

# IMRA Review Cycle 2024 Report



Publisher Name	Program Name
Agile Mind, Inc.	Texas Mathematics
Subject	Grade Level
Mathematics	8

**Texas Essential Knowledge and Skills (TEKS) Coverage:** 100%  
**English Language Proficiency Standards (ELPS) Coverage:** 100%  
**Quality Review Overall Score:** 227 / 227

## IMRA Reviewers

**Flags for Suitability Noncompliance** 0

Indicator	Count of Flags
1. Prohibition on Common Core	0
2. Alignment with Public Education’s Constitutional Goal	0
3. Parental Rights and Responsibilities	0
4. Prohibition on Forced Political Activity	0
5. Protecting Children’s Innocence	0
6. Promoting Sexual Risk Avoidance	0
7. Compliance with the Children’s Internet Protection Act (CIPA)	0

**Flags for Suitability Compliance** 0

Indicator	Count of Flags
Alignment with Public Education’s Constitutional Goal, 2.1.1	0
Promoting Sexual Risk Avoidance, 6.2	0

**Alleged Factual Errors** 0

## Public Feedback

**Flags for Suitability Noncompliance** 0

Rubric Indicator	Count of Flags
1. Prohibition on Common Core	0
2. Alignment with Public Education’s Constitutional Goal	0
3. Parental Rights and Responsibilities	0
4. Prohibition on Forced Political Activity	0
5. Protecting Children’s Innocence	0
6. Promoting Sexual Risk Avoidance	0
7. Compliance with the Children’s Internet Protection Act (CIPA)	0

**Alleged Factual Errors** 0

**Public Comments** 0

# Quality Review Summary

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

## 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.
- **1.2 Unit-Level Design:** Materials include comprehensive unit overviews that provide background content knowledge and academic vocabulary necessary for effective teaching, and contain supports for families in both Spanish and English with suggestions for supporting their student's progress.
- **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.
- **2.1 Instructional Assessments:** Materials include a variety of instructional assessments at the unit and lesson levels, including diagnostic, formative, and summative assessments with varied tasks and questions, along with definitions and purposes, teacher guidance for consistent administration, alignment to TEKS and objectives, and standards-aligned items at different levels of complexity.
  - **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.

- **4.2 Coherence of Key Concepts:** Materials demonstrate coherence across courses and grade bands through a logically sequenced scope and sequence, explicitly connecting patterns, big ideas, and relationships between mathematical concepts, linking content and language across grade levels, and connecting students' prior knowledge to new mathematical knowledge and skills.
- **4.3 Spaced and Interleaved Practice:** Materials provide spaced retrieval and interleaved practice opportunities with previously learned skills and concepts across lessons and units.
- **5.1 Development of Conceptual Understanding:** Materials include questions and tasks that require students to interpret, analyze, and evaluate various models for mathematical concepts, create models to represent mathematical situations, and apply conceptual understanding to new problem situations and contexts.
- **5.2 Development of Fluency:** Materials provide tasks designed to build student automaticity and fluency for grade-level tasks, offer opportunities to practice efficient and accurate mathematical procedures, evaluate procedures for efficiency and accuracy, and include

embedded supports for teachers to guide students toward more efficient approaches.

- 5.3 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

- No challenges were noted in the materials.

## Summary

Agile Mind *Texas Mathematics* is a mathematics grades 6–8 program aligned to the Texas Essential Knowledge and Skills (TEKS) and the English Language Proficiency Standards (ELPS). The materials provide a detailed scope and sequence, a year-at-a-glance with pacing guides for various instructional days, a lesson alignment guide connecting each lesson to the appropriate TEKS, and a support guide connecting to possible intervention lessons. Each topic includes detailed lessons and guidance for teachers and digital activities for students to discover the concepts and practice for students to apply their learning. Topic and lesson vocabulary are linked to the glossary; definitions in English and Spanish are provided, along with visual examples. Tasks are embedded within the lessons to extend and solidify student learning and understanding. Each topic concludes with a topic assessment, which includes a variety of interactive question types, such as multiple choice, drag and drop, and inline choice. The program includes professional support essays for teachers and instructional leaders to help teachers

utilize the material to support all students. Additionally, the program includes a family support website with videos to guide families in accessing the resources available to help students learn at home.

Campus and district instructional leaders should consider the following:

- The materials includes resources for helping students learn how to track and monitor their growth through the use of Specific, Measurable, Achievable, Relevant, and Time-Bound (SMART) goals and whole-class review of most-missed questions for assessments.
- The materials include assessments designed for each topic, including sample formative and summative assessments and interim assessments covering various topics for each grade level. Teachers can use the questions provided in the product to create their own assessments.

## Intentional Instructional Design

1.1	Course-Level Design	15/15
1.1a	<a href="#">Materials include a scope and sequence outlining the TEKS, ELPS, concepts, and knowledge taught in the course.</a>	5/5
1.1b	<a href="#">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).</a>	2/2
1.1c	<a href="#">Materials include an explanation for the rationale of unit order as well as how concepts to be learned connect throughout the course.</a>	2/2
1.1d	<a href="#">Materials include guidance, protocols, and/or templates for unit and lesson internalization.</a>	2/2
1.1e	<a href="#">Materials include resources and guidance to support administrators and instructional coaches with implementing the materials as designed.</a>	4/4

**The materials include a scope and sequence outlining the TEKS, ELPS, concepts, and knowledge taught in the course. Materials include suggested pacing to support effective implementation for various instructional calendars. 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 and protocols for unit and lesson internalization. Materials include 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.**

- The materials in the "Professional Support" Sidebar under the "Course Planning and Pacing" dropdown menu include a comprehensive grade 8 *Scope and Sequence Guide*, detailing the progression of math concepts and knowledge taught throughout the academic year. For example, the guide states, "In Mathematics 8, students apply their previous understandings of ratio and proportional reasoning to the study of linear functions, equations, and systems, including a deep understanding of slope." The material allows teachers to understand the required concepts and knowledge present in the course.
- The materials divide the six units into topics, including a description of each. Each topic aligns with the English Language Proficiency Standards (ELPS), corequisite Texas Essential Knowledge and Skills (TEKS), and indicates which TEKS are foundational for future work. For example, the document shows that Topic 1 will incorporate TEKS 8.3, 8.8, and 8.10 and ELPS 1.B, 1.D, 1.F, 3.C, 3.J, 4.C, 4.E, and 5.B.

**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 in the grade 8 *Scope and Sequence Guide* suggest lesson pacing to support the effective implementation of the TEKS and course requirements. For example, above the table, it states, "These course materials are designed to support 122–131 lessons (1 lesson equals 45 minutes)."
- The materials under the "Professional Support" Sidebar in the "Course Planning and Pacing" dropdown menu include a grade 8 year-at-a-glance document. The document outlines the sequence of instruction for three calendars with varying days of instruction: 122–131 days, 165 days, and 180 days. Each topic aligns to the ELPS, corequisite TEKS, and grade 8 TEKS. It also indicates which TEKS are foundational for future work and notes the readiness standards.
- The pacing guides for each of the various days of instruction include suggested pacing for each unit and each topic within the unit. For example, the pacing guide for 122–131 days of instruction states that "Unit 2" suggests eighteen instructional days to support effective implementation of the required TEKS and overall knowledge. Within that unit, "Topic 2" suggests 9 days of instruction.

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

- The materials under the "Professional Support" Sidebar in the "Course Planning and Pacing" dropdown menu include the *Texas Mathematics 8 Course Rationale*. It states, "The Texas Mathematics 8 course provides students the opportunity for a deep study of linear functions and their graphs, and activities involving linear functions and equations...as students explore the content of the TEKS, they will make connections to reinforce proportional skills, such as scaling shapes, identifying and representing constant rates, solving problems with unit rates and percents, and describing proportional relationships using equations, tables, graphs, and words." These explanations detail the sequencing of lessons to establish foundational skills before advancing to more complex ones.
- The "Prepare Instruction" Resource outlines what each unit will cover and how the lessons are connected. The materials explain how the new topic connects with preceding and subsequent ones. For example, in "About this topic," "Topic 4" states, "Going far beyond the mere plotting of points, this topic, *Analyzing graphs*, is designed to help students connect real-life situations with what students know about making graphs."

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

- The material in the "Professional Support" Sidebar includes "Getting Started," which contains the resource "Lesson Planning and Practice." This resource highlights strategies for teachers to internalize the lesson plan and unit plan. For example, it states, "Practice the planning and facilitation process for a block of instruction from a course that you teach." The material allows teachers to explore and master the content they will teach.



- Each unit is populated in the "Topic Content" Sidebar. The "Prepare Instruction" Resource includes guidance to help teachers internalize the materials for the whole topic, including language support and support for teaching special populations. For example, "Topic 1: Transformational geometry and similarity" shares specific strategies that can be used to teach students of special populations throughout the unit. It states, "Think-alouds, graphic organizers and other visual representations of concepts and problems, and explicit instruction with demonstrations of self-monitoring and self-checking behaviors are strategies for these students. These strategies support students' understanding of both the mathematics and their own thought processes."
- The "Deliver Instruction" Resource at the beginning of each lesson includes an internalization protocol with the guidance necessary to implement effective instruction. The resource provides lesson goals and objectives, opening and framing questions, lesson activities, further questions, suggested assignments, and suggestions on using all resources effectively, including text, embedded technology, enrichment activities, research-based instructional strategies, and supports to enhance student learning. The resource states in "Topic 1, Lesson 2, Classroom strategy," "Throughout this topic watch for students that are plotting a transformation without looking at the coordinates. A sign of this is when the resulting image of a reflection ends up being a translation."
- There is no evidence of templates for unit internalization.

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

- The "Leadership Guide to Success" Resource included in the "Professional Support Overview" Tab provides a checklist, timeline, and key milestones for leaders for successful implementation. It also includes a classroom observation guide to rate a variety of implementation indicators with the teacher's level of use. The classroom observation guide includes four categories with indicators under each. The administrator and/or instructional coach can use the guide to offer feedback to the teacher. The "Structures for Successful Implementation: A Checklist for Leaders" Section states, "The following are some critical elements of a successful implementation. Use this chart to develop plans and monitor progress for each structure or strategy within your school or district." Administrators can utilize the checklist while observing a teacher's classroom to ensure the materials are being implemented as designed.
- The "Professional Support" Sidebar within the "Professional Support Overview" includes information about live lessons, stating, "In addition to the supports in our system, we offer ongoing professional learning opportunities to teachers and leaders to assist you in making best use of our programs." The description for coaches and instructional leaders states, "These sessions explore how education leaders can make the most of their implementation and equip leaders with tools and guidance to support their teachers."



## Intentional Instructional Design

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

**The materials include comprehensive unit overviews that provide the background content knowledge and academic vocabulary 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 student.**

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.**

- At the start of each topic, the "Prepare Instruction" material offers a detailed overview. It includes the essential content knowledge to teach the concepts in the unit effectively. The material states how the lessons within the topic connect the topic as a whole. For example, "Grade 8, Topic 5" states, "The topic *Exploring rate of change in motion problems* builds on students' work with rates in the previous topic and in previous grades to deepen their understanding of this central concept."
- The "Prepare Instruction" materials include comprehensive background content and prerequisite skills for each topic. For example, in "Topic 8," the following skills are listed: plotting points on coordinate graphs; writing equations for patterns in  $y = mx + b$  form; calculating the median, mean, range, and interquartile range of a data set; calculating absolute value; displaying data in Dot plots, histograms, and stem-and-leaf plots; and converting fractions to decimals and percents.
- The "Language Support" Section in the "Prepare Instruction" materials for grade 8 outlines the specific language and academic vocabulary necessary for teachers to use. It also provides reinforced vocabulary words and collateral vocabulary as needed. For example, "Topic 8" states, "All students should become proficient in using the core vocabulary of linear association, bivariate data, positive association, negative association, trend line, outlier, frequency, random sample, and mean absolute deviation." The material explains some non-native speakers may also struggle with collateral vocabulary.
- A "Vocabulary" Section exists in each "Topic Content" Sidebar, listing the vocabulary words used in the lesson. Each word is linked to the "Glossary," where a definition and a pictorial representation or example are provided. For example, in "Topic 3," when *hypotenuse* is selected, the platform moves to its definition in the "Glossary" which states, "The hypotenuse of a right triangle is the side of the triangle that is opposite the right angle. In the image, CAT is

a right triangle with right angle A. CT is the side of the triangle opposite right angle A, so CT is the hypotenuse of triangle CAT." Beneath the definition is a drawing of CAT.

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

- The "Course Materials" Sidebar includes a "Support for Families" Tab. The link provided takes families to the *Support for Students and Families* website. The site includes instructional videos for using the online dashboard. The caption for the "Introduction for Students and Families" video states, "This brief video provides an introduction to programs and tools, and how these resources are used to support students' learning." It also provides a video instructing families how to access reports to track student progress. The caption states, "This brief video provides guidance for engaging with Assignments and Quizzes, and using their associated reports to monitor progress."
- The *Quick Start Guide for Texas Families* is available in both English and Spanish and contains support for families to use with the online materials. It states, "This guide will help you navigate key course components and resources available to you and your child...you and your child can access the online materials outside of class on any computer or tablet connected to the Internet." The materials provide directions for locating materials, such as, "Selecting a course directs you into Course Topics where you see the course syllabus." The guide provides step-by-step instructions for families on accessing and assisting with their student's progress.

## Intentional Instructional Design

1.3	Lesson-Level Design	34/34
1.3a	<a href="#">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.</a>	30/30
1.3b	<a href="#">Materials include a lesson overview outlining the suggested timing for each lesson component.</a>	1/1
1.3c	<a href="#">Materials include a lesson overview listing the teacher and student materials necessary to effectively deliver the lesson.</a>	2/2
1.3d	<a href="#">Materials include guidance on the effective use of lesson materials for extended practice (e.g., homework, extension, enrichment).</a>	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.**

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.**

- The *Scope and Sequence Guide* includes how objectives in the lesson are aligned to the Texas Essential Knowledge and Skills (TEKS) and the English Language Proficiency Standards (ELPS). In grade 8, for example, "Unit 3" lists TEKS 8.6 and 8.7 and ELPS 2.E, 2.I, 3.D, 3.E, and 4.F as standards addressed in the lessons.
- The "Deliver Instruction" materials include a comprehensive outline of instructional activities needed for each lesson or unit. The lesson plans include objectives, questions, and tasks that balance conceptual understanding, procedural skill fluency, and real-world application. For example, the objectives for "Topic 2, Lesson 1" state, "Review and describe the relationship between different types of real numbers. Know that there are numbers that are not rational."
- Each lesson is given an overall time frame, and each piece of the lesson is given a time frame. Each lesson starts with "Opening and Framing Questions," such as this example in "Topic 2, Lesson 1:" "How many numbers do you think there are between 0 and 1? Name as many as you can. Do you think there are numbers between 0 and 1 that you cannot name? Describe one of these numbers." The "Lesson Activities" Section includes teacher notes, support for emergent bilingual students and other special populations, guiding questions, technology tips, classroom strategies, and/or differentiation applicable to the individual activity. For example, "Topic 2, Lesson 1" states, "Use the language note on the page to help students

connect the meaning of rational and irrational outside of mathematics to the mathematical definition of rational and irrational numbers." Each lesson closes with "Further questions." For example, "Topic 2, Lesson 1" states, "Is there a rational number between  $\frac{1}{10}$  and  $\frac{2}{10}$ ? Can you think of two rational numbers that do not have another rational number in between them?" There are "Suggested Assignments" for students in each lesson, such as "Student Activity Sheet," questions 5a–f, 6a–c, 7, 8a–d, and 9, and "Staying Sharp 1" in "Topic 2, Lesson 1."

- The assessments in the grade 8 materials under the "Test Designs" Section are aligned with each lesson's content standards. For example, "Topics 6–8 Sample Summative Assessment" states, "This assessment, created from interim assessment blueprint #3 in the Mathematics 8 course, can be used to assess students on the concepts and skills covered in Mathematics 8 Topics 6–8. This can be used as a summative assessment after instruction. The items on this assessment also align to the TEKS and can provide data on your students' performance against your state standards." A question from the assessment states, "Which graphs represent functions? Select all that apply." It requires students to choose all graphs that represent a correct answer.

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

- The *Scope and Sequence Guide* includes suggested lesson pacing to support effective implementation of TEKS and course requirements. For example, the materials state, "These course materials are designed to support 121–131 lessons (1 lesson equals 45 minutes)."
- Each lesson in the grade 8 materials has an overview with a suggested overall time frame and time frames for each piece of the lesson under the "Deliver Instruction" Section. For example, in "Topic 1, Lesson 3," five minutes are allotted for opening and framing questions, thirty-five minutes for lesson activities, and five minutes for further questions.

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

- The "Prepare Instruction" material for each unit links to files including the "Advice for Instruction" document, "Student Activity Sheets," tasks for students, and keys for teachers. These are available on each lesson page. This list includes additional resources for the unit and denotes which lessons to use them with. For example, in "Topic 1," students will need graph paper, patty paper, scissors, colored pencils, 1:1 computers or tablets [Lessons 3, 5, 7, 9, 11], and a "Glossary."
- The "Deliver Instruction" material begins each lesson with links to the lesson files teachers and students need. The same materials are located in the "Prepare Instruction" material at the beginning of the topic. For example, in "Topic 1, Lesson 1" the following files are provided: "Lesson 1 Student Activity Sheet," "Lesson 1 Student Activity Sheet Key," "Staying Sharp 1," and "Staying Sharp 1 Key."
- The "Deliver Instruction" material guides teachers to effectively deliver the lesson, including teacher tips, language strategies, support for ELL and other special populations, fluency notes, technology tips, and other methods and strategies as applicable to the lesson. For

example, in "Topic 2, Lesson 3," teachers are provided a technology tip for page 4 of the "Lesson Activities" Section. It states, "Encourage students to find the value of on their calculators by dividing 22 by 7 or 333 by 106 with calculators. Have them compare these approximations to the one they get when you push the button on the calculator."

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

- Included in the "Deliver Instruction" materials for each lesson, under "Further Questions" for grade 8, are questions for the teacher to extend student learning. For example, "Topic 3, Lesson 1," asks, "Based on the Pythagorean triples that the ancient Egyptians knew (3-4-5, 5-12-13, and 20-21-29), is a triangle with side lengths 10-24-26 a right triangle? Why or why not? What about a triangle with side lengths 60-63-87? Why or why not?"
- The "Deliver Instruction" materials at the end of each lesson suggest assignments to continue the lesson activities. Extension activities are included in some lessons. For example, "Topic 1, Lesson 3" provides a "Student Activity Sheet" with guidance on how its questions can be used as an extension. It states, "Student Activity Sheet, questions 8, 9, 10a–b, 11a–b, 12a–d, 13a–c, 14. Question 14 has students create designs using reflections. Students draw a shape anywhere on the coordinate plane and then reflect it across both axes. Students do not need to record the coordinates for every point; rather, they perform the reflections, making sure that corresponding points are always the same distance from each axis. This activity can easily take a class period or two or could be a project outside of class."
- In the "Course Materials" Sidebar under "Course Topics," the materials include the units for the course and a set of appendices that support foundational knowledge and skills from prior grades. In grade 8, for example, the appendices include *Key Learning from Earlier Grades*, *Solidifying Your Skills with Rational Numbers*, *Solidifying Your Skills with Equations*, *Using Ratios*, *Patterns in Proportional Relationships*, *Representing and Interpreting Data*, *Solving Problems with 2-D Shapes*, and *Prisms, Pyramids, and Plane Sections*. Each appendix includes an overview of the topic, lessons, topic summary, practice, assessment, activity sheets, and advice for instruction. The *Solidify Your Skills with Equations* appendix includes an educational online activity providing interactive experiences to extend and enrich lesson or unit objectives. The "Overview" states, "In order to create and solve equations, you must have an understanding of the concept of equality. You've probably used the symbol '=' since you began learning math. But did you ever think about what it really means? Play this animation to analyze how the = sign relates to the concept of equality."

## Progress Monitoring

2.1	Instructional Assessments	24/24
2.1a	<a href="#">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.</a>	12/12
2.1b	<a href="#">Materials include the definition and intended purpose for the types of instructional assessments included.</a>	2/2
2.1c	<a href="#">Materials include teacher guidance to ensure consistent and accurate administration of instructional assessments.</a>	2/2
2.1d	<a href="#">Diagnostic, formative, and summative assessments are aligned to the TEKS and objectives of the course, unit, or lesson.</a>	6/6
2.1e	<a href="#">Instructional assessments include standards-aligned items at varying levels of complexity.</a>	2/2

**The materials include a variety of instructional 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. Materials include diagnostic, formative, and summative assessments aligned to the TEKS and objectives of the course, unit, or lesson. Materials provide instructional assessments that 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.**

- In *Approach to Assessment*, the materials outline the different types of assessments included within the curriculum at the unit and lesson level. For example, it states that the material "includes many ways to utilize assessment as a critical tool to inform and drive instruction with classes of students on a daily, weekly, or longer basis. This guide defines, describes, and provides guidance for three main assessment types and the ways they are utilized within the courses and 'Assessment': diagnostic, formative, and summative."
- The "Items and Answers" material under *Assessment* includes varying assessment questions and tasks. The questions and tasks can be sorted by question type, depth of knowledge (DOK), and reading level. Questions can be pulled by topic or by Texas Essential Knowledge and Skills (TEKS). Each question has a standard and/or topic alignment across multiple grade levels as applicable. There are explanations for distractors if they are used in the answer choices. The question includes a solution with an explanation and how the answer was obtained. For example, in item 01759 for grade 8, the solution explanation states, "The length of the side of the small square is 5 units. The length of the side of the medium square is 12 units. Using the Pythagorean Theorem, you can find that the length of the side of the large square is 13 units."



- The "Test Designs" material under *Assessment* offers sample-created and teacher-created diagnostic and summative assessments. Teachers can access the alignment document for the assessment by clicking the three dots on the right side, next to the number of pages. The alignment document provides information on the topics addressed in the assessment and the TEKS, student expectations, and the number of questions. The alignment shows the question number, the percent of the score, item type, cognitive complexity, reading level, topics, and standards or TEKS. For example, "Mathematics 8 Topics 6-8 Sample Summative Assessment (course-based)," shows that the twenty-one items on the diagnostic are each worth 5% of the score, have a cognitive complexity of DOK 1 or DOK 2, are at a reading level ranging from 1 to 8.4, and are aligned to grade 8 TEKS.
- The materials include a variety of instructional assessments at the lesson level, with varying questions and tasks. For example, "grade 8, Topic 4, Lesson 2" provides a formative assessment that states, "After the students have thought about and answered the questions, have them describe, in detail, how the person's position relative to the motion detector changes over the time interval from 0 to 7 seconds. Have students share their descriptions with a partner, giving them time to compare, contrast, and adjust. When finished, have students share with the whole group, looking for any inconsistencies that might reveal student misconceptions." The materials include topic assessments, such as "Topic 1, Lesson 11: Topic Quiz" which states, "This lesson is intended for a topic-level assessment." The assessment includes questions in various formats including multiple-choice, drag-and-drop, multiple-selection, and text entry.

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

- In *Approach to Assessment*, the materials outline the different types of assessments included within the curriculum at the topic and lesson level. For example, it states, "The materials include many ways to utilize assessment as a critical tool to inform and drive instruction with classes of students on a daily, weekly, or longer basis. This guide defines, describes, and provides guidance for three main assessment types and the ways they are utilized within the courses and 'Assessment': diagnostic, formative, and summative."
- The *Approach to Assessment* materials outline the definitions and purposes for each assessment. For diagnostic assessment, it states, "Diagnostic assessments are short assessments of students' knowledge and skills, given prior to instruction. They are intended to provide evidence of students' strengths and potential knowledge gaps in skills required to understand upcoming content." For formative assessment, it states, "The purpose of formative assessment is to elicit evidence that helps students and teachers identify strengths, misconceptions, and errors, and monitor progress toward identified success criteria, all to move student learning forward through modifying instructional decisions and student solution methods." For summative assessments, it states, "Summative assessments are a snapshot of retained learning and skills at the end of a period of time."
- Resources for "Getting Started," including practice and assessments, are in the "Professional Support" Sidebar. A National Council of Teachers of Mathematics (NCTM) research brief entitled *What Does Research Say the Benefits of Formative Assessments Are?* is included in



the materials. The article explains, "Assessment for learning is any assessment for which the first priority in its design and practice is to serve the purpose of promoting pupils' learning." The article refers to three different types of formative assessments: short-cycle (within and between lessons), medium-cycle (within and between instructional units), and long-cycle (across quarters, semesters, or years). The article suggests that for formative assessments to benefit student learning, they need to consider three processes: establish where they are in their learning, where they are going, and how to get there. The teacher is the facilitator and provider of feedback. The peer and the learner activate students as instructional resources and owners of their learning.

- The *Approach to Assessment* material features a range of assessment tools designed to measure comprehension of mathematical concepts and skills, including interim assessments. The material states "Users have access to long-cycle formative assessment in the form of interim assessment blueprints in the Professional Support area of each course. Content experts created each blueprint, which covers 2–4 topics of content and standards. These long-cycle formative assessments are meant to inform instruction and not to be evaluative."
- The *Approach to Assessment* material provides screenshots of the assessments and their utilization within the curriculum so teachers have clear guidance. The material includes teacher considerations. For example, it states, "These question prompts embedded in a lesson can be used by the teacher to promote student discourse and formatively assess understanding in the moment. They are supported by Check buttons that reveal a full response modeling correct usage of academic vocabulary and application of the lessons learning objectives."

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

- In *Approach to Assessment*, the material outlines guidance to ensure consistent and accurate administration of the assessments. For example, it states, "This guide defines, describes, and provides guidance for three main assessment types and the ways they are utilized within the courses and 'Assessment': diagnostic, formative, and summative...teachers should standardize administration across their classes while being careful to ensure students are given the appropriate modifications and scaffolds, as needed." This provides standard and consistent guidance to teachers.
- The grade 8 "Deliver Instruction" Section of each lesson includes teacher guidance to ensure consistent and accurate administration of instructional assessments. For example, in "Topic 6, Lesson 8" there is guidance for the teachers for the "Constructed Response 2" lesson activity, including a key for scoring. It provides teacher guidance, for example, stating, "Classroom strategy. Give students ample practice and expose them to a variety of patterns. Require students to constantly connect the different representations (concrete, verbal, numeric, algebraic, and graphical). Allow students to work together and encourage them to share their thinking about problems. Above all, be open to different approaches and give students plenty of opportunities to verbalize—and to demonstrate concretely—how they think

about different patterns." This provides teachers an overview of how to ensure students are consistently experiencing the assessment.

- The "Practice and Assessment" material in the "Professional Support" Sidebar under "Getting Started" provides video clips outlining the framework for formative assessment from NCTM and how the material's comprehensive tools support assessment for learning. The videos include instructions on scheduling assignments, assignment reports, scheduling quizzes, and score and review tools in the materials.

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

- In the "Deliver Instruction" Section for the lessons in grade 8, assessments align to the TEKS and objectives for each lesson. For example, for "Topic 2, Lesson 6," the formative assessment questions a teacher is guided to ask to gauge student understanding in "Opening and Framing Questions" include, "Remind students that they have just finished learning how to approximate the value of irrational square roots. Ask: How can you tell if a square's side length is rational or irrational? What's the difference between rational and irrational numbers?" The constructed response assessments can be leveraged as a lesson summative assessment, including posed teacher questions such as, "Is there more than one way that a square with side length AB can be drawn on this coordinate grid? What process or pattern are you using to draw the other three sides of the square?" These tasks are aligned to the lesson and unit objectives, for example, "Approximate the value of a square root by using the model of a square. Graph real number ordered pairs on a coordinate graph, estimating when necessary."
- The final lesson of each topic includes a topic quiz. For example, "Topic 1, Lesson 11" states, "This lesson is intended for a topic-level assessment."
- The questions align to the TEKS and objectives addressed within the topic in the "Prepare Instruction" material. For example, question 2 provides two sets of ordered pairs and asks, "What transformation was performed?" The question aligns to the topic objectives: know the four different transformations, find a sequence of transformations that map one figure onto a congruent or similar one, and represent the effects of a transformation using coordinates.
- The *Assessment* material includes "Items and Answers," which offers varying assessment questions and tasks. The questions and tasks can be sorted by question type, DOK, and reading level. Questions can also be filtered by topic or TEKS. Each question has a standard and/or topic alignment across multiple grade levels as applicable. For example, in grade 8, by selecting items by topic, teachers choose the topic from the course materials in the appropriate grade level, and questions are presented that align with the TEKS addressed in the topic. For example, selecting "Topic 7" populates two hundred three questions that correspond with standards addressed within the topic. When selecting items by standard, teachers can use the TEKS standard set, grade level, and TEKS items to include in the populated questions. The items then show the standard and topic alignments for the problem. For example, grade 8 item 01597 aligns with TEKS 8.04.C and A1.03.B and "Topics 4, 5, and 7" of the materials.

- The *Assessment* material includes "Test Designs" which provides sample diagnostic and summative assessments. By selecting any assessment, the TEKS addressed are listed along with the number of questions aligned to the TEKS. For example, "Mathematics 8 Topics 6–8 Sample Summative Assessment (course-based)" lists five questions addressed in "Topic 6" with TEKS 8.05, eleven questions addressed in "Topic 7" with TEKS 8.04 and 8.05, and five questions addressed in "Topic 8" with TEKS 8.05 and 8.11.
- The "Professional Support" Sidebar includes "Interim Assessments." For example, the grade 8 material "Interim Assessment 1" blueprint demonstrates alignment with the grade standards. The material states, "Use the blueprint to create a course-based test design in *Assessment* aligned to" Topics 1-2. The material includes a table organized by topic that lists the item identification number (item ID), item type, cognitive complexity, reading level, and standards aligned to the TEKS.

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

- The *Assessment* material "Items and Answers" offers a variety of assessment questions that can be sorted by question type, DOK, and reading level. The DOK levels available for sorting encompass four tiers. The items bank includes technology-enhanced items such as inline choice, hot spot, and multi-select, providing instructional assessments that incorporate standards-aligned items across different levels of complexity. For example, in grade 8, selecting TEKS 8.02.C populates twenty-two items that range from DOK 1 to DOK 3. The items include multiple-choice and drag-and-drop item types.
- The *Assessment* material "Test Designs" offers sample-created and teacher-created diagnostic and summative assessments. Teachers can access the alignment document for the assessment by clicking the three dots on the right side, next to the number of pages. The alignment document provides information on the topics addressed in the assessment and the TEKS, student expectations, and the number of questions. The table within the alignment shows the question number, the percent of the score, item type, cognitive complexity (DOK), reading levels, topics, and TEKS. For example, in "Mathematics 8 Topics 6–8 Sample Summative Assessment (course-based)," page 1 refers to the first problem of the assessment and provides the item ID 05694, explains that the problem represents 5% of the score, is a multiple selection item type at a DOK 1 and reading level 5.1, and is addressed in "Topic 6" with TEKS 8.05.G and A1.12.A.
- Within the topic lessons, various assessments provide different levels of complex questions. For example, "Topic 2, Lesson 6" allows students to engage in standards-aligned items at varying levels of complexity in the "Lesson 6 Student Activity Sheet." For example, there are questions to begin the lesson such as, "1. PRACTICE For each pair of numbers, decide which is the larger number. (Do not use a calculator.) Explain your reasoning." The material then extends student thinking with questions such as, "2. PRACTICE Write a square root whose value falls between 8 and 9."

## Progress Monitoring

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

**The instructional assessments that include standards-aligned items at varying levels of complexity. 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 "Professional Support" Sidebar includes the "Professional Learning" Section with the material "Practice and Assessments." The "Practice and Assessments" learning resource includes guidance for teachers on interpreting and responding to student performance. In the video resource "Reports and Score and Review," the facilitator shares how to interpret the results of student performance and address the data by explaining how to see what questions a student answers correctly or incorrectly, how many attempts the student took on each question, and how to read the overall average by question for the class. After the assessment, teachers can run a report to see the answers students selected for each question.
- The "Professional Support" Sidebar includes "Interim Assessments." Each assessment includes a blueprint that helps the teacher understand each question's aligned standards, outlining the specific skills for each assessment question. "Interim Assessment 1" states, "This blueprint was developed...to help teachers assess their students' progress toward mastery of the content addressed in the topics listed." The blueprint includes each problem's item ID, item type, cognitive complexity, reading level, standards, and course topic.
- *Approach to Assessment* includes information on how to read a "Standards Results" report. For example, it states, "Figure 10. This is an example of a Standards Results report in Assessment. This report can be used to determine performance by standard and connect student strengths and weaknesses to opportunities to reinforce knowledge and skills in upcoming lessons." The guide includes screenshots from the teacher dashboard. It provides definitions for the types of instructional assessments and when they should be utilized. The material includes teacher considerations. For example, "Teachers utilize the identified strengths to connect to the content of the topic and plan for corequisite support for identified

gaps." The guide shows how to organize data by standards or topics to help teachers interpret student performance.

- The *TX Mathematics 8 Corequisite Support Guide* offers direction on understanding and addressing student performance within an individual lesson. It states, "Teachers should use formative assessments to decide whether or not students need the additional corequisite support. Some ideas for formative assessments are given in the guidance below." For example, "Topic 10, Lesson 4" states, "The recommended appendix pages can be used to formatively assess students on this content to determine how much time you need to spend on reviewing solving equations with your students. You may choose to assign these items as part of the homework for the previous lesson, to determine at the beginning of this lesson how much support is needed."

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

- The *Approach to Assessment* material states, "Short and medium-cycle formative assessments are intended to assess students' progress against relevant standards and to make informed instructional decisions while the learning is still occurring when adjustments can make the most difference," for long-cycle formative assessments "teachers and students can identify strengths to utilize in upcoming topics and make a plan for repair where it makes sense," and for diagnostic assessments "teachers utilize the identified strengths to connect to the content of the topic and plan for corequisite support for identified gaps." For example, the material suggests for the teacher to "use the results of the standards-based diagnostic assessment to identify corequisite support needs" and "have students fill out a process paper during the assessment to provide additional evidence to identify strengths and inform needed support."
- In the *TX Mathematics 8 Corequisite Support Guide*, the materials include guidance and activities for teachers to respond to trends in data. For example, it states, "Teachers should use formative assessments to decide whether or not students need the additional corequisite support." The guide includes formative assessments, instruction, and practice for five different topics throughout the curriculum. There is also teacher guidance and considerations for each instruction. For example, in "Topic 1, Lesson 8," the guide explains, "Depending on how much students worked with scaling in prior years, they may need additional instruction with scaling images and scale factor before moving into dilations. You can use the content from the appendix topic to enlarge and reduce images using a scale factor, which will help students transition to the more formal work of dilations." The guide states what tasks to implement based on assessment data, such as "Appendix: Using Ratios" and "Lesson 2 Student Activity Sheet, question 6" for "Topic 1, Lesson 8."
- In the lessons for each unit, the "Deliver Instruction" and "Lesson Activities" Sections include guidance for each lesson's activities and assessments. For example, in "Topic 4, Lesson 1" teachers are given a "Classroom Strategy" that states, "If students still struggle with getting started, help them by together plotting some points representing key occurrences in Tamira's story. For example, at 9:00 a.m. (0 hour) they are at her house and no distance has been covered, corresponding to the point (0,0). At 10:00 a.m. (1 hour) they are at the mall after

traveling at a constant rate for 1 hour to get there, corresponding to the point  $(1, y)$ , where  $y$  represents some number greater than 0. You may also want to encourage students to choose some specific constant rates for different stages of the trip; for example, they might want to think about a rate of 60 mph for segment A, and 40 mph for segment C. After plotting several points, students will start to get a feel for the behavior of the graph." In "Topic 13, Lesson 6," "Constructed Response 2" states, "These questions would be a good performance assessment for students to complete individually," and "Constructed Response 3" states, "This task would work well as a group activity to extend the relationships that have been explored in the topic...point out any common misconceptions to make sure students can learn from common mistakes." The materials include guidance on utilizing provided tasks and activities to address trends in student performance on assessments.

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

- In the "Classroom Routines" material under "Assessment Processing Routine," students can reflect on their progress and growth on assessments. For example, it states, "The following process will help you identify the mathematical ideas and skills your learning community understands well and can use effectively. It will also identify those ideas and skills that require additional attention." This processing time allows students to understand their current performance and how they can use their learned knowledge in the future.
- In the "Classroom Routines" material under "SMART Goals," students learn about SMART goals. It states, "Remember that setting specific goals is a strategy that can help you gain motivation and keep it. And your goals aren't set in stone. You can monitor and adjust them when you think it would be effective." The material includes an overview of goal setting, stating, "Play the animation to review the qualities of an effective goal." The animation explains the components of a SMART goal and has students practice identifying and setting their own goals.
- The materials include tools for students to monitor their progress at home. The "Support for Students and Families" Website includes a brief video that "provides guidance for engaging with Assignments and Quizzes, and using their associated reports to monitor progress." The "Quick Start Guide for Families" includes instructions and screenshots for students and parents to access reports that "provide time spent and performance on assignments, quizzes, and tests" the teacher has created.



## Supports for All Learners

3.1	Differentiation and Scaffolds	8/8
3.1a	<a href="#">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.</a>	3/3
3.1b	<a href="#">Materials include pre-teaching or embedded supports for unfamiliar vocabulary and references in text (e.g., figurative language, idioms, academic language). (T/S)</a>	2/2
3.1c	<a href="#">Materials include teacher guidance for differentiated instruction, enrichment, and extension activities for students who have demonstrated proficiency in grade-level content and skills.</a>	3/3

**Materials include teacher guidance for differentiated instruction, activities, and/or paired 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. 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.**

- The "Professional Support" sidebar includes "Essays on Content, Pedagogy, and Practice." The "Differentiated Instruction for Student Success" essay includes specific guidance on teaching students who have not yet reached proficiency on grade-level content. Differentiation can occur through the content, the process through which students learn the content, the products students use to demonstrate their learning of the content, and the learning environment. For example, it states, "The 'Deliver instruction' provides guidance on the use of a variety of instructional strategies for processing the content." This guidance outlines activity supports within and beyond the lesson for differentiation, such as using manipulatives, visuals, and turn-and-talks with a partner.
- The "Differentiated Instruction for Student Success" essay states, "Another way to differentiate by depth is through corequisite supports for grade-level content." The grade 8 *Corequisite Support Guide* includes supports to provide "'just-in-time' instruction to accelerate necessary learning from prior grades." The materials include corequisite supports for five topics. The supports include suggestions for formative assessment, instruction with appendix lessons, and practice. For example, for students struggling with "Topic 10, Lesson 4," the guide provides teachers with materials for formative assessment, instruction, and practice to review solving one-step and two-step equations. It states, "The recommended appendix pages can be used to formatively assess students on this content to determine how much time you need to spend on reviewing solving equations with your students."



- The "Course Materials" sidebar materials include differentiated activities for students in the "Course Topics" appendices. The appendices include "Key Learning from Earlier Grades," "Solidifying Your Skills with Rational Numbers," "Solidifying Your Skills with Equations," "Using Ratios," "Patterns in Proportional Relationships," "Representing and Interpreting Data," "Solving Problems with 2-D Shapes," and "Prisms, Pyramids, and Plane Sections." For example, the "Key Learning from Earlier Grades" appendix states, "The following topics can be used for differentiated practice and review of key skills taught in earlier grades." The appendix includes learning from earlier grades and focuses on strengthening skills in operations with rational numbers and solving equations. The "Prepare for Instruction" page includes differentiated student activity sheets, assignments, and assessments for teachers to assign based on students' needs.
- The material includes differentiation strategies within lessons to support teachers with their instruction. For example, "Topic 3, Lesson 2" states, "Classroom strategy. The problem moves students from...an abstract context to a real-world context.... Allow students to talk with an elbow partner about the differences between this problem and the previous problem."

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

- The "Professional Support" sidebar includes "Essays on Content, Pedagogy, and Practice." The "Teaching English Language Learners" essay outlines specific strategies to support emergent bilingual (EB) students with unfamiliar vocabulary words and pre-teaching supports. For example, it states that teachers should clearly define the vocabulary within the context of learning and use connections and visual representations. This guidance provides explicit strategies for vocabulary acquisition, understanding, and fostering discourse, including using vocabulary notebooks, echo-repeat and choral chants, word walls, concept maps, anchor charts, sentence frames or stems, and adapted activities. It suggests teachers use multiple representations, real-world scenarios, visualizations, and animations to bridge from vocabulary acquisition to conceptual understanding. The material states, "Language notes available within the lessons provide opportunities to point out connections between words."
- In the "Glossary," the Spanish/English vocabulary words provide the opportunity for academic language learning, for both students and teachers. This resource can be utilized while students learn academic vocabulary. When the Spanish glossary is selected, the material provides the word and its definition in English and Spanish. For example, the entry for the vocabulary word *absolute maximum* states, "The absolute maximum is the largest value the function achieves on its domain. The value M is the absolute maximum of a function f if  $f(M) > f(x)$  for all x in the domain of f. An absolute maximum is also referred to as a global maximum." The entry includes a graph and problem, explicitly referencing the vocabulary in context.
- The "Prepare Instruction" materials for each topic include pre-teaching and embedded supports for unfamiliar key vocabulary terms within the context of new learning. For example, in "Topic 9," "Language Support" lists the core vocabulary that students will learn and utilize throughout the topic.

- The materials provide the lesson plan for the teacher in the "Deliver Instruction" Section. As part of the lesson activities, the materials include teacher tips, technology tips, notes for differentiation, and language strategies and support for EL and other special populations. For example, the "Topic 6, Lesson 2" "Language Strategy" suggests having students draw the model in their notebook to represent what they are learning and states, "This visual clue will remind them of the number of blocks and faces in each tower."
- Within the "Lesson Activities" animations, the materials include visuals and language notes to support student acquisition and understanding of vocabulary. For example, "Topic 2, Lesson 2" introduces irrational numbers and square roots, and shows how to represent the square root of a number mathematically. Students can click on the green underline under that mathematical representation to hear it read out loud. A button on the page labeled, "What is a square root?" defines a square root for students' reference. "Topic 11, Lesson 1" provides a "Language Note," which explains that the current vocabulary term has other definitions depending on the context in which it is used. In the same lesson, students connect core vocabulary by interacting with the animation to demonstrate the relationship between rate of change and slope with graphs, tables, and real-world scenarios.

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

- The "Professional Support" sidebar includes "Essays on Content, Pedagogy, and Practice." The "Differentiated Instruction for Student Success" essay outlines specific guidance for students who demonstrate proficiency in grade-level content and skills. For example, it states, "Teachers should also differentiate by depth for students ready for more sophisticated content....This type of exploration allows students to deepen their mathematical understanding while remaining in the same domain as classmates." This guidance outlines opportunities for students to engage in activities that deepen their thinking on grade-level content and skills. The material offers instruction on employing various strategies to deliver content effectively. The lessons integrate these supports to facilitate differentiation, including strategies such as diagrams, worked examples, learning centers, and questioning strategies.
- The "Deliver Instruction" Section for each lesson provides teacher guidance on offering enrichment and extension activities to students who have shown proficiency in grade-level content and skills. For example, in "Topic 7, Lesson 6," students complete the "MARS task: Vacations." Teachers use the provided rubric when scoring the task. The rubric states the activity is "designed to stretch students' thinking and to provide them with an opportunity to connect their learning to new concepts."

## Supports for All Learners

3.2	Instructional Methods	13/13
3.2a	<a href="#">Materials include prompts and guidance to support the teacher in modeling, explaining, and communicating the concept(s) to be learned explicitly (directly).</a>	6/6
3.2b	<a href="#">Materials include teacher guidance and recommendations for effective lesson delivery and facilitation using a variety of instructional approaches.</a>	4/4
3.2c	<a href="#">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.</a>	3/3

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

Evidence includes, but is not limited to:

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

- The "Professional Support" sidebar includes "Essays on Content, Pedagogy, and Practice." The "Problem Solving and Practice" essay states, "Questioning strategies embedded in lessons and teacher advice prompt effective mathematical discourse, where students think critically, construct arguments, and justify their thinking."
- The grade 8 materials include prompts and guided instructions to support the teacher in communicating, explaining, and modeling the concepts directly and explicitly for each lesson. The "Prepare Instruction" materials for each topic include the "Advice for Instruction" material, which provides guidance on implementing each lesson activity for the entire topic by including the topic lessons and the student resources needed for each. For example, "Topic 9" lists "Staying Sharp 1" and the "Deliver Instruction" Section as resources for the teacher and students in "Lesson 1."
- The "Deliver Instruction" materials provide guidance and prompts to support teachers in communicating, explaining, and modeling the concepts to be learned directly and explicitly for the lesson. The material provides the teacher with a lesson plan for the 45-minute lesson. The beginning of the plan lists the goals and objectives for the lesson. For example, the goals and objectives in "Topic 12, Lesson 1" include, "Identify geometric objects and represent these objects using appropriate notation. Understand what it means for lines to be parallel. Identify special angle pairs and the relationship within them." The lesson provides the teacher with "Opening and Framing Questions" to engage the students in the lesson. For example, "Topic 12, Lesson 1" states, "Ask students to consider these questions and record their responses individually or on chart paper."

- In the "Deliver Instruction" Section, the "Lesson Activities" Section is organized by the pages of the digital resources and includes guidance associated with each digital lesson. Each page of the lesson activity provides guidance for the teacher and students, including questions for the teacher to ask the students. This guidance outlines the concepts for instruction. For example, the material for "Topic 5, Lesson 4" states, "Before clicking Start, ask students to predict how the graph will compare to the previous graph. Click Start to make the graph. After the graph is finished, ask..." which includes questions for teachers to ask students about the visual. As needed or applicable, there are teacher tips, technology tips, language support, and/or support for emergent bilingual students or other special populations. For example, in "Topic 9, Lesson 2," the "Classroom Strategy" states, "Have students work with a partner to complete the table....Ask: What does the 500 in the general rule represent in the context? What does the 25 in the general rule represent in the context?"

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

- The "Problem Solving and Practice" essay states, "In class, students apply math to real-world contexts, develop conjectures, and justify their reasoning through lesson activities supported online and in print." The material shows the course's approach to exploring and applying concepts through animations, simulations, and puzzles. Practice items allow students to apply what they have learned in new and familiar contexts. The "Lesson Activities" Section informs teachers how to use these components during instruction. One graphic in the material is a screen grab with bullet points, such as, "Compare the rates of change from the different students. Ask: Are all of the rates the same? What do you notice about these rates? How does the graph indicate these changes in rate? Have students discuss the meaning of these rates of change. [SAS 4, question 4e]," This example shows how teachers receive guidance for lesson delivery. The screengrab is alongside the student-facing problem, corresponding with teacher guidance.
- The "Deliver Instruction" Section provides the teacher with a lesson plan, including timing suggestions for each component. The teacher starts with "Opening and Framing Questions" for five minutes to engage the students in the lesson. For example, "Topic 12, Lesson 1" shows examples of the concepts in real-world situations and lists questions for teachers to ask students as they make connections with the content. The "Lesson Activities" Section, a 35-minute portion of the lesson, includes teacher guidance and recommendations for effective lesson delivery and facilitation through explicit, guided directions for using a variety of approaches such as technology and class discussions. Each page details what the teacher should be doing, what the students should be doing, and questions for the students. For example, "Topic 11, Lesson 3" provides prompts for facilitating a class discussion and using a graphing calculator, stating, "Use graphing technology, such as a graphing calculator, to show the students how to build the solution tables as shown." As needed or applicable, the lesson includes teacher tips, technology tips, language support, and/or support for emergent bilingual students or other special populations. For example, a recommended instructional strategy in "Topic 7, Lesson 8" is using sentence stems, such as, "As the number of weeks ..., Manuel's account ... by ..." to help students organize their thoughts.

- The grade 8 materials provide various instructional activities, such as "Constructed Response" and "MARS" tasks, including teacher guidance. In "Topic 14, Lesson 3," the "Constructed Response 1" task prompts teachers with recommendations to ensure effective content facilitation. For example, it states, "Students should work in groups to answer the question, showing work to support their arguments...When students are done, have them present their conclusions and their supporting evidence." This guidance includes a variety of instructional approaches for building content knowledge.

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**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.**

- The "Problem Solving and Practice" essay states, "In class, students apply math to real-world contexts, develop conjectures, and justify their reasoning through lesson activities supported online and in print." The material shows the course's approach to exploring and applying concepts through animations, simulations, and puzzles. Practice items allow students to apply what they have learned in new and familiar contexts. The "Lesson Activities" Section informs teachers how to use these components during instruction. One graphic in the material is a screen grab with bullet points, such as, "Compare the rates of change from the different students. Ask: Are all of the rates the same? What do you notice about these rates? How does the graph indicate these changes in rate? Have students discuss the meaning of these rates of change. [SAS 4, question 4e]," This example shows how teachers receive guidance for lesson delivery. The screengrab is alongside the student-facing problem, corresponding with teacher guidance.
- The "Deliver Instruction" Section provides the teacher with a lesson plan, including timing suggestions for each component. The teacher starts with "Opening and Framing Questions" for five minutes to engage the students in the lesson. For example, "Topic 12, Lesson 1" shows examples of the concepts in real-world situations and lists questions for teachers to ask students as they make connections with the content. The "Lesson Activities" Section, a 35-minute portion of the lesson, includes teacher guidance and recommendations for effective lesson delivery and facilitation through explicit, guided directions for using a variety of approaches such as technology and class discussions. Each page details what the teacher should be doing, what the students should be doing, and questions for the students. For example, "Topic 11, Lesson 3" provides prompts for facilitating a class discussion and using a graphing calculator, stating, "Use graphing technology, such as a graphing calculator, to show the students how to build the solution tables as shown." As needed or applicable, the lesson includes teacher tips, technology tips, language support, and/or support for emergent bilingual students or other special populations. For example, a recommended instructional strategy in "Topic 7, Lesson 8" is using sentence stems, such as, "As the number of weeks ..., Manuel's account ... by ..." to help students organize their thoughts.
- The grade 8 materials provide various instructional activities, such as "Constructed Response" and "MARS" tasks, including teacher guidance. In "Topic 14, Lesson 3," the "Constructed Response 1" task prompts teachers with recommendations to ensure effective content facilitation. For example, it states, "Students should work in groups to answer the question,

showing work to support their arguments....When students are done, have them present their conclusions and their supporting evidence." This guidance includes a variety of instructional approaches for building content knowledge.



## Supports for All Learners

3.3	Supports for Emergent Bilingual Students	11/11
3.3a	<a href="#">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.</a>	2/2
3.3b	<a href="#">Materials include implementation guidance to support teachers in effectively using the materials in state-approved bilingual/ESL programs.</a>	1/1
3.3c	<a href="#">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.</a>	8/8
3.3d	<a href="#">If designed for dual language immersion (DLI) programs, materials include resources that outline opportunities to address metalinguistic transfer from English to the partner language.</a>	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.**

- The "Teaching English Language Learners" essay provides strategies and explains the material's design elements that support emergent bilingual (EB) students. The essay includes recommendations and suggestions for building academic vocabulary with explicit strategies for vocabulary acquisition, including vocabulary notebooks and word walls. The essay explains how teachers can assist students as they bridge vocabulary acquisition to conceptual understanding by "using multiple representations of relationships—graphical, tabular, concrete, and algebraic—helps students develop deeper understanding." The essay includes insight into fostering student discourse, using formative assessments, and supporting other special learners. Each topic within the essay includes explicit strategies, such as think-write-pair-share, learning goals, exit tickets, and principles from Universal Design for Learning.
- In the "Glossary," the Spanish/English vocabulary words provide students and teachers the opportunity for academic language learning. This resource can be used with students with



varying levels of language. For example, the definition for *absolute value* states, first in English, "The absolute value of a real number is the distance between 0 and the number on a number line. As shown on the number line in the image, the absolute value of 3 is 3. This is written  $|3| = 3$ . The absolute value of -3 is also 3:  $-3 = 3$ ." Below the definition, the term includes an example of how it is represented on a number line. When Spanish is selected from the sidebar, the term and definition are provided below the visual in Spanish. This is an explicit support for students across all levels of languages, given it includes visuals.

- The grade 8 materials include teacher guidance on providing linguistic accommodations for various levels of language proficiency designed to engage students in using increasingly more academic language throughout each topic. For example, in the "Prepare instruction" Section for "Topic 11," the "Language Support" lists the core vocabulary for the topic and suggests clarifying vocabulary non-native speakers may struggle with understanding, providing time for students to talk and practice the terms together. For EL students it advises "students to read over their notes, highlighting variables, vocabulary, and other key information." This guidance includes teacher instructions for various levels of language.
- The "Deliver Instruction" material for each lesson includes the "Lesson Activities" Section, which provides guidance for teachers during each activity. Within the guidance, "Support for ELL/Other Special Populations" suggests strategies discussed in the essay, "Teaching English Language Learners." For example, "Topic 1, Lesson 2" recommends the teacher add new vocabulary words to the class word wall and EL students add the word and its translation along with visuals to their vocabulary journals. In "Topic 5, Lesson 1," the suggestion states, "This question provides an opportunity to use the think-write-pair-share strategy....Encourage students to use precise mathematical vocabulary when writing descriptions of their graphs. Allow students several minutes to talk...and allow them to revise their responses..." "Topic 7, Lesson 8," for example, utilizes sentence frames such as, "As the number of weeks ..., Manuel's account ... by ..." The material offers teachers guidance on using strategies to encourage students to engage more deeply with academic language over time.

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

- The *Mathematics 8 Scope and Sequence, 2024-2025* material integrates the English Language Proficiency Standards (ELPS) into the course structure. For example, "Topic 1" notes that "ELPS: 1.B, 1.D, 1.F, 3.C, 3.J, 4.C, 4.E, 5.B" will be covered. The resource can be used to identify the ELPS integrated into the mathematics content.
- The materials include the "Teaching English Language Learners" essay that "provides specific high-yield teaching strategies and highlights key design elements of the material's system that can be used to support rich learning by ELL students." This material includes suggestions for building academic vocabulary and provides multiple strategies to promote student discourse. For example, it states, "Giving ELL students more ways to experience the language and make connections increases their ability to create and retain meaning (Sousa, 2011)." It also states, "When spoken and written language is supported with explicit strategies, visualizations, and interactions, ELL students will acquire and be successful with English and mathematics together." This resource outlines the criteria for teachers to implement the materials aligned

to language acquisition by providing screenshots and suggestions on reading and interpreting the teacher guidance for each lesson.

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

- The "Teaching English Language Learners" essay provides strategies and explains the material's design elements that support emergent bilingual students. This material includes suggestions for building academic vocabulary and provides multiple strategies designed to promote student oral and written discourse, including think-aloud and echo-repeat or choral chant for vocabulary acquisition. For example, echo-repeat and choral chant allow students to hear and repeat the words. To build conceptual understanding, the essay includes directions for total physical response, stating, "Students use movement in concert with words to describe a concept or term....For example, acute, right, and obtuse angles can be taught using arm movements to signal the angle measures (Asher, 2009)." The essay includes insight into fostering student discourse through teachers creating opportunities for students "to speak and write about the subject matter in meaningful ways." The guiding questions provided throughout the material prompt teachers to offer opportunities for students to build conceptual understanding. The material includes explanations of the explicit strategies of think-write-pair-share; sentence frames or stems; adapted activities; talk, read, talk, write; and Kagan structures for fostering discourse.
- The grade 8 materials include embedded guidance for teachers to support emergent bilingual students in making connections and developing academic vocabulary through oral discourse. For example, in the "Prepare Instruction" Section for "Topic 5," "Language Support" identifies "Language Notes" used throughout the topic and explains they can help teachers "to look for and address other potential language issues." The materials recommend providing time for students to talk and practice using the vocabulary in pairs and as a whole class.
- The "Deliver Instruction" materials for each lesson include guidance for teachers on supporting emergent bilingual students in developing their vocabulary to increase their comprehension, background knowledge, and cross-linguistic connections. "Topic 1, Lesson 2" includes language support suggestions, such as adding new words to the class word wall and having EL students update their vocabulary journals with the terms, translations, and visual representations. The materials include classroom strategies to support student learning with language. For example, in "Topic 4, Lesson 6," students have time to read and respond individually through writing before being placed into groups to discuss and reach a consensus on their understanding. This guidance supports teachers in helping their students make connections through oral and written discourse. The materials provide embedded guidance for teachers to support students' academic language development by making connections and building background through written and oral language. For example, "Topic 5, Lesson 1" uses the think-write-pair-share strategy and emphasizes students should pay particular attention to the new vocabulary. "Topic 7, Lesson 8" includes sentence frames for use in

written and oral discourse, such as, "As the number of weeks ..., Manuel's account ... by ..." to help students organize and communicate their thoughts.

- "Topic 12, Lesson 3" provides teachers with a language strategy that allows students to build and use their knowledge of the topic by writing their own definitions of words and then sharing and revising them with a partner to create a precise definition.

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

- In the "Glossary," the Spanish/ English vocabulary words provide an opportunity for language immersion. Students with varying levels of language can use this resource. For example, the definition for *coordinate pair* states, "A coordinate pair is an ordered pair of numbers that names the location of a point in the coordinate plane. A coordinate pair has an x-value and a y-value. In this example, the ordered pair is (5,3). The x-value is 5 and the y-value is 3." Beneath the definition is a visual representation of the example and the term and definition in Spanish. This resource is an opportunity to address metalinguistic transfer from English to the partner language.
- The "Teaching English Language Learners" essay provides strategies and explains the material's design elements to support EL students. The essay includes recommendations and suggestions for building academic vocabulary with explicit strategies for vocabulary acquisition, including vocabulary notebooks and word walls. The essay explains how teachers can assist students as they bridge vocabulary acquisition to conceptual understanding by using multiple representations to develop deeper understanding. The essay includes insight into fostering student discourse, using formative assessments, and supporting other special learners. Each topic within the essay includes strategies, such as think-write-pair-share, learning goals, exit tickets, and principles from Universal Design for Learning. The material includes suggestions to address the transfer of metalinguistic skills from English to the partner language by pairing EL students with native English speakers.
- The "Deliver Instruction" materials include teacher guidance in "Support for ELL/Other Special Populations" suggestions that outline opportunities to address the transfer of metalinguistic skills from English to the partner language by providing time for students to think about the questions and write responses individually before being paired with a native English speaker to collaborate and share their understanding.

## Depth and Coherence of Key Concepts

4.1	Depth of Key Concepts	3/3
4.1a	<a href="#">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.</a>	1/1
4.1b	<a href="#">Questions and tasks progressively increase in rigor and complexity, leading to grade-level proficiency in the mathematics standards.</a>	2/2

**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. 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.**

- Throughout a topic, students are required to demonstrate a depth of understanding aligned to the Texas Essential Knowledge and Skills (TEKS). For example, topics include an end-of-topic quiz, which provides students the opportunity to demonstrate an understanding of the TEKS covered throughout the topic. For example, in the grade 8 materials, "Topic 4, Lesson 7" contains a quiz that includes a variety of question types, such as multiple choice, multiple selection, and text entry. Mathematics 8 Lesson Alignments for Texas specifies the problems in this quiz align with TEKS 8.04.C. This provides students an opportunity to show comprehension and mastery of the content that corresponds to the TEKS standards.
- In the grade 8 course, the "Prepare Instruction" materials for each topic include a "Topic at a Glance" table listing all of the lessons within the topic. The "Topic at a Glance" table briefly describes the lesson and practice opportunities. For example, in "Topic 1," "Lessons 1–10" include a "Student Activity Sheet (SAS)" which incorporates open-ended questions for students to answer. The questions include a variety of depth, such as computation, multiple methods of solving, and application of the skills in real-world scenarios. The lessons include "Staying Sharp" activities, "Constructed Response" tasks, and additional practice assignments for students to complete. The Mathematics 8 Lesson Alignments for Texas material shows the "Topic 1" lessons address TEKS 8.03.A, 8.03.B, 8.03.C, 8.08.D, 8.10.A, 8.10.B, and 8.10.C.
- The grade 8 materials include a variety of practice opportunities throughout the lessons, including instructional examples and assignments that vary in complexity so students can demonstrate their depth of understanding of the TEKS. "Topic 1, Lesson 5" includes animation slides that address TEKS 8.10.C. The animation is interactive and automatically checks student responses to provide immediate feedback on translations on a coordinate plane. The subsequent animations and activities provide students with questions to further their understanding and real-world connections of translations. These activities require students to

use their mathematical understanding to solve problems, make observations, and form conclusions. The materials include opportunities for students to explain their understanding of the content. For example, in "Topic 2, Lesson 6," students complete "Constructed Responses 1 and 2" to engage with the entirety of the TEKS by showing mastery through explaining their understanding of real numbers and TEKS 8.02.B. In "Topic 7, Lesson 6," the "MARS task: Vacations" requires the students to explain and justify their answers by matching a verbal description to a graph for TEKS 8.05.B. This ensures that students exhibit an understanding that meets TEKS standards.

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

- The grade 8 materials include "Items and Answers" questions in the "Assessment" Section. These questions progressively increase in rigor and complexity leading to grade-level proficiency. The bank offers a variety of questions that can be sorted by question type, complexity through the four tiers of Depth of Knowledge (DOK), and reading level. Each question also shows the topic and standard alignment. The "Items and Answers" bank includes interactive items such as inline choice, hot spot, fill-in-the-blank, drag-and-drop, graphing, multiple choice, and multiple selection. The sample-created and teacher-created instructional assessments incorporate standards-aligned items across different levels of complexity using a variety of questions and types from the bank. Each question provides an outline of the aligned standards. For example, in "Test Designs," the sample-created assessments include "Mathematics 8 Topic 6-8 Summative Assessment." The assessment assesses TEKS 8.04.A, 8.04.B, 8.04.C, 8.05.B, 8.05.C, 8.05.D, 8.05.E, 8.05.F, 8.05.G, 8.05.H, 8.05.I, 8.11.A, 8.11.B, and 8.11.C. The cognitive complexity of the questions ranges from DOK 1 to DOK 2, and the questions are presented as multiple choice, multiple selection, drag-and-drop, fill-in-the-blank, and graphing.
- The grade 8 materials include question prompts for teachers and tasks for students that progressively increase in rigor and complexity, through lesson animations and interactive slides, "SAS," and additional practice, ultimately leading to grade-level proficiency on the TEKS. In the "Prepare Instruction" materials for each topic of the grade 8 course, the "Topic at a Glance" table shows all of the lessons within the topic, briefly describing the lesson and its practice opportunities. "Topic 3, Lessons 1–4" and "Lessons 6–7" include an "SAS" with open-ended questions that students answer with calculations, application to similar problems, and explanations of their reasoning. In the "Deliver Instruction" Section for "Topic 4, Lesson 2," teachers are provided with DOK 1 questions to engage students at the start of the lesson, such as, "Looking at the graph, how far do you think Robert will walk?" As the lesson progresses, the questions increase in complexity by having students explain the importance of labeling axes on a graph and creating a graph to represent a given situation. This progression allows students to practice with on-grade-level content within a lesson. The materials provide tasks that gradually increase in rigor and complexity, leading to grade-level proficiency throughout the student activities provided for each topic. For example, in "Topic 10," students are exposed to multiple methods of solving linear equations and inequalities in different lessons. Multiple representations help create access points for students to build upon previous skills

to develop a foundation of understanding how equations are related to functions. These varying levels of increasing complexity require students to practice content-aligned tasks at grade level during the duration of a topic.

- The grade 8 materials provide "Staying Sharp" activities, "Constructed Response" tasks, and "MARS" tasks that gradually increase in complexity, leading to grade-level proficiency for each topic. For example, in "Topic 3, Lesson 5," "Constructed Response 1" requires students to use dimensions from a house to make a scaled version for their pet. Students utilize their knowledge of the Pythagorean Theorem and scale factors learned throughout the unit to create the dimensions for the scale model. In these tasks, the materials include a teacher rubric with guidance for grading where questions and tasks become progressively more challenging and intricate, fostering proficiency in mathematics standards at each grade level. The "Topic 6, Lesson 5" rubric for the "MARS task: Squares and Circles" explains the task begins with questions slightly below the level of difficulty of the grade level to activate prior knowledge and ends with questions designed to stretch students' thinking to connect their learning to new concepts.



## Depth and Coherence of Key Concepts

4.2	Coherence of Key Concepts	12/12
4.2a	<a href="#">Materials demonstrate coherence across courses/grade bands through a logically sequenced and connected scope and sequence.</a>	2/2
4.2b	<a href="#">Materials demonstrate coherence across units by explicitly connecting patterns, big ideas, and relationships between mathematical concepts.</a>	3/3
4.2c	<a href="#">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.</a>	3/3
4.2d	<a href="#">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.</a>	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 patterns, big ideas, and relationships 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.**

- The "Mathematics 8 Scope and Sequence" presents logically sequenced topics throughout the year, creating a narrative of mathematics spanning grades 6–8 and beyond. The materials outline the concepts students will learn throughout the course and how they connect to previous and future learning. The material divides the grade 8 mathematics curriculum into fourteen topics with 122 to 131 lessons. The material includes a topic description and identifies the grade level Texas Essential Knowledge and Skills (TEKS) for that topic that are either the primary focus for the topic or are foundational for future work. For example, in "Topic 2," students will investigate the set of real numbers, discover the connection between a square's side length and area, and use scientific notation with TEKS 8.2.A, 8.2.B, 8.2.C, and 8.2.D. The scope and sequence integrate prior concepts and procedures from previous grades and lessons earlier in the course, employing new mathematical knowledge and skills and building upon established understandings. For example, it explains students apply previous understandings of proportional reasoning from grade 6 and grade 7 to study linear and nonlinear functions, equations, systems, and slope, deepen their understanding of geometric concepts with the study of the Pythagorean Theorem and angle relationships, explore congruence and similarity transformations on the coordinate plane, and investigate bivariate



data. The material includes teacher guidance on when to incorporate corequisite support lessons by listing the corequisite standards from the previous grade and including the tasks from the "Grade 8 Corequisite Support Guide" so students can access and participate in grade-level content. For example, "Topic 1" lists corequisite TEKS 7.5.A and 7.5.C along with reviewing the corequisite supports from "Appendix: Using Ratios."

- The "Texas Mathematics 8 Course Rationale" includes a course overview explaining how the course helps students extend their knowledge from grade 7 of linear functions and their graphs and equations while investigating bivariate numerical data. Students broaden their geometric knowledge to include transformations with connections to similarity, angle relationships in parallel lines and triangles, and the volume of cones, cylinders, and spheres. The material states, "This course takes a functions-first approach, where students learn about linear functions before solving linear equations" to see how equations arise naturally from functions and can be connected to related concepts of algebraic equations in geometric relationships.
- The materials include resources to demonstrate how the concepts across courses are coherent and logically sequenced. For example, in the "Professional Support" sidebar, the "Developing Concepts Across Grades" Section outlines how concepts connect from previous learning. It states, "This selection of interactive essays represents the development of key concepts learners will encounter in their journey to mastery of mathematics—from middle school through high school mathematics, culminating in Calculus or Statistics." The essays focus on using functions, volume, rate, and proportionality and explain how students move from concrete to abstract representations of the concepts.
- The materials include appendix topics to reinforce and support the learning for the current course, including "Key Learning from Earlier Grades," "Solidifying Your Skills with Rational Numbers," "Solidifying Your Skills with Equations," "Using Ratios," "Patterns in Proportional Relationships," "Representing and Interpreting Data," "Solving Problems with 2-D Shapes," and "Prisms, Pyramids, and Plane Sections." For example, the "Appendix: Key Learning from Earlier Grades" includes lessons and problem-solving resources that can be used to differentiate practice and review operations with rational numbers and solving equations.

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

- The "Texas Mathematics 8 Course Rationale" includes a course overview explaining how students learn about transformations, specifically dilations and the connection to similarity, and angle relationships in parallel lines and triangles in "Topic 1" to connect the similarity of triangles to slope in "Topic 7." Students study linear functions and their graphs in "Topic 5" and "Topic 6" by building on learning from "Topic 4," including modeling. Students transfer their knowledge of linear functions to investigate and make predictions about bivariate numerical data in "Topic 8." Students utilize their new knowledge of real numbers from "Topic 2" to explore linear functions, equations, and systems of equations in "Topic 10" and "Topic 11." Students extend their knowledge of 2- and 3-dimensional geometry to include the volume of cylinders, cones, and spheres and the surface area of cylinders in "Topic 13." The materials demonstrate coherence from topic to topic by explicitly connecting patterns, ideas, and

relationships between mathematical concepts. For example, the "Geometry" Section states, "As students explore these relationships, they reinforce their understanding of functions and equation solving."

- The "Prepare Instruction" material includes an overview of the current topic and its connection to other topics throughout the course. The "About This Topic" Section demonstrates coherence across each topic and within each lesson by connecting students' prior knowledge of concepts and procedures to new mathematical knowledge and skills. For example, "Topic 5" explicitly states students will build on their work with rates from "Topic 4" to deepen their understanding of the constant rate of change. It explains how students connect this knowledge to their learning of linear functions and slope and y-intercept in "Topic 6" and "Topic 7."
- The "Staying Sharp" activities review key concepts from previous units to help students prepare for the current unit. For example, "Topic 3" includes "Staying Sharp 1" which reviews square roots and operations with exponents from "Topic 2" to prepare students to use the Pythagorean Theorem in "Topic 3." It spirals a review of the area of triangles from previous courses and transformations on a coordinate plane from "Topic 1" of the current course. This material shows the connection of patterns, big ideas, and relationships between mathematical concepts throughout the course.

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

- The "Texas Mathematics 8 Course Rationale" includes a course overview explaining how the course helps students extend their knowledge from grade 7 of linear functions and their graphs and equations while investigating bivariate numerical data. Students broaden their geometric knowledge to include transformations with connections to similarity, angle relationships in parallel lines and triangles, and the volume of cones, cylinders, and spheres. The material states, "This course takes a functions-first approach, where students learn about linear functions before solving linear equations" to see how equations arise naturally from functions and can be connected to related concepts of algebraic equations in geometric relationships. For example, in "Topic 2," the material explains students will extend their work with rational numbers from prior grades to include irrational numbers and form the real number system. This foundation is then used to explore and apply the Pythagorean Theorem. The "Connection to the TEKS and ELPS" Section emphasizes using cross-curricular strategies and the "Glossary," common to all courses, to support language acquisition.
- The grade 8 materials demonstrate coherence across topics by connecting the concepts and language learned in previous courses to those in future courses by way of the current course. The "Professional Support" sidebar includes the "Developing Concepts Across Grades" material that outlines how concepts connect from previous learning. It states, "This selection of interactive essays represents the development of key concepts learners will encounter in their journey to mastery of mathematics—from middle school through high school mathematics, culminating in Calculus or Statistics." The essays focus on using functions, volume, rate, and proportionality and explain how students move from concrete to abstract

representations of the concepts while noting aligned vocabulary across courses. For example, the interactive animations in the "Rate" essay explain ratio, rate, unit rate, rate of change, and constant rate of change, showing how they relate to each other.

- The grade 8 materials include resources to demonstrate coherence with content and language across previous, current, and future courses. The "Professional Support" sidebar includes the "Going Beyond This Course" Section, which states, "This series of essays is designed to illustrate how certain fundamental knowledge and skills students acquire in this course connect to more advanced concepts in subsequent mathematics courses." The essays address rate of change, line of best fit, and trigonometric ratios. For example, the "Rate of Change" essay explains linear relationships are characterized by a constant rate of change but not all relationships will be linear as students move to high school mathematics courses.
- The "Prepare Instruction" materials for all topics include teacher guidance on creating coherence in the language students have learned or will learn in the current course. For example, in "Topic 6," the "Language Support" Section shows coherence across topics by linking the language learned in prior courses, including independent variable and dependent variable, with what will be covered in the current course. The section provides a list of the core vocabulary that is used in the current topic. The "Glossary" contains all core vocabulary, including definitions and visual representations. This supports coherence in language learning in previous, current, and future courses.

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

- The grade 8 materials demonstrate a coherent progression throughout lessons. The lessons connect students' prior knowledge of concepts and procedures from the current and prior grade levels to new mathematical knowledge and skills. The "Course Topics" include appendices with lessons that address key topics from previous grade levels, including operations with rational numbers and solving equations. In the "Appendix: Prisms, Pyramids, and Plane Sections," students connect their current learning of volume and surface area using nets to real-world models using formulas. For example, the "Surface Area of Prisms" lesson uses interactive animations to connect the process of using a net to the process of using a formula to calculate the lateral and total surface area of a prism. The material provides students with practice in mathematical and real-world contexts, building from nets to 3-dimensional representations. This guidance supports students in connecting what they have learned to what they will learn.
- The "Prepare Instruction" material for each topic provides an overview of the lessons within the topic, demonstrating coherence within each lesson by connecting students' prior knowledge of concepts and procedures from current and previous grade levels to new mathematical knowledge and skills. For example, "Topic 9" lists two prerequisite skills, calculating using percents and decimals and working with simple interest problems, which were learned in previous courses and reviewed in the current course's previous lessons. Across each topic, the materials demonstrate coherence from lesson to lesson by explicitly connecting relationships between mathematical concepts. The "Topic at a Glance" Section

outlines each lesson with a brief description. For example, in "Topic 5," students begin by matching graphs to rates in "Lesson 2," matching negative rates to graphs in "Lesson 3," and finding rates in graphs and tables in "Lesson 5."

- In the "Deliver Instruction" materials for each lesson, guidance prompts teachers to have students consider their prior learning and connect it to the current mathematical knowledge and skills. For example, in "Topic 14, Lesson 1," teachers prompt students to consider their prior learning of scaling an object to the current learning of scaling's effect on perimeter, area, and volume. In "Lesson 3," students investigate the proportional change in area when scaling an image, and then investigate the proportional change in surface area and volume when scaling an image in "Lesson 5" and "Lesson 6." These lessons illustrate coherence across lessons by establishing clear connections between patterns, overarching concepts, and relationships among mathematical ideas. The materials present a structured progression of concepts that develop logically, each lesson building upon the foundation laid by the previous ones.

## Depth and Coherence of Key Concepts

4.3	Spaced and Interleaved Practice	8/8
4.3a	<a href="#">Materials provide spaced retrieval opportunities with previously learned skills and concepts across lessons and units.</a>	4/4
4.3b	<a href="#">Materials provide interleaved practice opportunities with previously learned skills and concepts across lessons and units.</a>	4/4

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

Evidence includes, but is not limited to:

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

- The grade 8 materials provide spaced retrieval opportunities for previously learned skills and concepts across the topics. For example, the "Course Rationale" explains that students must apply their knowledge of the rate of change from "Topic 5" to define and represent linear functions in "Topic 6" and "Topic 7."
- The "Prepare Instruction" material explains the current topic and connections to previously learned topics. The "About This Topic" Section provides guidance for teachers to outline and understand previously taught content and how that connects to the current topic and content. For example, "Topic 2" explains that using square roots with an area of squares will apply to the Pythagorean Theorem in the next topic. This provides teachers with guidance to see the connection between the covered content. The "Prepare Instruction" material includes a "Topic at a Glance" Section that shows all of the lessons within the topic, provides a brief description of each lesson, and includes practice opportunities to use with the lesson. For example, "Topic 1" is divided into eleven lessons. "Lesson 4" introduces students to translations through real-life examples. In "Lesson 5," students apply their knowledge of translations. In "Lesson 10," students use all transformations to complete "Constructed Response 2." This material provides teacher guidance on the connection between content covered across lessons.
- The "Deliver Instruction" materials include spaced retrieval opportunities to revisit skills and concepts learned earlier in the topics and lessons. The materials include teacher prompts and guidance for using practice opportunities with students. For example, in "Topic 5, Lesson 2," the "Opening and Framing Questions" prompt teachers to begin by asking students to remember graphs studied in the previous lesson and how they showed distance and rate to prepare students to describe graphs representing different rates. The "Deliver Instruction" materials provide teachers with student resources that support the current lesson by retrieving previously learned content. The "Staying Sharp" materials include two sections of practice problems; one spirals back to skills and concepts from previous learning and one

helps students prepare for upcoming lessons. For example, "Topic 9, Lesson 5" includes "Staying Sharp 2," which covers operations with rational numbers and applications of percents from previous courses and solving linear equations from "Topic 6." The "Staying Sharp" activity supports upcoming lessons where students will evaluate and make financial decisions.

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

- The *Mathematics 8 Scope and Sequence* outlines the flow of units providing interleaved practice opportunities throughout the course structure. For example, it states how students will apply their previous understandings of ratio and proportional reasoning from "Topic 4" and "Topic 5" to linear functions, equations, and systems, including a deep understanding of slope, in "Topic 6" and "Topic 7." The material provides teacher guidance to understand the required concepts and knowledge present in the course.
- In the "Prepare for Instruction" material for each unit, the "About This Topic" Section describes what students will learn and how interleaved practice opportunities are incorporated to integrate previously learned skills and concepts across lessons and units. For example, "Topic 5" explains that students build on their prior knowledge of rates from "Topic 4" and previous courses to lay a foundation for learning about the rate of change in "Topic 6," "Topic 7," and higher mathematics courses.
- The grade 8 materials include practice opportunities that require students to select and use multiple strategies, which promotes identifying the most efficient strategy rather than relying on a single strategy for every problem. For example, in "Topic 2, Lesson 6" students complete "Constructed Response 1" and "Constructed Response 2" to practice previously learned skills and concepts by showing mastery through explanations and graphs of connecting square roots and area. In "Topic 11," students learn multiple methods of solving linear equations including models, tables, graphs, and symbolic representations of linear functions. Each topic culminates with the topic quiz where students select strategies they have learned throughout the topic to solve a variety of problems. For example, "Topic 2" presents students with word problems, tables, graphs, and number lines in mathematical and real-world contexts as interactive item types where students must choose the strategy to solve for and represent real numbers.
- The "Staying Sharp" materials in each topic offer interleaved practice opportunities that integrate previously learned skills and concepts across lessons and units. For example, "Topic 5, Lesson 1" begins with an overview of rate of change. The "Staying Sharp 1" material covers skills and concepts from prior units, such as writing algebraic rules for transformations from "Topic 1," operations with real numbers from "Topic 2," and calculating unit rates from "Topic 4," to prepare students to use those strategies throughout "Topic 5."



## Balance of Conceptual and Procedural Understanding

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

**The questions and tasks 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.**

- The materials in grade 8 include questions and tasks that have students engage with a variety of models and representations to interpret, analyze, and evaluate various concepts. In "Topic 1, Lesson 1," the lesson animations model transformations through everyday objects, such as butterfly wings for reflections and flower petals for rotations. The animations translate this skill to modeling on a coordinate plane by representing the line of reflection as the x- or y-axis. In the "Lesson 10" "Constructed Response 2" Section, students interpret and analyze a coordinate plane with two different colored shapes plotted to answer questions about transformations. The students use the triangles and the coordinate plane to identify vertices, compare and contrast the triangles, and describe the transformations. In initial lessons on a concept, models are used to establish foundational understanding. For instance, in grade 8, students investigate rates of change in various contexts, focusing on motion, and analyze rates from graphs and tables. This foundational understanding of rate of change prepares students for studying nonlinear functions. The "Topic 5, Lesson 1" "Student Activity Sheet (SAS)," includes questions that encourage students to use various models from the animations in the lesson to analyze the rate of change in graphs and tables. Students use the model to describe the movement made to create the graph. In "Topic 10," students engage with animated panels that require them to interpret tables, graphs, and equations or inequalities. In "Lesson 1," the animated graph shows how different numbers of games played affect the total cost. This leads to students using the balance scale model to represent solving equations.
- The materials include questions and tasks that require students to evaluate the appropriate use of models and choose models to represent situations. In "Topic 11," students interpret

and analyze models, tables, and graphs of systems throughout the lesson activities within the topic to evaluate when one representation is best used over another. In the "Constructed Response 2" Section, students evaluate questions requiring them to use the representations and determine the most appropriate representation for the situation.

- The materials include questions and tasks that support conceptual learning, leading from representations to mathematical concepts. In the "Topic 3" "Constructed Response 1" Section, students use the visual representation of a house to calculate the rise and apply the proportional relationship to a scale model of the representation. In the "Constructed Response 2" Section, students use the representations of a map for a triathlon and a sailboat to analyze and respond to questions applying the Pythagorean Theorem. In "Topic 6," students explore patterns in concrete models and real-world contexts to enhance their ability to understand the abstract concept of rate of change and strengthen their capacity to connect various representations of functions. The "SAS" for "Lesson 1" includes questions encouraging students to use various representations, including tables and graphs, to interpret linear relationships. Students explain their use of the models to determine if the situation is linear. In "Topic 7, Lesson 8," students graph data to determine if a relationship represents direct variation. Students interpret and analyze the graphs to determine the slope between any two points.

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

- The materials require students to generate a variety of models that illustrate their comprehension of mathematical concepts in the "SAS" for the topics and lessons. In "Topic 4, Lesson 1," students create a variety of models to interpret and analyze graphs of relationships. For example, question 1 asks students to complete a table from the information provided in the lesson animation and graph the data. For question 5, students write a story to explain a relationship from a graph. In "Topic 7, Lesson 1," question 8 states, "Create a sketch of stair steps with steepness corresponding to a slope of two-thirds." This task allows students to connect the slope to the rate of change. The "SAS" for "Topic 7, Lesson 1" requires students to generate a variety of models to illustrate their comprehension of concepts. In question 11, students determine the slope based on the rate given in a situation that students use to sketch a graph. In "Topic 10," students create function rules, tables, and graphs to model, represent, and solve equations and inequalities. The grade 8 materials include questions and tasks that require students to create a variety of models to represent mathematical situations. In "Topic 11," students solve systems of equations by modeling the process with tables in "Lesson 3" and graphs in "Lesson 4." These examples demonstrate how the tasks and questions require a variety of models to represent mathematical situations.
- The "Constructed Response" Section and "MARS" tasks include questions and tasks that support conceptual learning, leading from representations to mathematical concepts. In the "Topic 4" "Constructed Response 1" Section, students create graphs representing two rates. Students use the information from their graphs to answer the questions. In the "Topic 4" "MARS Task: Graphs" students use provided graphs to write descriptions and equations to

represent each graph. This modeling process allows students to make the connection between the representation of the skills and the concept.

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

- The "SAS" materials include questions and tasks for students to apply conceptual understanding to new problem situations and contexts. In "Topic 5, Lesson 6," students apply their understanding of rate of change in graphs and tables to describe similarities and differences between two representations and the two situations. In "Topic 6, Lesson 6," students use mappings, graphs, tables, and ordered pairs to determine if given situations represent functions. In "Topic 10, Lesson 9," students apply their understanding to write equations and inequalities for real-world problems and explain their reasoning for their chosen representation. Students write real-world problems that each given equation or inequality could represent.
- The "Constructed Response" Sections and "MARS" tasks include questions and tasks that prompt students to apply conceptual understanding to new situations and contexts. In the "Topic 2" "Constructed Response 1" Section, students engage in an open-ended task to represent their understanding of square roots in relation to the area of squares with several correct solutions. It states, "There are two possible squares (with the same area, but different orientation) that can be drawn with AB as a side length." Students apply their understanding to other problems and explain their process of determining the solutions. In the "Constructed Response 1" Section for "Topic 3," students use a real-world scenario of building a home for a family and a similar one for the family dog to answer questions. Students apply their knowledge of slope, scale factor, and the Pythagorean Theorem to answer questions. In the "Constructed Response 3" Section for "Topic 3," students use the Pythagorean Theorem and 3-dimensional figures to determine possible dimensions of a rectangular prism or cube that could be used to fit a fishing rod into. The activity is meant to be open-ended, so multiple answers are correct. In "Topic 11, Lesson 1," the "MARS Task: Number Towers" outlines opportunities for students to justify their reasoning in writing when solving a system of linear equations from word problems. These tasks require students to apply their understanding of what they learn and justify their understanding with explanations.

## Balance of Conceptual and Procedural Understanding

5.2	Development of Fluency	1212
5.2a	<a href="#">Materials provide tasks that are designed to build student automaticity and fluency necessary to complete grade-level tasks.</a>	2/2
5.2b	<a href="#">Materials provide opportunities for students to practice the application of efficient, flexible, and accurate mathematical procedures within the lesson and/or throughout a unit.</a>	3/3
5.2c	<a href="#">Materials provide opportunities for students to evaluate procedures, processes, and solutions for efficiency, flexibility, and accuracy within the lesson and throughout a unit.</a>	6/6
5.2d	<a href="#">Materials contain embedded supports for teachers to guide students toward increasingly efficient approaches.</a>	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.**

- The materials provide structured practice that progressively increases in difficulty to build student automaticity in completing grade-level tasks. In each lesson, students engage in interactive activities and complete the "Student Activity Sheets (SAS)" over the course of the lesson. As students work through the pages of the lesson, the digital platform tells students which questions from the "SAS" align with the online activity. Each activity prompts students to engage in a question or thinking that increases in difficulty throughout each activity. In "Topic 2, Lesson 2," students engage in interactive activities to determine the side length of squares by using a grid and area of squares. Students progress through the activity by completing the tasks to introduce square roots and their relationship to the area of squares. Students practice classifying square roots to identify those that are perfect squares. In "Topic 9, Lesson 4," students learn about credit through the interactive animations with a debt payment calculator. Students manipulate the values they input in the calculator to determine the effects of interest rates, principles, and time on the cost of credit. Students build automaticity in using these skills through repeated practice.
- The materials include resources and tasks designed for students to build fluency to complete grade-level tasks. The "Staying Sharp" practice pages include questions separated into two sections, preparing for upcoming lessons and practicing skills and concepts from previous topics. In "Topic 1" "Staying Sharp 1," students review the concept of symmetry which will be

used in upcoming lessons on reflection transformations and the skill of making equivalent ratios to prepare for dilations and scale factors. In "Staying Sharp 1" and "Staying Sharp 2" for "Topic 2," questions require students to review their knowledge of operating with and ordering rational numbers to prepare for extending the number system to include irrational numbers. In "Topic 4," students practice with graphs, unit rate, scientific notation, and evaluating and ordering real numbers, all of which are skills learned. The materials provide structured practice that progressively increases in difficulty to build student automaticity in completing grade-level tasks. In each lesson, students engage in interactive activities and complete the "Student Activity Sheets (SAS)" over the course of the lesson. As students work through the pages of the lesson, the digital platform tells students which questions from the "SAS" align with the online activity. Each activity prompts students to engage in a question or thinking that increases in difficulty throughout each activity. In "Topic 2, Lesson 2," students engage in interactive activities to determine the side length of squares by using a grid and area of squares. Students progress through the activity by completing the tasks to introduce square roots and their relationship to the area of squares. Students practice classifying square roots to identify those that are perfect squares. In "Topic 9, Lesson 4," students learn about credit through the interactive animations with a debt payment calculator. Students manipulate the values they input in the calculator to determine the effects of interest rates, principles, and time on the cost of credit. Students build automaticity in using these skills through repeated practice.

- The materials include resources and tasks designed for students to build fluency to complete grade-level tasks. The "Staying Sharp" practice pages include questions separated into two sections, preparing for upcoming lessons and practicing skills and concepts from previous topics. In "Topic 1" "Staying Sharp 1," students review the concept of symmetry which will be used in upcoming lessons on reflection transformations and the skill of making equivalent ratios to prepare for dilations and scale factors. In "Staying Sharp 1" and "Staying Sharp 2" for "Topic 2," questions require students to review their knowledge of operating with and ordering rational numbers to prepare for extending the number system to include irrational numbers. In "Topic 4," students practice with graphs, unit rate, scientific notation, and evaluating and ordering real numbers, all of which are skills learned earlier in the course. In "Topic 9" "Staying Sharp 1," students practice the prerequisite skills of finding percents of numbers to prepare them to make financial decisions throughout the topic.
- in the course. In "Topic 9" "Staying Sharp 1," students practice the prerequisite skills of finding percents of numbers to prepare them to make financial decisions throughout the topic.

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

- The materials provide structured practice that progressively increases in difficulty to build student automaticity in completing grade-level tasks. In each lesson, students engage in interactive activities and complete the "Student Activity Sheets (SAS)" over the course of the lesson. As students work through the pages of the lesson, the digital platform tells students which questions from the "SAS" align with the online activity. Each activity prompts students to engage in a question or thinking that increases in difficulty throughout each activity. In "Topic 2, Lesson 2," students engage in interactive activities to determine the side length of

squares by using a grid and area of squares. Students progress through the activity by completing the tasks to introduce square roots and their relationship to the area of squares. Students practice classifying square roots to identify those that are perfect squares. In "Topic 9, Lesson 4," students learn about credit through the interactive animations with a debt payment calculator. Students manipulate the values they input in the calculator to determine the effects of interest rates, principles, and time on the cost of credit. Students build automaticity in using these skills through repeated practice.

- The materials include resources and tasks designed for students to build fluency to complete grade-level tasks. The "Staying Sharp" practice pages include questions separated into two sections, preparing for upcoming lessons and practicing skills and concepts from previous topics. In "Topic 1" "Staying Sharp 1," students review the concept of symmetry which will be used in upcoming lessons on reflection transformations and the skill of making equivalent ratios to prepare for dilations and scale factors. In "Staying Sharp 1" and "Staying Sharp 2" for "Topic 2," questions require students to review their knowledge of operating with and ordering rational numbers to prepare for extending the number system to include irrational numbers. In "Topic 4," students practice with graphs, unit rate, scientific notation, and evaluating and ordering real numbers, all of which are skills learned earlier in the course. In "Topic 9" "Staying Sharp 1," students practice the prerequisite skills of finding percents of numbers to prepare them to make financial decisions throughout the topic.

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

- The "Deliver Instruction" materials include teacher prompts to use during instruction. The prompts provide opportunities for students to talk to each other and share strategies as they evaluate procedures and processes. In "Topic 7, Lesson 5," the material prompts teachers to have students compare two proportional relationships by creating a three-column table and plotting the data on the same coordinate grid. The class debriefs student responses before continuing the activity by working with another partner to evaluate other possible strategies.
- The "SAS" includes a set of discussion questions designed to facilitate open discourse among students while guiding them toward exemplar responses to questions and tasks using their developed mathematical language. These questions encourage students to use precise language, provide evidence to support their answers, and justify mathematical relationships across various contexts. In "Topic 5, Lesson 3," questions require students to explain and justify their answers by evaluating their processes and solutions for efficiency, flexibility, and accuracy. In "Topic 6, Lesson 2," the material prompts students to evaluate a scenario with the corresponding online animation. Students think about and offer different approaches to solving the problem to evaluate the process for efficiency and accuracy.
- The "Constructed Response" activities in each unit provide opportunities for students to evaluate the efficiency, flexibility, and accuracy of their procedures, processes, and solutions by applying what they have learned throughout the topic to new situations. In "Topic 2, Lesson 6," students work on "Constructed Response 1" tasks individually to process their answers and ideas before forming small groups to compare their methods with their group members.



There are several possible solutions for each part, so students evaluate many processes and procedures and determine those that are most efficient, flexible, or accurate.

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

- The "Professional Support" sidebar includes "Getting Started" and "Teaching With" dropdowns for teachers to view essays and practical demonstrations of the resources in action. These resources explain how to effectively use and implement the resources for each topic, guiding students toward more efficient approaches. The "Lesson Planning and Practice" essay provides strategies and resources for supporting students in their problem-solving abilities, including utilizing academic literacy to "build essential vocabulary, connect representations, and communicate their understandings." This step-by-step support provides teachers with the guidance necessary to support students. The professional development materials include guided questions to help teachers internalize and establish connections with the provided resources. The "Moving from Concrete to Abstract" Section includes panels with video examples of teachers using the product to guide students towards efficient approaches and provide reflection questions for teachers. Teachers can use the information to consider how to guide students' thinking from concrete to abstract concepts.
- The "Prepare Instruction" materials at the beginning of each topic contain embedded supports for teachers to guide students toward increasingly efficient approaches. The "About this Topic" Section explains the trajectory within the topic and various approaches that can be used. In "Topic 3," the material explains students will use various representations to justify the Pythagorean Theorem and its converse, apply the theorem to find distance on a coordinate plane, and investigate relationships between similar right triangles. The materials include a suggested order of instruction for teachers to guide students toward increasingly efficient approaches. In the "Topic at a Glance" Section for "Topic 11," students learn to solve systems of equations by modeling in "Lesson 2," with tables in "Lesson 3," and with graphs in "Lesson 4." In "Lesson 5," students choose the method they prefer for different situations.
- The "Deliver Instruction" materials provide teacher guidance to facilitate student learning and performance on tasks. The materials include sample questions and prompts designed to stimulate student reasoning and guide them toward more effective problem-solving approaches. In "Topic 1, Lesson 10," the guidance prompts teachers to help students reflect on their work and their strategies. Teachers have opportunities for one-on-one, small group, and whole-class discussions to point out and highlight the more efficient approaches. In "Topic 2, Lesson 2," teacher guidance includes questions to ask students and collaborate their thoughts and understanding as a class.

## Balance of Conceptual and Procedural Understanding

5.3	Balance of Conceptual Understanding and Procedural Fluency	16/16
5.3a	<a href="#">Materials explicitly state how the conceptual and procedural emphasis of the TEKS are addressed.</a>	2/2
5.3b	<a href="#">Questions and tasks include the use of concrete models and manipulatives, pictorial representation (figures/drawings), and abstract representations.</a>	6/6
5.3c	<a href="#">Materials include supports for students in connecting, creating, defining, and explaining concrete and representational models to abstract (symbolic/numeric/algorithmic) concepts.</a>	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 "Professional Support" sidebar includes "Course Planning and Pacing" documents that provide teachers with additional support to plan and implement instruction with the aligned standards. The "Texas Mathematics 8 Course Rationale" material explains the Grade 8 Texas Essential Knowledge and Skills (TEKS) prioritizes proportionality, foundations of functions, linear equations, and geometry and data. It explains that the course addresses the key content areas identified by the TEKS with a focus on modeling, problem-solving, and multiple representations "to reinforce ratio and rate reasoning through analyzing and representing proportional and nonproportional situations and build on their understanding of linear equations from previous grades." The course emphasizes students' conceptual development and understanding of the concepts, and students practice and apply the concepts in real-world and mathematical problems. The *Mathematics 8 Scope and Sequence* outlines how each topic corresponds with specific TEKS. Each topic includes a description of how the TEKS will be addressed. In "Topic 7," students will solidify their understanding of slope and y-intercept by making connections to constant rate of change and writing equations in slope-intercept form. TEKS 8.04.A, 8.04.B, 8.04.C, 8.05.A, 8.05.B, 8.05.E, 8.05.F, 8.05.H, and 8.05.I address these concepts. The "Mathematics 8 Lesson Alignments" material lists lessons with the specific TEKS addressed. For example, in "Topic 9, Lesson 2," students calculate and analyze simple and compound interest as stated in TEKS 8.12.C and 8.12.D.
- The "Course Materials" sidebar includes the "Course Topics" tab and lists each topic addressed in the course. Each topic has a "Description" explaining the concepts and procedures addressed in the topic and an "Alignments" button that when clicked expands to

show the TEKS covered in that topic. In "Topic 10," the "Description" explains students will relate equations to functions through different representations of function and by solving linear equations in tables, graphs, concrete models, algebraic operations, and working backward. The "Alignments" show that the topic addresses TEKS 8.08.A, 8.08.B, and 8.08.C.

- The "Prepare Instruction" material for each topic explains the concepts and procedures of the TEKS and how they are addressed in the topic. In "Topic 2," students extend their previous knowledge of sets and subsets to describe relationships between real numbers (8.02.A), approximate the value of an irrational number and locate it on a number line (8.02.B), convert between standard and scientific notation (8.02.C), and order a set of real numbers from mathematical and real-world contexts (8.02.D). The "Goals and Objectives" Section for "Topic 2" lists what students will be able to do by the end of the topic. These relate explicitly to the TEKS addressed in the topic by fluently describing and applying their knowledge to real number situations.
- The "Deliver Instruction" materials address procedural emphasis through explicit learning objectives focused on key procedural skills. "Topic 6, Lesson 6" prompts teachers to use the lesson materials to preview the lesson's goal, stating, "determine if a relationship is a function." This objective corresponds to TEKS 8.05.G, as shown in the "Lesson Alignments" material. In "Lesson 2" and "Lesson 3" of "Topic 10," students focus on solving linear equations and inequalities using various methods, such as solving with tables and graphs. This focus on procedural skills provides students with opportunities to become proficient with different types of linear relationships as outlined in TEKS 8.08.C.

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

- The *Mathematics 8 Scope and Sequence* outlines the variety of models and manipulatives that will be used throughout the course as appropriate for grade 8 students. The material provides teachers with guidance on what type of models, manipulatives, and pictorial representations will be used. In "Topic 6," the description explains students will explore and represent linear patterns and functions in tables, graphs, models, and algebraic rules.
- The grade 8 materials provide questions and tasks with models and manipulatives aligned to content and grade level. In initial lessons on a concept, models are used to establish foundational understanding. "Topic 2, Lesson 2" addresses finding side lengths of squares. The first activity uses a real life scenario to set up the task. The second and third activities provide students with a digital geoboard to explore squares, including their area and side length. The students can use the exploration to determine the number of possible squares that could be created from that size geoboard. The next activity has a set of animation slides where students determine if they would need a ruler or not to find the side length of the squares. The lesson uses those activities to introduce the concept of square roots in the context of their relationship to the side length of a square, showing how the lesson builds on models to formalize the abstract representations. "Topic 6, Lesson 2" provides students with a variety of options to navigate several different models to help make meaning and gain proficiency with linear patterns and functions. Students engage in this process by connecting to a real-world tower painting scenario, defining and explaining how they would approach painting a

manipulative cube. Students represent the functional relationship concretely, tabularly, graphically, and algebraically.

- The grade 8 materials include questions and tasks that use grade-level appropriate pictorial and abstract representations within the activity panels in lesson activities. "Topic 5, Lesson 1" is an overview of exploring the rate of change in motion problems. In the lesson animations, students explore using a motion detector with a student on a skateboard to create a speed graph based on the distance from the motion detector and the time they are in the location. Students make observations based on their explorations to build a foundation for the abstract concepts of when motion is forward, backward, or stopped. In "Topic 6, Lesson 1," the material includes questions that encourage students to use various models and representations, such as tables and graphs, to represent linear relationships and functions. In "Topic 8, Lesson 2," students use a graph to write an equation for a trend line to interpret the slope and y-intercept in the context of the situation. The grade 8 materials provide tasks that include the use of grade-level appropriate models, pictures, and manipulatives throughout the lesson activities.

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

- The "Professional Support" sidebar includes essays for "Teaching With" the material. The "Moving from Concrete to Abstract" essay explains the intentional timing of the lessons throughout the course. The goal is to offer students an experience that allows them to make a connection to abstract definitions and concepts. Lessons begin with a real-world connection and connection to prior learning. Students explore concrete models and representations through hands-on activities and lesson animations. Students work in small groups to discuss their understanding and mathematical strategies with peers and build a foundation in the abstract concepts.
- The "Lesson Activities" materials outline various opportunities for students to articulate their emerging understanding of mathematical concepts and procedures through modeling, discussion, and practice with hands-on and digital animation activities that scaffold the learning of mathematical concepts. In "Topic 6, Lesson 2," students engage by first connecting a real-world tower painting scenario to painting a manipulative cube. Students watch and record data from an animation to build a table representing linear patterns and functions. Students explain the constant and variable relationships in the pattern and formulate the algebraic expression. The materials provide students with the opportunity to build automaticity with fluency skills necessary to complete grade-level tasks through multiple scaffolded tasks and practice opportunities within the lesson activities. In "Topic 10," the lesson activities progress through the use of tables, graphs, and equations to build student understanding of linear equations and inequalities. "Lesson 4" includes animation slides with a scale balance and algebra tiles to represent a balanced equation. It shows how the scale changes when the variables are moved to one side of the scale and when the constants are moved to the other side of the scale. The final animation shows finding the value of a single variable. The animation models the process of solving an equation with variables on both sides of the equal sign. In the next activity, students place the steps in order from start to

finish. Students use their new understanding of solving multi-step equations to solve equations without a model, but they can use the "check" button to view the correct steps and answers.

- The "SAS" materials include various supports for students in creating, defining, and explaining concrete and representational models. In "Topic 7," students generate a range of models that illustrate their comprehension of slope and y-intercept. Students use graphs and tables to recognize representations of slope and y-intercept in initial lessons. Lessons lead to more abstract representations, including ordered pairs, equations, and word problems, to have students explain the relationships. In "Topic 10," the "SAS" supports student understanding of linear equations and inequalities with scaffolded guiding questions that require students to model and solve equations using different representations. In "Lesson 2" and "Lesson 3," students focus on solving linear equations and inequalities using various methods, such as solving with tables and graphs. This guides students to utilize concrete models that lead to a conceptual understanding of the concepts.

## Balance of Conceptual and Procedural Understanding

5.4	Development of Academic Mathematical Language	14/14
5.4a	<a href="#">Materials provide opportunities for students to develop their academic mathematical language using visuals, manipulatives, and other language development strategies.</a>	3/3
5.4b	<a href="#">Materials include embedded guidance for the teacher addressing scaffolding and supporting student development and use of academic mathematical vocabulary in context.</a>	2/2
5.4c	<a href="#">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.</a>	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.**

- The "Teaching English Language Learners" essay highlights the importance of providing opportunities for students to develop academic mathematical language using visuals, manipulatives, and other language development strategies. It outlines the importance of introducing emergent bilingual students to mathematical concepts through diverse methods, such as pictures, kinesthetic movements, manipulatives, listening, speaking, reading, and writing, to cater to different learning styles and enhance comprehension. The course material supports this approach by offering definitions of key vocabulary terms within a new learning context, accompanied by rich visual representations and interactive animations that clarify the associated concepts. By providing these multiple pathways for language development, the essay states that students are not only exposed to academic vocabulary but are also able to understand and apply it within their mathematical learning, deepening their academic literacy and subject matter understanding.
- The "Topic Content" sidebar includes dropdowns to the teacher's instruction for the topic as a whole, the individual lessons, and the vocabulary list for the topic. The materials offer opportunities for students to develop academic mathematical language through instructional



strategies provided to teachers in the "Language Support" Section of the "Prepare Instruction" material at the beginning of each topic. The section includes the core vocabulary for the topic that students should become familiar with using and defining. The section provides guidance by highlighting specific terms or strategies teachers can use with students to help them better understand the academic vocabulary. "Topic 1" encourages teachers to build a word wall as students interact with the words rather than putting all of them up at the beginning of the topic. This helps students build proficiency with the content vocabulary. Each topic in the materials highlights the mathematical vocabulary introduced and practiced with the lessons under the "Vocabulary" Section. The listed words link to the online glossary that provides each word's definition in both English and Spanish, along with an example. In "Topic 1," *pre-image* is listed, and the glossary defines it as "the original figure that is transformed to create a new figure." An example of a pre-image with its image that uses the prime notation is provided beneath the definition.

- The "Deliver Instruction" materials include advice for teachers to support academic language development. In "Topic 1, Lesson 1," the "Lesson Activities" Section advises teachers to add words to the word wall as they are introduced. It recommends students add the word to their vocabulary notebook with a definition and appropriate image or diagram. The advice is provided as support for emergent bilingual students and other special populations but explains it is a good practice for all students. In "Topic 7, Lesson 1," the guidance instructs teachers to use a choral chant or "Total Physical Response (TPR)" to help students remember how to calculate slope and provides an example they can use.
- The "Lesson Activities" Section includes student-facing lesson animations and tasks that include content and language supports. The animations for "Topic 1, Lesson 1" define the word *transformation*. The word is printed in bold so students know it is an important vocabulary word. The gray box at the top of the animation describes the different transformations as part of students' everyday lives. The animation slides show real-world examples of the different transformations and use the vocabulary words to describe the transformations. At the bottom of the page is a "Language Note" button that when clicked explains other definitions or examples of transformations and the mathematical context of transformations. "Constructed Response" activities embedded within the topics provide students the opportunity to develop their academic mathematical language through specific tasks where they apply new words they have learned in the topic in their writing. In the "Constructed Response 2" task in "Topic 6," students learn about linear patterns and functions. The task asks them to write their conjectures about the behavior of patterns within linear models. The "Student Activity Sheet (SAS)" for "Topic 7, Lesson 2" encourages students to interact with the lesson vocabulary by completing a puzzle matching the word to a description of the term.

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

- The "Teaching English Language Learners" essay provides guidance for teachers on addressing scaffolding and supports for student development and use of academic mathematical vocabulary in context. It emphasizes introducing English learners to

mathematical concepts before naming them with academic vocabulary, allowing for understanding through experiences and discussions. The course materials aid this process by providing definitions of key terms within the context of new learning, supported by visual representations and interactive animations. The essay highlights practical teaching strategies with descriptions of their use, such as using pictures, kinesthetic movements, manipulatives, and various language activities to support different learning styles. This contextual approach encourages students to not just memorize words but understand and apply them within their mathematical learning. This approach enhances student academic vocabulary building and overall comprehension.

- The "Prepare Instruction" material for each topic includes the "Language Support" Section, which offers guidance for teachers in introducing and promoting student use of academic language. The materials include the core vocabulary of the topic and provide scaffolding teachers can use to assist students in developing and employing academic vocabulary. "Topic 5" explains that "Language Notes" are provided on key pages of the topic to help with collateral vocabulary words, those with different meanings in real-world and mathematical contexts. It suggests teachers use the notes as models to look for and address other potential language issues. It encourages teachers to provide time for students to talk together and practice the vocabulary with each other and the whole class.
- The "Deliver Instruction" materials include embedded guidance for teachers to support students with scaffolding around the use of academic mathematical vocabulary in context. The lessons include "Classroom Strategies" and "Support for ELL/Other Special Populations" Sections, which recommend turn-and-talks and sentence frames to support student engagement with vocabulary. In "Topic 2, Lesson 1," teacher guidance instructs students to write the word *rational* in their vocabulary notebook and explains the similarity between the word in English and Spanish. In the "Student Activity Sheet (SAS)," students use the graphic organizer to represent the relationship between the terms and add real number values from the online platform for examples. The "Language Note" in the lesson activities for *rational* and *irrational* points out other ways students might see the terms in their everyday lives alongside the mathematical context. In "Topic 10, Lesson 1," guidance instructs teachers to help students tell the difference between a function and an equation by reviewing specific core vocabulary from previous topics before, during, and after the lesson.

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

- The "Teaching English Language Learners" essay integrates various instructional strategies and embedded supports for emergent bilingual (EB) students across multiple dimensions of learning. The essay outlines practical teaching strategies aligned with EB students' needs and demonstrates how the course materials support these strategies. The essay highlights the importance of building academic vocabulary by defining terms within the context of learning,

specifically by embedding guidance for vocabulary, syntax, and discourse to support mathematical conversations. The strategies include students keeping a vocabulary notebook, participating in think-alouds, using echo-repeat or choral chants, participating in activities with word walls, and using multiple representations. The "Fostering Student Discourse" Section emphasizes that the teacher should provide frequent opportunities for students to speak and write about the content in meaningful ways that encourage them to reason, justify, generalize, and deepen content knowledge. It explains the guiding questions and questioning strategies embedded throughout the lessons support teachers in helping students build conceptual understanding by evaluating evidence and revising their thinking. It includes explicit strategies with instructions teachers can implement in the classroom, including think-write-pair-share, sentence frames or stems, adapted activities, talk-read-talk-write, and Kagan structures.

- The "Deliver Instruction" materials for each lesson include embedded guidance for the teacher to support the application of appropriate mathematical language, facilitating opportunities for students to hear, refine, and use math language with peers, and develop their math language toolkit over time. The lessons include "Classroom Strategies" for teachers, including tasks like turn-and-talks, emergent bilingual support strategies, language strategies, and other engagement strategies. In "Topic 5, Lesson 1," the "Support for ELL/Other Special Populations" guidance explains the many opportunities for students to talk to each other during this topic. It suggests using different pairing techniques, such as stand up, hand up, pair up, or a think-pair-share, to allow all students to participate in the mathematical discussions. The materials include various types of questions for the teacher that open discussion with students through opportunities for whole- and small-group mathematical dialogue in each topic. "Opening and Framing Questions" introduce the lesson, including guiding questions with exemplar answers to use during instruction, and "Further Questions" to close the lesson. In "Topic 9, Lesson 2," one question asks about the long-term value of compound interest compared to simple interest. The exemplar response states, "Compound interest grows faster because you are earning interest on interest," providing teachers with an example of responses they should hear from students.
- The student-facing activities in lessons include opportunities to work collaboratively with peers to support their mathematical language development. Each student-facing activity includes a teacher key or rubric to provide teachers with exemplar responses. "Topic 2, Lesson 6" includes the "Constructed Response 1" activity, which requires students to apply what they have learned throughout the topic. For this lesson, students review the definitions and differences between the two main vocabulary words learned during the topic. Students begin working individually to process their answers and ideas before being placed in small groups to compare their methods with their peers. While the students are working, the teacher monitors their process and encourages them to make sense of the problem by explaining to themselves or the teacher the meaning of the information given in the prompt. Students change partners to share their responses and strategies once more before sharing and debriefing with the whole class. The teacher key includes the possible solutions students may discover with example explanations to compare to student responses. The "Student Activity Sheet (SAS)" for "Topic 5, Lesson 3" offers a set of discussion questions designed to facilitate open discourse among students while guiding them towards exemplar responses to questions and tasks using their developed mathematical language. These questions encourage students

to use precise language, provide evidence to support their answers, and justify mathematical relationships across various contexts. Questions include open-ended responses, and the teacher key includes examples of appropriate responses.

## Balance of Conceptual and Procedural Understanding

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

- The "Texas Mathematics 8 Course Rationale" explains how the course connects the learning to the mathematical process standards outlined in the Texas Essential Knowledge and Skills (TEKS). The mathematical process standards expect students to solve problems in everyday life, apply a problem-solving model, select appropriate tools, communicate ideas and reasoning, create and use representations, analyze relationships, and display, explain, and justify using mathematical language. The "Course Rationale" notes the emphasis on multiple representations, modeling, and problem solving through the use of models in the world, academic language, tools, and multiple representations. The material details the use of visual contexts throughout the curriculum to help students develop their academic vocabulary. In the "Course Order and Concept Connections" Section, each topic is grouped into units with a description of how students will interact with the content. It explains in "Topic 4" and "Topic 6," students will analyze graphs, make informal observations, and define and represent linear functions in various ways through real-world examples.
- The *Mathematics 8 Scope and Sequence* outlines the process standards and their integration throughout the course materials. Students will acquire and demonstrate mathematical understanding through the use of mathematical processes. The material states, "These processes should become the natural way in which students come to understand and do mathematics." It explains students should pay particular attention to analyzing mathematical relationships and making connections to mathematical ideas, along with modeling and problem-solving, developing viable arguments, and using precise language.

- The "Deliver Instruction" material lists a "Goals and Objectives" Section for students that corresponds with the mathematical process standards. In "Topic 3, Lesson 1," students analyze relationships between the three side lengths of a right triangle. The "Opening and Framing Questions" prompt students to communicate ideas and reasoning, which is done throughout the lesson activities as students display, explain, and justify their understanding with mathematical language. The "Student Activity Sheet (SAS)" for "Topic 5, Lesson 3" incorporates a set of discussion questions designed to facilitate open discourse among students while guiding them towards exemplar responses to questions and tasks using their developed mathematical language. These questions encourage students to use precise language, provide evidence to support their answers, and justify mathematical relationships across various contexts. In "Topic 7, Lesson 6," the "MARS Task: Vacations" requires students to make connections in real-world situations by using mathematical models, graphs, and algebraic rules.

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

- The "Texas Mathematic 8 Course Rationale" provides an overview and explanation of how the process standards are embedded throughout the course. The process standards outline that students will solve problems in everyday life, apply a problem-solving model, select appropriate tools, communicate ideas and reasoning, create and use representations, analyze relationships, and display, explain, and justify using mathematical language. The material explains students have consistent opportunities to practice and apply their mathematical learning to real-world problems. Students also engage in exploration and problem-solving, use multiple representations, such as verbal, tabular, pictorial, graphical, and algebraic, and make connections between concepts. It explains how visual contexts assist students in developing academic vocabulary through language and classroom strategies guidance for teachers. It explains that algebraic and geometric models and problems appear in the world around us and students can use that language to communicate about the world. Students have access to a variety of tools as they learn and explore. Multiple representations are used extensively throughout the course. The "Course Order and Concept Connections" Section groups topics into units that include a description of how students will interact with the content. The "Unit," "Introduction to Linear and Nonlinear Functions," requires students to represent linear relationships and functions with multiple representations, including verbal descriptions, tables, graphs, and equations, and make informal observations about the functions.
- The *Mathematics 8 Scope and Sequence* outlines the process standards and their integration throughout the course materials to acquire and demonstrate mathematical understanding. It explains, "These processes should become the natural way in which students come to understand and do mathematics." The material discusses how the current grade level utilizes the process standards throughout the course, including having students pay particular attention to analyzing mathematical relationships, making connections to mathematical ideas, modeling and problem-solving, developing viable arguments, and using precise language.



- In the "Course Materials" sidebar, the "About the Course" material describes the course's development of students' ability to use key mathematical processes. It explains some processes may be more pertinent or centric to the topic or lesson, depending on the content. It emphasizes students should pay particular attention to analyzing mathematical relationships, making connections to mathematical ideas, modeling, and problem-solving, developing viable arguments, and using precise language.

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

- The "Texas Mathematics 8 Course Rationale" provides an overview and explanation of how the process standards are embedded throughout the course. The process standards outline that students will solve problems in everyday life, apply a problem-solving model, select appropriate tools, communicate ideas and reasoning, create and use representations, analyze relationships, and display, explain, and justify using mathematical language. The material explains students have consistent opportunities to practice and apply their mathematical learning to real-world problems. Students also engage in exploration and problem-solving, use multiple representations, such as verbal, tabular, pictorial, graphical, and algebraic, and make connections between concepts. It explains how visual contexts assist students in developing academic vocabulary through language and classroom strategies guidance for teachers. It explains that algebraic and geometric models and problems appear in the world around us and students can use that language to communicate about the world. Students have access to a variety of tools as they learn and explore. It explains multiple representations are used extensively throughout the course. The "Course Order and Concept Connections" Section groups topics into units that include a description of how students will interact with the content. The "Unit," "Introduction to Linear and Nonlinear Functions" requires students to represent linear relationships and functions with multiple representations, including verbal descriptions, tables, graphs, and equations, and make informal observations about the functions.
- The *Mathematics 8 Scope and Sequence* features a description for each unit, detailing how process standards are integrated and interconnected throughout the entirety of the unit alongside the TEKS relevant to the topic. In "Topic 1," students use algebraic representations and coordinate planes to explain the effects of scale factor and transformations. These skills correspond with TEKS 8.03.C and 8.10.C.
- The "Prepare Instruction" material for each topic explains the connection of the process standards to the content of the topic. In "Topic 2," students analyze the relationships between real numbers, including square roots and scientific notation, by using models and graphs. Students review and describe the relationship between different types of real numbers by displaying, explaining, and justifying with mathematical language to communicate ideas and reasoning. In "Topic 4," students will make connections in analyzing graphs to real-world scenarios. Students create, read, and analyze graphs with the additional resources, including graph paper and a straight edge, which teachers provide. In "Topic 9," students develop financial literacy by analyzing, comparing, and considering real-world financial situations. Students use technology to explore and calculate various financial options.

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

- The "Deliver Instruction" material for each lesson explains the connection of the process standards to the content of the lesson in the "Goals and Objectives" Section. In "Topic 3, Lesson 1," students will analyze relationships between the three side lengths of a right triangle. In "Topic 4, Lesson 1," students create and interpret graphs and verbal descriptions when provided with one of the representations. The "Opening and Framing Questions" introduce students to the lesson's concepts through real-world or mathematical situations. Students communicate their mathematical ideas and reasonings through whole-class discussions. In "Topic 3, Lesson 1," students are introduced to a real-world situation of laying tiles in which they will apply the Pythagorean Theorem to ensure the tiles are straight.
- The "Deliver Instruction" material includes teacher prompts and guidance for helping students use and apply the process standards in the "Lesson Activities" Section. "Topic 4, Lesson 6" prompts teachers to have students explain and justify mathematical ideas and arguments using precise mathematical language in written and oral communication. The material emphasizes fostering the practice of critiquing others' reasoning in constructive and respectful ways to promote mathematical processes and practices. In "Topic 9, Lesson 5," students must clearly describe different financial situations involving interest. In "Topic 13, Lesson 2," the "Mathematical Processes and Practices" bullet guides teachers to ask students to use a problem-solving model to investigate and make sense of the provided tools, formulate a strategy for investigating the scenario, and look for regularity and trends.

## Productive Struggle

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

- The materials include lessons that require students to think mathematically and make sense of mathematics by persevering through solving problems. In "Topic 3, Lesson 1," students explore the relationships between side lengths of right triangles. Students apply the vocabulary related to the sides of a right triangle and make connections between Pythagorean triples. Students practice creating right triangles when given two leg lengths by drawing and measuring the hypotenuse. This activity requires students to make sense of mathematics by exploring the Pythagorean Theorem before using and applying it. The materials provide opportunities for student discussion around the key concepts of the lesson that demonstrate their mathematical thinking and sense-making. In "Topic 9, Lesson 5," students work in small groups to complete an error analysis about financial decisions. Students form an argument to defend their work by supporting the decision made in the problem situation.
- The materials include "MARS Tasks" which require students to understand, explain, and justify that there are multiple ways to solve a problem. In "Topic 4, Lesson 4" "MARS Task," "Graphs," students solve problems using qualitative and quantitative predictions and comparisons. Students study four geometric relationships and their data. Students choose the description and equation that best fits with the graph. Students construct arguments to defend their solutions to their peers, providing space for them to think mathematically, persevere through problems, and make sense of mathematics by comparing similar situations. In "Topic 7, Lesson 6," the "MARS Task," "Vacations," includes a description of the opportunity students have to think mathematically and persevere through solving problems, explaining, "students reinforce processes for mathematical problem-solving as they connect contextual situations with mathematical models, using graphs and algebraic rules." Students work in groups to

determine solutions to the problems and create an argument defending their answers. Students share and compare their solutions with different groups and critique peers' arguments as needed.

- The "Constructed Response" tasks in the material require students to extend their knowledge of mathematical concepts to real-world scenarios through mathematical problem-solving. In "Topic 1" "Constructed Response 2," students use two similar shapes on a coordinate plane to answer mathematical questions. Students record the coordinates of the vertices for the two shapes and make comparisons and observations about the shapes. Students use what they learned to determine the transformation used on the shape and record their steps. Students explain how the transformation affects the shape, requiring them to think mathematically to solve problems and make sense of the mathematics. In "Topic 4, Lesson 6" "Constructed Response 2," students determine how to solve certain problems through various methods, including thinking through graphs and graph information using fuel efficiency. The teacher splits the class into two teams and each team must come to a consensus on their responses for each part of the problem. Each team shares their answers with the class and defends their arguments to their peers. Students can seek clarification from the other team and critique their reasonings, providing students the opportunity to think through tasks, persevere through problems, and make meaning of them.

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

- In the "Lesson Activities" and "Student Activity Sheet (SAS)," materials support students in understanding, explaining, and justifying their ability to solve problems in multiple ways through discussion with peers. In "Topic 3, Lesson 6," students debrief a problem, looking for multiple-solution strategies and common strategies from their peer's work then explain their solutions. In "Topic 4, Lesson 2," students share and describe a graph to a peer, providing time to compare, contrast, and adjust their explanations. Students share their different graphs with the class to show they all represent the same solution. The teacher key explains that answers may vary based on the simulation students choose to solve problems, and it provides possible solutions for teachers to compare to students' answers to check for understanding.
- The "Deliver Instruction" material for each lesson offers teacher guidance that supports students in explaining various approaches to problem-solving and completing tasks. In "Topic 1, Lesson 7," teacher guidance explains the task for students includes open-ended questions so students can approach the exploration in a variety of ways. The guidance prompts teachers to encourage the students to construct examples that will convince their classmates of their arguments when they share their work. In "Topic 7, Lesson 7," the teacher guidance includes instructions for conducting a gallery walk to have students explore the various strategies peers used on the "Constructed Response 2" task about the slope of a staircase. Question prompts provide teachers with methods of having students compare solutions and strategies used to solve the problem.
- The "Constructed Response" tasks require students to justify their responses and show multiple ways of solving problems and completing tasks. The "Constructed Response 1" task for "Topic 2, Lesson 6" requires students to justify their responses and show multiple ways of

solving problems and completing tasks. Students compare their methods for drawing a square given one line segment and explain their methods for calculating the area. In "Topic 13, Lesson 6" "Constructed Response 2," students complete their tasks comparing the volumes of cylinders, cones, and spheres and share their solutions with a partner, engaging in discussions to compare strategies and solutions. The final question asks students to explain the relationship between the volumes of the objects. The teacher key explains that answers may vary based on the strategy students choose to solve the problems, and it provides possible solutions for teachers to compare to students' answers to check for understanding.

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

- The materials include opportunities for students to do math with peers and teachers throughout the lesson activities. "Topic 2, Lesson 9" requires students to complete problems to show their understanding of mathematics. Students solve a problem about a real number using a number line. In "Topic 3, Lesson 5" "Constructed Response 1," students answer questions using the Pythagorean Theorem when given a pictorial representation of a roof with labeled information. Students read over the prompt silently and independently and write down clarifying questions they have and any initial strategies or formulas that might be used in solving this problem. Students work with a partner to discuss their understanding and to resolve any clarifying questions. Before students start answering the questions, they discuss as a class any common misconceptions or common questions. This activity requires students to make sense of mathematics by doing the problems. They are given the opportunity to write about mathematics and discuss it with their peers and the teacher.
- The extension tasks, such as "Constructed Response" and "Literacy Tasks," require students to make sense of mathematics through writing about and discussing math with peers and the class. In "Topic 2, Lesson 6," students complete "Constructed Response 2" by approximating rational and irrational numbers on a coordinate plane. Students explain their understanding and the processes they used to solve in writing. At the end of the lesson, students debrief as a class with teacher-posed questions summarizing the activity. In the "Topic 3, Lesson 5" "Literacy Task," students read articles about the pitch of a roof and write an essay explaining roof pitches and their relationship to right triangles. Teachers have a list of questions to ask students to further their thinking as they read and research. This activity is completed after "Constructed Response 1," where students have already had the opportunity to solve problems related to roof pitches. This activity provides students the opportunity to draw on their understanding after conversations with their peers and teachers to write about mathematics.
- The grade 8 materials require students to make sense of mathematics through opportunities for classroom discourse where students discuss their mathematical thinking, share different solution strategies, make connections, and engage in collaborative learning with peers. In "Topic 9, Lesson 1," teachers pose the "Opening and Framing Questions" to students to introduce the lesson. The questions require students to explain how they interact with money and their current understanding of interest. In "Topic 13, Lesson 2," teacher guidance promotes allowing students to work with partners to discuss strategies used to solve

problems on the "SAS." The guidance includes question prompts the teacher can utilize to help students make connections between the relationships shown in the animations and the formulas for finding surface area.



## Productive Struggle

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

- The grade 8 materials guide teachers to facilitate student sharing and reflection on their problem-solving approach through explanations. In "Topic 6, Lesson 9," teacher guidance and questions prompt students to find multiple strategies and reflect on their approaches. The teacher guidance suggests leading students in a class discussion to share their strategies and explanations of why they chose each strategy with the class. This guidance provides students with the support to examine their thinking and approach to the problem. In "Topic 13, Lesson 6," the "Constructed Response 3" requires students to explain the diversity of problem-solving approaches as they solve for volume using their knowledge of cylinders, cones, and spheres. The guidance encourages independent work initially. Once students complete their tasks, students share their solutions with a partner and engage in discussions to compare strategies and solutions. Pairs collaborate to address discrepancies or errors in their approaches, aiming for resolution together where possible.
- The grade 8 materials guide teachers to facilitate student sharing and reflection on their problem-solving approach through arguments. In "Topic 3, Lesson 3," teachers guide students in writing and defending an argument for their proof of the Pythagorean Theorem by choosing appropriate tools and teacher scaffolding. In the "Deliver Instruction" material for "Topic 11, Lesson 6," teacher guidance includes directions and specific guiding questions for having students work in teams to practice constructing viable arguments and critiquing the reasoning of others. Teachers encourage students to ask clarifying questions of their partner to build their arguments and reflect on and defend their reasoning.
- The grade 8 materials guide teachers to facilitate student sharing and reflection on their problem-solving approach through justifications. In "Topic 5, Lesson 4," students engage with an interactive panel, utilizing their math knowledge of vertical motion. The material provides interactive modules that visually demonstrate graphs of vertical motion for students to observe the mathematical concepts through an elevator. Teacher resources facilitate student

processing through various questions; in response, students must explain and justify their reasoning and the accuracy of their solutions. In "Topic 7, Lesson 6," teacher guidance on the "MARS Task," "Vacations," requires students to compare and justify their solutions. Students begin working in small groups to match graphs to explanations. Students find a partner from a different group and must justify their solutions and critique their partners' reasoning through probing questions and verbal feedback. The feedback provides the opportunity for students to reflect on their justifications and adjust them as necessary.

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

- The materials offer teachers prompts and guidance for providing explanatory feedback addressing student responses. The "Deliver Instruction" material for "Topic 1, Lesson 3" gives teachers guidance throughout the lesson. The guidance states to monitor student work and look for common mistakes or misconceptions when naming vertices of polygons and identifying images and pre-images in reflections. Teachers choose from a list of five guiding questions based on the error they may see on the student's page or in the student's work. One states, "Does your pre-image have to be in the first quadrant?" The guidance explains, "No this is a common misconception...that is often reinforced by the examples we show." The guidance prompts teachers to have students place polygons in other quadrants or across an axis. In "Topic 7, Lesson 7," while students are learning about slope and y-intercept, they apply their knowledge to the task of creating a staircase design. During this process, the guidance provides teachers with specific prompts like, "Use the following questions to guide students struggling with the staircase design." The following questions focus on specific areas students may be struggling with, so teachers can offer targeted feedback that helps students understand what is necessary to complete their design
- The materials support teachers by providing prompts and detailed guidance on common misconceptions. In "Topic 5, Lesson 1," the guidance points out that students may interpret the graphs being shown as the actual path of the skateboarder instead of the rate of change. It prompts teachers to focus on the starting point and different sections of the graph and have students explain the meaning of different points of the graph. In "Topic 6, Lesson 5," the guidance makes teachers aware that a common misunderstanding students make is that they graph points incorrectly or forget to graph the points. It prompts teachers to ask students to re-read both parts of each prompt or explain how they determined the coordinates or location of the point they graphed.