstract representations as conceptual knowledge develops. In the "Unit 8, Lesson 1" "Explanation" Section, students analyze the relationship between the sides of a right triangle to understand the Pythagorean Theorem. Materials suggest copying the activity one-sided so students can cut out the squares to manipulate them to form right triangles. As the lesson moves into the "Explanation" Section, the model and detailed explanation show the meaning of the algebraic formula for the Pythagorean Theorem. One focus question asks students to consider the importance of models: "How can I use models to explain the Pythagorean Theorem?"
- In the *Grade 8 TEKS Companion Guide's* "Tell Me More" Section, hands-on activities with models or manipulatives representing mathematical concepts are included in the unit lessons. For example, in the "Unit 4, Lesson 4" "Tell Me More" Section, students analyze a drawing to show how to calculate the slope of a line. Students solve real-world problems and use the model to support their solutions. For example, in the "Unit 8, Lesson 3" "Tell Me More" Section, students use visual representations of triangles and interior/exterior angles to determine the relationships among the angles of a triangle and its sum. Students then move to the numeric expressions and algorithms to find missing measurements.

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

- *Math - Grade 8 (Teacher Course)* provides practice for students to connect concrete and representational models to abstract concepts during the "Exploration" portion of their lesson. For example, in the "Unit 7, Lesson 3" "Exploration" Section, students complete independent practice guided by a Google Slides presentation. To understand dilations and similarity, students use drawings of similar shapes and then connect the concept to the abstract representation, writing proportions to show similarity. Next, students look at pairs of similar shapes and create statements about corresponding angles based on what they notice. Questions guide students to move from the visual representation to the abstract by presenting questions like, "How do you think similar figures are related to one another?" Supports in the "Unit 3, Lesson 2" "Exploration" Section include an instructional video for writing one-variable equations and inequalities, where students first see that numbers related to each other can be less than, equal to, or greater than. Next, students see that equations and inequalities show the same relationships (x - 7.1 = 10.5). Examples move to show inequalities can also include variables ($5x$ - 18 < 27). A real-world situation is presented and the video includes a visual to represent the information before writing the related equation. Instructional supports offer questions to help move students to abstract thinking: "How can you determine whether your inequality symbol has the same meaning as the words in the situation?"
- Students are provided with multiple practice opportunities in the lesson materials, which consist of standards-aligned tasks aimed at mastery of grade-level content. In "Unit 8, Lesson 1," "students use models and diagrams to show and explain the Pythagorean Theorem. Once students have articulated the Pythagorean Theorem, they will apply it, along with its converse, to solve problems." As students begin independent practice, the "Explanation" Section of the "ePub" supports students in moving information from the visual (using side lengths of squares to create right triangles) to symbolic and algorithmic representation, such as $a^2 + b^2 = c^2$. Instructions prompt the teacher to suggest struggling students draw a picture and then ask, "How might the Pythagorean Theorem be useful in this problem?"
- "Performance Tasks" from each lesson require students to apply mathematical concepts and encourage students to connect representational models to abstract concepts using real-world situations. For example, the "Unit 3, Lesson 1" "Performance Task," "Flowerbeds," prompts students to use algebra tiles to represent equations. Students connect the actions of the tiles to the symbols and numbers in the equations. Instructions prompt teachers to give hints and reminders to students to select tools and strategies to represent their thinking in the mathematical situation. The "Unit 9, Lesson 1" "Performance Task," "Task B," requires students to review information about total surface area and nets as they determine how much cardboard will be used to create six tissue boxes. Instructions in the teacher guide suggest students "start by drawing a picture to help identify each of the dimensions of the triangular prism." Students then draw just the triangular base and label the parts. Finally, students use the algorithms to solve the equations and find a solution to the situation.

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 use of 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.

- Units and lessons provide intentional introductions of vocabulary to students, including repeated practice. In the "Unit 7, Lesson 1" "Exploration" Section, the instructional video introduces new vocabulary to students with visuals and manipulatives. For example, as materials define *translation*, the written definition is on the screen. Then a drawing of △ABC is shown with arrows pointing in the direction it will be translated. Another triangle moves from △ABC to the translated space, making △A'B'C'. The instructional materials also provide a synonym for this movement: *slide*. Materials also provide the algebraic representation for translations. This same process and order are provided for reflections and rotations. The *Grade 8 TEKS Companion Guide* begins each "Explanation" Section with the "Tell Me More" Section, where students are provided visual representations and written definitions for each bolded vocabulary term. In the "Unit 7, Lesson 1" "Explanation" Section, academic vocabulary includes *rotation*. Students are provided charts, defining 90°counterclockwise/270° clockwise rotations and 180°counterclockwise/180° clockwise rotations. Tables in each section provide the coordinates for each original and new point. In the "Unit 4, Lesson 3" "Explanation"

Section, academic vocabulary includes *equation*, *linear relationship*, *rate of change*, *slope*, *y-intercept*, and *table*. Students are provided definitions written in paragraph form, relating these terms to the overall concept of independent and dependent variables. Two visual representations of a function table and its corresponding line graph provide examples related to academic terms, developing student understanding.

- The *Grade 8 Mathematics Teacher's Guide* explains a six-step process for developing students' vocabulary in each unit. The process promotes language development as students interact with vocabulary words in visual contexts, manipulative wordplay, and small-group discussions. The six steps are as follows: 1.) Introduce the new term with a student-friendly example. 2.) Instruct students to restate the example in their own words. 3.) Allow students to create visual representations related to the term. 4.) Engage students in activities that deepen their understanding of the term. 5.) Allow time for student conversations related to the term and its meaning. 6.) Play games that deepen students' understanding of the vocabulary terms.
- In addition, materials provide a Frayer model template connected to lesson vocabulary that includes the definition in the student's own words, examples, non-examples, and facts/characteristics related to the word. In each grade 8 lesson overview, a vocabulary section links the lesson's academic vocabulary to partially completed Frayer models for each vocabulary word; a blank template is also available if teachers decide to add other necessary academic terms. The Frayer model supports language acquisition by pre-teaching the term and giving students a foundational understanding of its meaning before they put that meaning into mathematical action. For example, in "Unit 3, Lesson 1," partially completed Frayer model templates are provided for *distributive property* and *equation*. The link to *equation* states the definition as "two equal expressions." In the example, the written equation is $2x + 5 = 15$. The facts/characteristics listed state, "Has an equal sign." Non-examples are left blank for the student to fill in. In "Unit 4, Lesson 1," vocabulary related to developing slopes in similar triangles includes *hypotenuse*, *rate*, *right triangle*, *similar triangles*, and *slope*.

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

- *Math - Grade 8 (Teacher Course)* provides embedded guidance for teachers to scaffold and support academic mathematical vocabulary by providing clear guidance on vocabulary procedures. The *Grade 8 Mathematics Teacher's Guide* explains a six-step process for developing students' vocabulary in each unit. While completing the process, teacher guidance scaffolds support to develop the students' academic vocabulary. Teachers provide the first definition to students and then ask them to repeat the definition in their own terms. Next, students create visual representations, adding another layer of understanding. As students speak with peers and incorporate the vocabulary and meaning into conversations, they develop an even deeper understanding. Frayer model templates, which support several of the six steps, are provided at each unit and lesson level. Frayer models come partially completed to support students in processing new vocabulary. For example, "Unit 3, Lesson 1" provides a link to *equation,* which states the definition as "two equal expressions." In the example, the written equation is $2x + 5 = 15$. The facts/characteristics listed state, "Has an equal sign." Non-examples are left blank for the student to fill in. Blank Frayer models are also provided for

vocabulary terms not listed in materials or to provide support to learners who no longer need the partially completed template.

- *Math - Grade 8 (Teacher Course)* includes lesson materials and activities that are inclusive of and aimed at supporting students in listening, reading, speaking, and writing with new academic vocabulary. In each lesson's "Exploration" Section, "Support for Emergent Bilinguals" provides teacher guidance "to scaffold listening and speaking during mathematical discourse, as well as reading and writing to acquire and express understanding, including academic and classroom vocabulary." For example, the "Unit 6, Lesson 2" "Exploration" Section provides sentence stems to emergent bilingual students to build self-corrective techniques and monitor their oral language production. Sentence stems include the following: "What I hear you say is . . ." and "Please say that again." Each lesson's "Exploration" Section also scaffolds learning through the "Instructional Hints" Section, which offers advice and nudges to engage students in the lesson at a deeper level. In "Unit 1, Lesson 1," the "Instructional Hints" Section recommends connecting prior knowledge of previously learned vocabulary: "Encourage students to estimate to determine whether their answers are reasonable. This will help students who struggle with determining whether the exponent in scientific notation should be positive or negative as they convert their answers back into standard decimal notation."
- Scaffolds and guidance are also provided after students have been introduced to new mathematical vocabulary. In the "Explanation" component of each lesson, students read the "Tell Me More" Section and analyze stepped-out examples; scaffolds also provide the "You Try It" problems, which include peer discussions, personal reflections, and questioning to engage in the problem-solving process. For example, in the "Unit 1, Lesson 3" "Explanation" Section, students compare sets of numbers and build their vocabulary for the words *real numbers*, *subset*, *rational numbers*, *integers*, *whole numbers*, and *natural numbers*. These vocabulary terms repeat throughout the lesson and appear in instructions when students work through practice problems. Additionally, "Example 2" presents students with the following "You Try It" problem: "Place the numbers 8.25, -7 ½, 6, -11, and -20 in the correct sets in the graphic organizer." A nested Venn diagram is drawn with *whole numbers* inside *integers* inside *rational numbers*. In the "Unit 6, Lesson 1" "Explanation" Section, built-in questions prompt teachers to get students to discuss mathematical concepts: "What is the difference between linear and non-linear associations in data?"

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.

- *Math - Grade 8 (Teacher Course)* provides multiple opportunities for students to use appropriate mathematical language. Unit and lesson internalization protocols plus conversation guidance develop students' math toolkits over time. Opportunities include instructional hints, support for emergent bilingual students, and student support for reasoning

and productive struggles. The "Teaching Hints" Section provides guidance in each lesson overview, and the "Instructional Hints" Section supports teachers during each lesson's "Exploration" Section. The "Teaching Hints" Section from "Unit 3, Lesson 3" includes specific details about students' procedural understanding from "Unit 3, Lesson 2" and works the process in the opposite direction. Materials engage students by "asking students to make a Venn diagram to compare and contrast properties of Sequence 1 and Sequence 2." As students complete the comparison, possible vocabulary words include *distributive property, equation, and inequality*. The "Exploration" Section includes teacher support for mathematical discourse throughout each lesson, providing opportunities for students to hear math language with peers. "Unit 8, Lesson 1," encourages such discourse as it states, "Explain why sets of squares that do not create a right triangle do not follow the Pythagorean Theorem. Justify how the Pythagorean Theorem allows them to determine the distance between two points on a coordinate plane by using the coordinate plane gridlines to create the legs of a right triangle."

- Teacher guidance is embedded in the materials to prepare for and facilitate strong student discourse grounded in lesson vocabulary and mathematical concepts that utilize appropriate academic terms. For example, in grade 8 unit lessons, various types of questions are included for the teacher to open discussions with students by using small group discussions, whole-group debriefing questions, personal reflections, analysis of worked-out examples, and math journal entries. For example, in the "Unit 5, Lesson 3" instructional video, students hear about functions and look at examples as shown in a table; the video pauses for a journal entry, asking students, "What is a characteristic that makes relation a function?" and "Could a function have more than one *x*-value that generates the same *y*-value? Why or why not?" Students include mathematical language and syntax as they provide their responses. In addition, the "Exploration" Section provides guidance for teachers through "Support for Emergent Bilinguals," which provides students with opportunities to listen and speak mathematically. "Unit 3, Lesson 1" states, "Placing emergent bilinguals in small groups with their peers provides a safe environment for them to sharpen their skills using the English language while they are learning about mathematics." "Unit 5, Lesson 4" includes specific prompts for student discourse and gives information using context-based vocabulary. The guidance says, "In this lesson, students display, explain, and justify ideas about what the graph of a linear equation means in terms of the variables in the equation and use those ideas to justify arguments." Sentence stems support syntax and help refine discourse for emergent bilingual students, providing a place to begin the discussion: "Why did you do that step when you . . .?" and "I solved it this way because . . ."
- Each lesson's "Exploration" and "Explanation" Sections offer discussion questions that support students in their reasoning and productive struggle by facilitating conversations. Discussion questions encourage mathematical conversations among students without restricting their responses. In the "Unit 4, Lesson 3" "Explanation" Section, as students understand multiple ways to represent proportions, teachers prompt thinking and promote discourse by asking, "How do you find a slope/*y*-intercept in a table?" In the "Unit 6, Lesson 1" "Explanation" Section students learn about linear and non-linear bivariate data. As the teacher facilitates mastery, one question materials provide is, "What pattern(s) do you notice in the data? What is the difference between linear and non-linear associations in data?" Student responses require refined math language and proper syntactic structures. Teachers incorporate student responses to delve deeper, clarify, and redirect.

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 process standards 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.

- *Math - Grade 8 (Teacher Course)* presents a *Grade 8 Scope and Sequence* document with Texas Essential Knowledge and Skills (TEKS) citations, including process standards. The table presented lists every standard and then checks off all units that include that standard. Each of the seven process standards is included in course materials and spiraled throughout the year. For instance, in the *Grade 8 Scope and Sequence*, the TEKS alignment chart states that 8.1C will be incorporated into "Units 1, 3, 4, and 10." "Unit 5" contains 8.1A, 8.1D, 8.1F, and 8.1G.
- Each unit document identifies the TEKS and content for each lesson, process standards, and prior TEKS from previous grades. In the grade 8 "Unit 1" document, process standards 8.1A, 8.1C, and 8.1E will be included in the unit on decimals, fractions, and percents.
- Materials also include a problem-solving template that meets the criteria of the process standard TEKS 8.1B, which states that students use a problem-solving model that includes analyzing information, formulating a plan, finding a solution, justifying and evaluating that solution, and evaluating the process. The template is divided into six sections that follow the standard exactly. Teachers and students can access two copies of the templates: one leaves each section blank and the other provides questioning and narrative support. For example, when students evaluate the problem-solving process, one question to prompt thinking asks, "Next time you use this problem-solving process, what would you do differently?"

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

- Within the *Grade 8 Mathematics Scope and Sequence* document is the "Rationale for Unit Progression" which states unit materials are strategically sequenced with connections to the "Texas Response to the Curriculum Focal Points (TxRCFP)," creating TEKS-aligned instructional materials in a logical progression. The process standards are all incorporated in the "TxRCFP" and are woven throughout the course.
- Within the *Grade 8 Mathematics Teacher's Guide*, "TEKS Alignment of Activities, Learning Objectives, and Unit Assessments" describes the alignment of the TEKS to course materials. It clearly explains which process TEKS are the focus, but many others spiral and may be assessed. Teachers can see which standards align with each item on the assessment answer keys. The description in the *Grade 8 Mathematics Teacher's Guide* states that the process TEKS listed within each lesson are specifically targeted, but those may not be the only process standards students meet.

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

- At the unit level, process standards are not listed on the overview page. There is a downloadable document for each unit with all the TEKS, including the process standards. They are listed with the content TEKS but do not include a description or explanation for which process standard goes with which lesson in the unit, or how they build or connect to previous and future units. This overview is more focused on content TEKS. For example, in the downloadable grade 8 "Unit 3" document, TEKS 8.1A and 8.1C are listed with the content TEKS, but are not mentioned in the unit overview or introduction.
- The grade 8 "Unit Overview" describes how process standards are incorporated throughout the unit. For example, "Unit 1" states students incorporate standard 8.1F as they "extend their knowledge to include describing the relationships among sets and subsets of real numbers, including both irrational and rational numbers." Grade 8 "Unit Overview" materials describe how process standards are connected throughout the unit. For example, "Unit 3" explains that in grade 6, students "wrote, modeled, and solved one-variable, two-step equations and inequalities and wrote contextual problems given a two-step equation or inequality." In grade 8, students write, model, and solve one-variable equations that have variables on both sides of the equal sign.

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

- *Math - Grade 8 (Teacher Course)* includes the "Overview of Process Standards" at the lesson level. This document identifies the process standards used in the lesson content and specifies how each is incorporated. For example, for standard 8.1C, the "Unit 3, Lesson 1" "Overview of Process Standards" explains that students will select tools to solve one-variable equations with variables on both sides of the equal sign. Techniques and strategies may include the

following: pencil and paper, manipulatives, graphing technology, mental math, and estimation (rounding or compatible numbers).

- The following lesson applies standard 8.1E in lesson content. The "Unit 7, Lesson 2" "Overview of Process Standards" states that students "use number patterns from lists of points to generalize an algebraic representation for a dilation and construct a list of points from a graph, or vice versa, in order to look for number patterns."
- The following lesson applies standard 8.1F in lesson content. The "Unit 4, Lesson 1" "Overview of Process Standards" explains that students analyze mathematical relationships among similar right triangles, slopes, and rates of change. Students will draw several similar right triangles to analyze number patterns and draw conclusions about the slope. Students can organize data in a table to analyze the relationships and connect mathematical concepts.

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 to 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.

- *Math - Grade 8 (Teacher Course)* materials explain opportunities throughout the course where students think mathematically and make sense of grade level. The "Recommended Use of All Materials" Section includes the research-based instructional strategy, "Depth of Key Concepts." Activities and tasks balance conceptual and procedural knowledge to help students build problem-solving skills by weaving together process standards and content knowledge and skills. For example, in "Unit 1, Lesson 1," the Texas Essential Knowledge and Skills (TEKS) includes process standard 8.1A and content standard 8.2C.
- The materials consist of regular practice exercises and daily assessments that require students to showcase a deep understanding, engage in critical thinking, and persevere through problem-solving. In the "Unit 7, Lesson 4" "Exploration" Section, teachers offer opportunities for students to discuss similar figures after video segments and "Blackline Masters." In the "Unit 8, Lesson 3" "Exploration" Section, students interpret, analyze, and generalize angle relationships while completing the lesson task sheet.
- The *Grade 8 TEKS Companion Guide* teacher manual explains that the "You Try It!" problems in the "Explanation" portion of the lesson help students apply their immediate understanding of skills and concepts after working through a similar stepped-out problem. Students employ the step-by-step process and develop a growth mindset while solving problems. For example, in the "Unit 1, Lesson 2" "You Try It!" activity, students approximate the value of $\sqrt{23}$ by plotting and comparing perfect squares on a number line.
- The "Explanation" Section guides teachers to support students in their "productive struggle;" materials provide "Advancing Questions" designed to get students to think mathematically. Teachers ask the advancing question and then walk away, allowing students time to make

sense of lesson concepts. For example, in "Unit 1, Lesson 2," one advancing question asks, "What does it mean to take the square root of a number?" Later, in independent practice, practice opportunities scaffold appropriately to help students make sense of math and build the perseverance to work through the concepts.

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

- Each unit provides a problem-solving template in which all six steps support students' understanding that there can be multiple ways to solve problems and give them appropriate support to explain and justify their answers to any problem or task. The template includes the following steps: analyzing information, formulating a plan, finding a solution, justifying and evaluating that solution, and evaluating the process. Teachers and students have access to two copies of the templates offering various levels of support: one leaves each section blank and the other provides guidance questions. For example, when students evaluate the problem-solving process, one question to prompt thinking asks, "Next time you use this problem-solving process, what would you do differently?"
- In lesson materials, the "Exploration" Section includes mathematics tasks and questions, where students practice representation, writing, and discussion are practiced by students. Students explain and justify multiple ways to solve problems in journal entries. Instructional videos relay concept information to support teachers and students. For example, in "Unit 2, Lesson 1," the video explains and models mean and mean absolute deviation; the journal entry provides a real-world example and asks students to find the mean and standard mean of deviation using a student's social studies grades. They resume the video to check for accuracy. In the "Unit 7, Lesson 3" "Exploration" Section, students use a set of rectangles to calculate which ones are similar. Students are challenged to justify in the following ways: represent a proportion that could be used to determine similarity, sketch their own rectangle that would be similar, and determine scale factors. Finally, their solutions are presented by students as they explain the relationships among similar shapes.
- "Performance Tasks" at the end of each lesson include teacher notes with question stems for probing and supporting students. "Performance Tasks" require students to explain or justify that there are multiple ways to solve a problem. For example, the "Unit 3, Lesson 5" "Performance Task" asks students to review two cell phone talk-and-text plan options to determine ways to represent them mathematically. Students choose how to represent each plan, like using an equation, graph, table, or other method, or multiple representations. Guidance for the teacher in evaluating student responses includes, "justification for which plan is better based on the number of talk minutes and student justification of choices of solution strategy." In the "Unit 4, Lesson 1" "Performance Task," students determine the slope of a playground slide by selecting various points. Students use a ratio of rise/run from each pair of points and justify their choice of solution strategy.

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

- Each "Exploration" Section of all lessons for *Math - Grade 8 (Teacher Course)* includes instructional videos. Videos provide journal time for students to write and discuss math with peers and teachers. For example, the "Unit 4, Lesson 4" "Exploration" video provides students with a sentence to copy in their math journals, explaining how a process column can help determine the arithmetic expression. Students then make sense of their math work by sharing it with a peer and comparing their answers to the solution provided in the video. The sentence helps focus student discussion of mathematical thinking, possible solution strategies, and connections between strategies. "Unit 7, Lesson 4" guides teachers to have students "use routine language for classroom communication by engaging in a classroom discussion about the content in the video and their experiences with the activity sheet."
- Each lesson's "Exploration" Section provides instructional hints that involve students writing or speaking about math to make sense of their learning. For instance, "Unit 5, Lesson 2" suggests students draw a Venn diagram to understand linear and exponential relationships better. In "Unit 8, Lesson 3," the instructional hint states, "Consider asking students to create a non-example for each relationship and explain it to you and/or a partner to check their understanding."
- The "Exploration" Sections provide guiding questions that lead discussions to deepen student understanding in a variety of ways. The "Unit 5, Lesson 2" "Exploration" Section provides teachers with instructional hints such as, "Consider asking students to make a Venn diagram to compare and contrast properties of Sequence 1 and Sequence 2 to help students identify differences between linear and exponential relationships that they will study throughout this unit." A guiding question from this section that promotes more thinking is, "What do you think it means for a situation to be non-proportional?" "Unit 8, Lesson 1" includes specific prompts for teachers to use with students to promote student discussions of math with peers. Students examine sets of squares to discuss which sets of squares do not follow the Pythagorean theorem. Students also justify using the Pythagorean theorem to determine line segments when using a coordinate plane. The "Explanation" Section continues to make sense of math by instructing teachers to ask, "How might the Pythagorean Theorem be useful in this problem?"

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.

- *Math - Grade 8 (Teacher Course)* provides teacher support to foster conversations with students. In each lesson Exploration, teachers use guiding questions to promote students' problem-solving throughout the task as student explanations guide conversation. After watching the instructional video and completing the corresponding "Blackline Masters" activity, the class engages in a debriefing activity where they must explain conceptual understandings. For example, in the "Unit 3, Lesson 1" "Exploration" Section, students explain their thinking through the problem, prompted by the teacher's questions, including, "Are there any like terms?" and "Once you have the variable term isolated, how can you represent division with the Algebra tiles?" In the "Unit 5, Lesson 1" "Exploration" Section, as students work in small groups on the "Blackline Masters activity," students explain, "How can you determine the *y*-value in this table?" Student explanations focus the conversation and enable the teacher to gauge their level of understanding.
- During the "Explanation" Section, teachers allow students to have "productive struggle" as they analyze stepped-out examples in the lesson in small groups or pairs. Students collaborate to "formulate a plan, justify the solution, and evaluate for reasonableness." During this, guided questions move students' thinking forward as they defend arguments for their process. General questions can be used in all units and all lessons; for example, "How did you use a mathematical formula or procedure to determine your answer" and "How did a problem-solving process help you determine your solution?" Some questions guide teachers with specific, concept-related questions that support student thinking. For example, in "Unit 6, Lesson 3," as students understand how to write equations for linear functions, the teacher asks, "How does this situation represent the *y*-intercept of a line?" Next, as teachers give direct instruction, materials suggest they stop mid-problem and ask students how they know to do a step and consider different approaches. With this process, students engage in whole class arguments, defending their thinking and conceptual development.

- Each lesson provides open-ended "Performance Tasks" and assessments that give students opportunities to communicate their reasoning and assess understanding. Each "Performance Task" asks students to work through real-world situations and justify their reasoning. "Performance Tasks" are designed to be partner work, and students are encouraged to offer justifications to explain the best strategy used in their solutions. In the "Unit 3, Lesson 3" "Performance Task," "Wedding Candles," questions include, "Can you rephrase what the problem is asking?" and "What representations might you use?" Some options include pictorial models, number lines, and algebraic properties. As students work, the teacher nudges their conversations and direction with guiding questions. These include, "How did you determine your answer?" and "What evidence from the problem/task supports your answer?" Students provide justifications and reasoning.

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

- The *Grade 8 Mathematics Teacher's Guide* includes a "Providing Students Effective Feedback" Section. The article explains to teachers that focused, actionable feedback supports students in productive struggle, scaffolding development to a deeper level of understanding. In the "Explanation" Section of each lesson, materials suggest teachers "support student reasoning and productive struggle through questioning." The teacher monitors independent practice and uses questions provided to clarify information, focus the student on problem details, and advance the student's level of understanding. The following focusing question is from the "Unit 1, Lesson 1" "Explanation" Section: "What kind of model could you use to represent this number?" Guidance to assist teachers with explanatory feedback is provided in the "Performance Tasks;" each provides teacher notes and a sample solution. "Mathematically speaking..." explains the task to teachers and also offers feedback for student responses. For example, the "Unit 3, Lesson 1" "Performance Task," "Advertising," explains to the teacher that students might need a visual representation to solve inequalities with variables on both sides as some are not ready to solve the situation without manipulatives. "Look fors" provide a bulleted list to guide teachers in finding areas for feedback. An example warns teachers to "look for... an appropriate solution strategy to determine the values of the variable as greater than 8."
- The *Grade 8 Mathematics Teacher's Guide* includes "Common Misconceptions in Grade 8 Mathematics." The guide includes common misconceptions students may make throughout the year, such as, "Students may confuse lateral area with total surface area." It further guides teachers with feedback that corrects misconceptions, provides practice opportunities for newly learned concepts and skills, strengthens understanding, and empowers students not to repeat mistakes.
- All lessons include "Instructional Hints" and "Teaching Hints" that provide teachers with ways to address common misconceptions, and dialogue to ensure students achieve mastery. The "Unit 3, Lesson 2" "Exploration" Section includes the following "Instructional Hint:" "Encourage students to visualize themselves in the problem to look for the action in the situation that will help them translate the words in a situation into an equation or inequality." Materials prompt teachers to guide students in the Three Reads protocol, chunking the

problem to understand the situation better. This process allows teachers time to understand at which point the understanding may break down and offer feedback on student responses.