Publisher Name	Program Name
Accelerate Learning	*STEMscopes Texas Math*
Subject	**Course**
Mathematics	Algebra I

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

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

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

Quality Review Summary

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

Strengths

- 1.1 Course-Level Design: Materials include a scope and sequence outlining the TEKS, ELPS, concepts, and knowledge taught in the course, with suggested pacing guides for various instructional calendars, explanations for the rationale of unit order and concept connections, guidance for unit and lesson internalization, and resources to support administrators and instructional coaches in implementing the materials as designed.
- 1.2 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 an 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 in this material

Summary

Accelerate Learning's *STEMscopes Texas Math – Algebra I* is a Mathematics 9–12 program. The instructional materials promote conceptual understanding of mathematics through hands-on exploration, inquiry, and analysis using the research-based 5E + IA model (Engage, Explain, Elaborate, Evaluate, Intervention, and Acceleration. The materials support students by building concrete understanding before transitioning to representational models and abstract representations. The curriculum provides comprehensive unit overviews with essential background knowledge and academic vocabulary necessary for teaching concepts effectively. Additionally, the program includes family

support resources in both English and Spanish, equipping families with tools to aid their children's learning.

Campus and district instructional leaders should consider the following:

- The program includes materials that support teachers in guiding students to share and reflect on their problem-solving approaches, including explanations, arguments, and justifications. It also includes a variety of instructional assessments at the unit and lesson level that vary in types of questions and tasks.
- The product features detailed lesson plans that include daily objectives, questions, tasks, materials, and instructional assessments required to meet the content standards. The language standards are found in the teacher directions for each Scope, which includes an extra navigation step from the Teacher Guide.

Intentional Instructional Design

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

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

- Materials include a document called *Algebra I Scope and Sequence*, which is found in the "Teacher Toolbox." This is a PDF document downloadable from the "Scopes" tab and can be found in the "Essentials" drop-down in the "Teacher Toolbox." The scope and sequence provide general titles for each "Explore" activity, giving a brief overview of the concepts and knowledge covered in these lessons. It includes "Explore" activities as those TEKS and ELPS locations. Teachers see the name of each scope on the first column of this scope and sequence chart. This document contains the name of each scope, the TEKS covered in each unit, the TEKS for each Explore activity, and the ELPS for each Explore activity. Teachers see the TEKS covered in each scope in the second column. For example, teachers see the scope titled "Properties of Functions" covers TEKS A.2A, A.12A, and A.12B. The standards section lists the strands, knowledge and skills, and student expectations in an organized manner based on processing and content. The ELPS are in the *Correlation Documents* listed in the 4th column.

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

- Materials include suggested pacing under the teacher toolbox in the "*Implementation Guide*." In the Teacher Toolbox under "Essentials," the "Lesson Planning Resources" provide a pacing guide that states the number of days a teacher should provide instruction on a lesson and includes a section for block schedules and 50–minute classes.
- The materials include a "Scope and Sequence" to help with the effective implementation of a 180–day calendar, which has 171 days earmarked for instruction or benchmark assessments. The "Math *Implementation Guide*" states "The provided Scope and Sequence documents are based on a typical 180–day instructional calendar. To modify for varying amounts of instructional days, activities can be added or removed." The "Teacher *Implementation Guide*" provides suggestions for a 165–day calendar that includes teaching only essential activities. Suggestions for calendars over 180 days include using intervention and acceleration elements, project-based tasks, and fluency builders to fill in additional days.
- The document provides a scope and sequence based on a standard 180–day instructional calendar. It can be adjusted for different instructional days by adding or removing activities. For instance, if your instructional calendar spans 165 days, we recommend the following:
    - Focus on teaching the essential activities highlighted in our "Lesson Planning Guide" in the Teacher Toolbox (if time is limited).
    - Adjust your pace based on the number of "Explores" outlined in the scope.
    - Assign "Exit Tickets" and "Show What You Know" as homework for each "Explore" instead of in-class assignments.
    - Select additional activities based on the specific needs of your students.

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

- Materials include an explanation for the rationale of unit order. Teachers find this explanation in the document titled *Algebra I Course Rationale*. Teachers read a whole–course rationale and a rationale for each scope. The "Algebra 1 Rationale for Scope Order" states, "Each scope in Algebra I is meticulously designed to build on the previous ones, ensuring a coherent and cumulative learning experience that readies students for higher–level mathematics." The teacher tracks the progression of concepts and analytical skills by reading through the scopes. Each unit also includes a brief explanation of the progression from one scope to the next.
- *Algebra I Course Rationale* explains how concepts connect throughout the course. The rationale for each scope provides teachers with a few sentences explaining how concepts in one scope connect with concepts in other scopes. For example, "The Solve Equations scope advances students' algebraic skills by focusing on solving linear equations…laying the groundwork for solving more complex algebraic equations and systems." Each scope includes similar connections between concepts learned in previous scopes and concepts to be learned in future scopes.

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

- Materials include guidance for unit internalization within each scope. The *Suggested Scope Calendar* is used as guidance to internalize and "review the standards addressed in the scope, become familiar with the way the standards are assessed and what demonstrates mastery, [and] review the *Progression of Learning* found in the "Scope Overview" to understand how the concepts are sequenced." In the internalization protocols, there is a section called "Content Unwrapped," which outlines the TEKS covered in the scope, breaks down the TEKS into different parts, presents unit vocabulary, and includes a vertical alignment chart showing how the TEKS are covered in the scope across grades and courses. The "Teacher Guide," found under "Print Files" in the "Scope Overview" section, provides blank templates for the unit calendar and facilitation points for each "Explore" activity in the unit.
- Materials include guidance for lesson internalization within each lesson. The *Progression of Learning* document provides guidance for the 5E model and each activity fitting under each of the five E's. Each "Explore" activity includes teacher protocols like "Preparation," "Procedure and Facilitation Points," "Instructional Supports," and "Language Supports." "Explain," "Elaborate," and "Evaluate" activities including "Preparation" protocols and "Procedure and Facilitation Points" protocols. The teacher version of the "Observation Checklist" under editable files in the "Evaluate" section of every scope provides teachers a starting point for informal formative assessment of TEKS within the scope and an opportunity to include additional observation criteria specific to their students and classrooms.

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

- Materials include resources and guidance to support administrators with implementing the materials as designed. The *Math Implementation Guide* provides administrators with an observation tool explaining teacher, student, and observer actions based on the "Guiding Principles of Best Practice." Administrators read the rationale for the constructivist approach and the "Foundational Teacher Actions" that follow the "Guiding Principles of Best Practice."
- Materials provide an *Implementation Guide* that contains an *Administration and Instructional Coach Support* document. The document provides guidance for administrators and instructional coaches when observing students and teachers in the classroom. It outlines what observers should look for from both students and teachers when they are working through a scope. It also describes foundational teacher actions that "have the greatest influence" on learning outcomes.

Intentional Instructional Design

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

The materials include comprehensive unit overviews that provide the background content knowledge and academic vocabulary necessary to effectively teach the concepts in the unit. Materials contain support for families 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.

- Materials include comprehensive unit overviews that provide the background content knowledge necessary to effectively teach the concepts in the unit. The "Content Support" section includes the subsection "Background Knowledge," which explains student actions related to the content in previous grade levels. The subsection "Misconceptions and Obstacles" explains frequent errors students make and potential points of clarification. The subsection "Current Scope" details student actions related to content for the current unit. Several subsections under "Current Scope" provide teachers with an overview of all the content and skills for the unit. For example, in "Content Support" for scope "Slope and Rate of Change," teachers find the Texas Essential Knowledge and Skills (TEKS), background knowledge, and terms to know to effectively teach the concepts in the unit.
- Materials include comprehensive unit overviews that provide the academic vocabulary necessary to effectively teach the concepts in the unit. "Content Unwrapped" includes academic vocabulary for each unit under the section "Nouns: What Concrete Words Should Students Know." "Content Support" includes academic vocabulary for each unit under the section "Terms to Know." Both sections include definitions of the academic vocabulary for each unit. "Picture Vocabulary" in the "Explain" section of each scope provides connections between teachers and students through verbal–visual representation.
- Materials include a "Content Support" tab that outlines the TEKS to be covered within the scope (unit), necessary background knowledge, and terms to know (vocabulary.) It also includes a coming attractions paragraph at the end of the content support page which highlights how these student expectations are covered in future courses such as Algebra 2.
- Materials contain a "Content Unwrapped" section of the home tab. This outlines the vocabulary necessary and vertical alignment for teachers to effectively teach the concepts in the unit. The vocabulary is broken down into two categories: verbs and nouns. "Content Unwrapped" outlines the vertical alignment from prior grades as well as Algebra I content that connects to the current unit content to be used in accessing prior knowledge.

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

- The materials contain support for families in English in the form of "Take–Home Letters." The "Take–Home Letters" list the scope at the top, *Algebra I: Arithmetic and Geometric Sequences*, including the concepts students learn within the scope, sample examples with solutions, key terms and definitions, and real-life applications of the concepts covered. This document allows families to engage and support their students' progress.
- Materials contain support for families in Spanish in the form of "Take–Home Letters." The "Take–Home Letters" list the scope at the top of *Algebra I: Arithmetic and Geometric Sequences* including the concepts students learn within the scope, sample examples with solutions, key terms and definitions, and real-life application of the concepts covered. This document allows families to engage and support the progress of their students. The Spanish version of this document is not available for all units.

Intentional Instructional Design

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

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

Evidence includes, but is not limited to:

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

- The materials include a comprehensive teacher guide for each unit, which provides a detailed lesson plan with daily objectives, Depth of Knowledge (DOK)–leveled questions to assess students' understanding, and tasks called Explores. It also includes an assessment planner for scheduling and using data from instructional assessments to meet content standards. The lesson plans follow the 5E model, guiding teachers to engage students with a Hook, Foundation Builder, or an activity to access prior knowledge. Teachers can progress through each Explore and Explain to teach the lesson and measure student progress. Elaborate sections allow students to extend their knowledge, and Evaluate sections allow teachers to measure student growth. This structured lesson progression is consistent across all units.
- The online Teacher Directions include a section labeled Language Supports. This section provides support for teachers and students, as well as provides a list of language standards (ELPS) supported in that lesson. For example, the online materials, "System of Equations scope, Explore 3 – Solve Systems by Elimination, Language Supports" are provided to support language development.
- Materials include detailed lesson plans that include daily objectives, questions, tasks, materials, and instructional assessments required to meet the content and language standards of the lesson. Daily objectives provide detailed descriptions of multiple student

actions. Teacher questions include sample student answers to guide teachers on expected student responses. Detailed instructions guide teachers on the progression of each task in the lesson and tell teachers when to transition from one activity to the next. Materials under Print Files, Editable Google Files, and the Teacher Guide provide ample guidance teachers can use to prepare and deliver the lesson. Instructional assessments provide final answers but do not provide extended solutions to each problem.

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

- Materials include a Suggested Scope Calendar that entails the number of days to cover the scope and the number of minutes each component within the lesson should take. For example, on day 1 of the "Graphs of Quadratic Functions" scope, the warm-up is allotted 5–10 minutes, and the Focus lesson, which includes a foundation builder, hook part 1, and explore #1 is allocated 20–30 minutes. The independent practice spiraled review is given 30–45 minutes, and the interactive vocabulary is noted as less than 15 minutes.

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

- Materials include a lesson overview outlining the lesson components without suggested timing in the Teacher Planning Guides. Teachers can choose from four planning guides based on the number of Explores in the week (1–3 or 3–6 Explores) and traditional (50 minutes) or block schedule (70 minutes). The 6–8/Algebra Math Planning guide with three Explores in the week names the lesson components but does not provide suggested timing for each component for whole group instruction. The Small Group Instruction option in the same planning guide suggests spending 10 minutes in whole–group instruction and 10 minutes per station as students rotate through four stations in small groups.
- Materials include a lesson overview listing the student materials necessary to effectively deliver the lesson in each Explore section. In the scope Properties of Exponents and Radicals under the Explore dropdown, Explore 4 – Fractions as Exponents lists
    - one student journal per student,
    - one set of Manufacturer Radius cards per group, and
    - one exit ticket per two students
- as student materials necessary to deliver the lesson. Teachers can download editable files for the student journal and exit ticket in English and Spanish or print ready–to–use student materials for the lesson under Print Files.
- Materials contain a "K–AlgI Master Materials List" spreadsheet found under Essentials in the Teacher Toolbox that outlines teacher and student materials necessary to effectively deliver the lesson. The tenth tab of the K–AlgI Master Materials List outlines the materials needed for each scope for Algebra 1 and the number of items needed per class and indicates if materials are consumable or reusable.

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

- Materials include an "Acceleration" tab with additional activities meant to extend the learning from scope (unit). This tab contains additional student tasks and a choice board for students to select an extension activity.
- Materials provide a suggested scope calendar that details each component within the lesson. The last subheading of each day on the suggested scope calendar is "independent work and homework options." This section contains several options for extending the lesson, homework, and enrichment. The options provided on each day vary but include spiraled review, interactive vocabulary, show what you know, choice board, and always includes the statement "Refer to the Practice section for more options."
- Materials include guidance on the effective use of lesson materials for enrichment in the Teacher Preparation Instructions and Procedure and Facilitation Points for Choice Boards. Preparation instructions guide the teacher to print a Choice Board, a set of activity handouts, and a Choice Board self–assessment for each student. Procedure and Facilitation Points guide the teacher to "distribute a Choice Board to each student, allow students time to examine the Choice Board and select the activities they would like to explore, encourage students to attempt at least three activities, distribute the appropriate Activity Handouts according to students' choices, and have students complete a Choice Board Self–Assessment to evaluate their own mathematical thinking and efforts on their project." *Supplemental Activities Handout* lists the Choice Board as an extension activity.

Progress Monitoring

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

The materials include a variety of instructional assessments at the unit and lesson level (including diagnostic, formative, and summative) that vary in types of tasks and questions. Materials include the definition and intended purpose for the types of instructional assessments included. Materials include teacher guidance to ensure consistent and accurate administration of instructional assessments. Diagnostic, formative, and summative assessments are aligned to the TEKS and objectives of the course, unit, or lesson. Instructional assessments include standards–aligned items at varying levels of complexity.

Evidence includes, but is not limited to:

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

- Materials include a variety of instructional assessments at the unit and lesson levels. A unit in the curriculum is called a "scope." Each scope includes a Standards–Based Assessment, Skills Quiz, Tech–Enhanced Questions, and Mathematical Modeling Task. The Assessment section of the Suggested Scope Calendar includes various tasks designated as D=Diagnostic, F=Formative, and S=Summative. Some are designated as multiple assessment types, including Observation Checklist (D, F), Skills Quiz (F, S), Benchmark Assessments (D, S), and Growth Measurement Assessments (D, S).
- Materials include benchmark assessments that can be found in the general scope tab. These assessments consist of various question types designed for pre-assessment, mid-year assessment, and post–assessment, as well as pre– and post-growth measure assessments.
- Materials include a variety of instructional assessments at the scope and lesson level in the Assessments heading under the suggested scope calendar. The observation checklist, mathematical modeling tasks, skill quiz, skill review and practice, exit ticket, and "Show What You Know," are formative assessments with a variety of question types and tasks. The "Accessing Prior Knowledge," "Observation Checklist," benchmark assessment and growth measurement assessments are diagnostic assessments that have a variety of question types

and tasks. The standards-based assessment, technology-enhanced questions, post–assessments, and benchmark assessments are summative assessments with a variety of question types.

- Materials include a variety of instructional assessments at the unit and lesson level in the Assessments heading under the suggested scope calendar. Diagnostic assessments are found in "Accessing Prior Knowledge," "Observation Checklist," benchmark assessment, and growth measurement assessments that have a variety of question types and tasks. The implementation guide states, "Throughout the curriculum, at the unit and lesson level, we use a variety of tasks designed as formative and summative assessments." The Algebra I Scope and Sequence include a Benchmark Pre–Pre-Assessment at the beginning of the course, a Benchmark Mid–Mid-Assessment in the middle of the course, and a Benchmark Post–Assessment at the end of the course. The scope and sequences list the TEKS tested in each of these course–level diagnostic assessments in the second column of the chart. These benchmarks include multiple–choice question items, multiple answers, card sorting, Griddables, and fill–in–the–blank question items. Activities in the "Engage" tab of every scope include diagnostic activities like the "Accessing Prior Knowledge Agree or Disagree" Activity, the "Foundation Builder" Activity, and the "Hook" activity. These activities assess prior standards to check what students already know or remember in preparation for the lesson and include open-ended questions.
- Materials include formative assessments at the scope (unit) level and the lesson level that vary in types of questions and tasks. The Course *Implementation Guide* lists formative assessments including Exit Ticket, Show What You Know, Decide and Defend (open-ended assessment), Observation Checklist, Skills Quiz (standards-based assessment), Mathematical Modeling Task, Small Group Intervention Quick check and Checkup, Skills Review and Practice Quick Check. "Each assessment is carefully aligned with the TEKS and can be used to gather data to inform instruction."
- Materials include summative assessments at the course and scope (unit) level that vary in tasks and questions. The *Implementation Guide* lists the Skills Quiz (standards-based assessment with open-ended questions), the Standards–Based assessment (multiple–choice assessment), and Benchmark assessments as summative assessments. Technology-enhanced questions are also listed as summative assessments and included at the end of every scope to provide students exposure to multiple–answer, Griddables, sorting, and graphing questions. Tasks such as "Show–and–Tell" and the "Mathematical Modeling" task can be used as performance–based summative assessments and graded with provided rubrics.

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

- Materials include definitions for the types of instructional assessments included in the Suggested Scope Calendar under the heading Assessments. Assessments are labeled using an alphabetic key, "D=Diagnostic, F=Formative, S=Summative." The *Implementation Guide* lists the Assessments available in the course, the type of assessment (diagnostic, formative, or summative), and the definition and intended purpose for each assessment. For example,

the Skills Quiz (Formative or Summative) is "A standards-based assessment to determine the student's ability to solve mathematical problems efficiently and accurately."

- Materials include the intended purpose for the types of instructional assessments included in the Suggested Scope Calendar under the heading Assessments. Each assessment title is followed by the appropriate letter(s) and a brief description of the assessment is given below. The Skills Quiz description states, "Skills Quiz is a short, standards-based formative assessment to determine student mathematical fluency with the key concepts and skills in the scope." For example, the "Skills Quiz" for the "Solving Equations" scope states that it is suitable for both formative and summative assessment. "A standards-based assessment to determine the student's ability to solve mathematical problems efficiently and accurately."

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

- Materials include teacher guidance to ensure consistent and accurate administration of instructional assessments, including assessment tasks. For example, preparation, procedure, and facilitation points, as well as tips and tricks, are provided for all assessment tasks under the "Evaluate" tab. When administering the Mathematical Modeling Task, teachers should print a scoring rubric for each student and allow students time to study the rubric, so they know exactly what is expected. The suggested scope calendar in each scope includes a purple Assessments section at the bottom that includes a key (D–Diagnostic, F=Formative, S=Summative), a list of each assessment, and a definition for each assessment. This key and list of assessments provide teacher guidance to ensure consistent and accurate administration of instructional assessments.
- Suggested Scope calendar includes a day–by–day sequence of activities for the entire scope. Activities consistently include lesson diagnostic, formative assessments at the beginning of each lesson, formative assessments at the end of each lesson and scope(unit), and summative assessments at the end of each scope(unit). Such repetitive placing of activities from one scope to the next helps teachers internalize the type of assessment and intended purpose to ensure consistent and accurate administration of instructional assessments.

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

- Diagnostic assessments are aligned to the course TEKS. Each diagnostic assessment contains a TEKS–aligned answer key. The Heat Map includes question alignment by TEKS and lesson objectives and provides students and teachers the opportunity to check areas of growth and improvement for each TEKS and lesson objective. For example, the Heat Map for Exponential Functions and Models includes a chart that names the TEKS covered and aligns them with the items in the assessment.
- Formative assessments are aligned to lesson objectives and course TEKS. For example, activities like "Show What You Know" cover the lesson objectives for each Explore. For example, each test includes questions that prompt students to demonstrate their understanding of the student expectations outlined in the TEKS. For instance, a post-test

question might ask, "What is the equation of the line that passes through the points (3,2) and (6,14)?"

- Summative assessments are aligned to TEKS of the course and scope (unit) objectives. The summative assessments include the scope–level standards-based assessment, the scope–level Skills Quiz, and the scope–level Skills Review and Practice. The Heat Map aligns each question in these summative assessments to the course TEKS and the objectives in the lessons and scope.

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

- The *Implementation Guide* states, "STEMscopes Math includes multiple opportunities for all types of student assessments, including opportunities for formative, diagnostic, and summative assessments. Each assessment is carefully aligned with the TEKS and can be used to gather data to inform instruction."
- Instructional assessments include standards-aligned items at varying levels of complexity. For example, the "Standards-Based Assessment" found in the "Evaluate" tab is an end–of–lesson assessment that contains TEKS–aligned questions at varying complexity levels. For example, the "Standards–Based Assessment" for the "Exponential Functions and Models" scope contains questions at DOK levels 1 and 2 over TEKS A.9A, B, C, D, and E. The corresponding guiding questions found in the Scope Overview Teacher Guide are: "DOK–1: Does each graph have an x-intercept? DOK–2: What do you notice about the shape of each graph? DOK–3: What is the pattern seen in the y values for microbe A? DOK–3: What is the pattern seen in the y values for microbe B? How could you use the table or graph to solve $4^x = 16$, and what does it mean in context?"
- The "Evaluate" tab in each unit of the online resource offers practice opportunities for instructional assessments aligned with the TEKS. The "Skills Quiz" in each unit includes open-ended and equation–editor questions. Standards-based assessments in the online version feature multiple–choice, multiple–select, and open-ended equation editor questions. The technology-enhanced questions section may include multiple–answer, sequence, Griddable, fill–in–the–blank, sorting, and bar graph questions.

Progress Monitoring

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

Instructional assessments that are 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.

- Materials include an *Implementation Guide* that addresses instructional assessments and scoring information that provides guidance for interpreting student performance. The *Implementation Guide* provides guidance for effective assessment implementation as well as support for teachers and students to analyze the results and use them to facilitate progress. For example, in the "Slope and Rate of Change" scope, the *Teacher Guide* provides an assessment planner with guided questions to script an exemplary response.
- Instructional assessments and scoring information provide guidance for interpreting and responding to student performance in the teacher guide of the print files. Each *Teacher Guide* has an assessment planner and provides information for student intervention. For example, the planner states, "Use this template to decide how to assess your students for concept mastery. Depending on the format of the assessment, you can identify prompts and intended responses that would measure student mastery of the expectation."
- Materials provide guidance for responding to student performance. "The Scaffolded Instruction Guide is provided so teachers can plan for the next steps based on the Measures of Academic Success (MAP) Growth assessment data. It is an integrated tool that guides teachers to materials based on students' Instructional Area scores." "Once the students have taken the MAP Growth assessment, complete the following steps:
    1. Review the data provided to determine percentile, instructional area, and/or standards breakdown for each student.
    2. Find the scope that includes the standards needing focus or intervention.
    3. Access the Scaffolded Instruction Guide in the Home section of the scope.
    4. Click on the direct link to the material recommended for the student."

  The guide is a suggested plan and is not limited to the standards and activities included. In addition, not all activities suggested need to be completed by each student.

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

- The materials guide teachers on using tasks and activities to address student performance. Teachers provide support based on Map Growth assessment data and divided into four percentile ranges. Students who score between 70% and 89% improve their learning using various elements. Those scoring below 70% need extra support and gain understanding through interactive practice and picture vocabulary.
- Materials offer "Skill Review and Practice" under the "Intervention" tab in each scope. This provides teachers with guidance on utilizing and interpreting trends in student performance and allows teachers to use it for review or intervention for each scope. The "Skill Review and Practice" comprises three parts. First, students complete the Quick Check and grade themselves to assess their strengths and areas for improvement. Then teachers provide "Review" handouts to each student. Each student should complete the review, either as an intervention activity or an independent assignment. Optionally, teachers pull students into small groups to work on review skills and utilize the Review as a tool for reteaching. Lastly, students complete the Checkup independently. Teachers analyze the results of the Checkup using the "Teacher Checklist" to identify which students require additional review and which ones have mastered the concepts.
- Materials provide a *Differentiation Pathways* document under "Essentials and Lesson Planning Resources" in the Teacher Toolbox that guides teachers to use the "Hook (Part 2)," the "Skills Quiz," "Show What You Know," "Exit Ticket," and the "Standards–Based Assessment" to assess student mastery level. Teachers are directed to use activities like "Decide and Defend," "Connection Stations," "Math Today," and "Create Your Own" for students showing "master" level (90%–100%) mastery. Teachers are directed to use the "Math Story," "Spiraled Review," and "Problem–Based Task" for students showing "meets" level (70%–89%) mastery. Teachers use "Interactive Practice" and "Picture Vocabulary" with students showing "approaching" level (below 70%) mastery.

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

- Materials include tools for students to track their own progress and growth. The "Heat Map" directs students to color each problem square according to how they scored on that problem, and if it was missed, why? A heat map for each assessment is provided for students to use to reflect on their assessments. The procedure and facilitation points for the heat map direct teachers to
    1. "Distribute a Heat Map to each student along with red–, blue–, and orange–colored pencils. Students should have their graded assessment(s) available.
    2. Students use their graded assessment(s) to color–code the Heat Map. For each question missed by miscalculation, students color the corresponding box blue. For each question missed by explanation, students color the corresponding box orange. For each question missed by a misconception, students color the corresponding box red.

3. Encourage students to look for patterns in their data, such as a certain standard that was missed more frequently or a standard they have clearly mastered and use this information to reflect and set goals in the provided table.
4. Refer to the Scaffolded Instruction Guide found in the Home section to provide extension or additional support."

- The materials include tools for students to track their progress and growth. Each section contains a heat map under the "Evaluate" tab. Teachers guide students to use colored pencils to mark their assessments. Students then analyze the heat map and use the information to set goals. The heat map is provided in English and Spanish and used for various assessments.
- Teacher Toolbox includes a general "Student Goal Setting Template" under the "Essentials Box." "Teacher Procedure and Facilitation Points" guide teachers to "project the 'I can' statements for the scope (found under the "Home section), instruct students to write the 'I can' statements they wish to work on as goals in the boxes provided, and remind students to come back to their goals throughout the scope to monitor their progress. Students will check off each goal as they meet it. Place each Student Goal Setting in a folder or binder for students to refer back to throughout the school year." Scope "Exponential Functions and Models" includes "I can" statements under the "Key Concepts," such as "I can identify key attributes of exponential functions, I can identify a reasonable domain and range given an exponential function or a situation modeled by an exponential function, I can create and interpret exponential models of data in context."
- The "Observation Checklist Student Handout" contains a chart with the Texas Essential Knowledge and Skills (TEKS) in the 1st column, the "Skill" or "Key Concept" in the 2nd column, suggestions to show mastery in the third column, and self–rating "thumbs–up, thumbs–down, or thumbs–side signal" in student–friendly language for student self–assessment. The observation checklist also includes a star–rating system for each of the mathematics process standards.

Supports for All Learners

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

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

Evidence includes, but is not limited to:

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

- Materials include teacher guidance for differentiated instruction within the "Scope Overview," each scope (unit) outlines the intervention options and each item's intended purpose. The "Foundation Builder" in the scope's "Engage" section is "an early intervention activity built to fill gaps in understanding before diving into new content." The "Skill Review and Practice" and "Interactive Skill Review" are found in the "Intervention" Tab. The "Skill Review and Practice" revisits skills in a new way, while the interactive skill review is a virtual game to practice prior grade–level skills. Additionally, supplemental aids, such as visual or graphic organizers, are available in the Intervention Tab.
- Materials include guidance "for teachers to meet the diverse needs of the students in their math classrooms." The "Scope Overview" for *Properties of Functions* highlights supplemental activities and progression of learning resources to provide "a pathway for teachers to assess, intervene, or enrich the core content addressed in the Progression of Learning." These resources guide teachers to teach students who have not yet reached proficiency in grade–level content and skills.
- In the scope overview, teacher guidance provides differentiated instruction for students who have not yet reached proficiency in grade–level content and skills. "The Supplemental Activities handout includes a list of options for teachers to meet the diverse needs of the students in their math classrooms." To address the content and skills students need to reach proficiency, the teacher uses many supports, including anchor charts and interactive

vocabulary, to develop conceptual development and help students better understand the concepts.

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

- Individual vocabulary terms are defined in the "Content Support" page of each scope. For example, in the "Exponential Functions and Models" scope, terms and definitions are given for the following:
  - Data: A collection of organized facts, usually in numerical form, words, measurements, or descriptions.
  - Domain: The set of all possible input (x values) of a function.

  Definitions are also provided for phrases that may be unfamiliar to students, such as:
  - Exponential Decay: The process of reducing an amount by a consistent percentage rate over a period of time.
  - Exponential Function: A function in the form of $f(x) = ab^x$ where a and b are real numbers and $a \neq 0$, $b \neq 1$, and $b > 0$.
  - Exponential Growth: The change that occurs when an original amount is increased by a consistent rate over a period of time.
  - Geometric Sequence: A sequence in which the ratio of successive terms is a constant r, called the common ratio, where $r \neq 0$ and $r \neq 1$.
- Materials include embedded supports for unfamiliar references in text. In each scope under the "Home" Tab, *Content Unwrapped* includes the section "Verbs: What should students be doing?" which, in the *Properties of Functions* scopes, includes decide, determine, evaluate, and represent along with their respective definitions. Additionally, by providing clear, specific explanations that are easy to understand and apply, concrete definitions benefit all learners.

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

- Materials include teacher guidance for differentiated instruction, enrichment, and extension activities. Each scope contains a scope overview that outlines the extensions' available for that scope. *Choice Boards* are intended for acceleration for students who have demonstrated proficiency in grade–level content and skills. *Choice Boards* are "an activity that explores real–world connections and applications of math content through engaging activities." For example, in the Factors of Polynomials scope under Acceleration, a choice board a choice board is provided for students who have shown mastery of factoring polynomials, and the choice board contains six optional problems for students to solve with teacher guidance, suggesting that students should solve at least three. The choice board options are broken into six categories: "Career Connection," "Science Connection," "Create Your Own," "Kitchen Connection," "Mathematician Spotlight," and "Financial Connection." Each option contains additional handouts to aid students in completing their chosen problem(s), including a "Choice Board Self–Assessment" that directs a student to review the task and personal effort level while evaluating if "the work led me to learn deeper about the content."

- Materials guide teachers to differentiate instruction for students who have demonstrated proficiency in grade–level content and skills. The *STEMscopes Math Course Implementation Guide* includes a differentiation section stating, "Another key feature in our curriculum is that both intervention and extension (acceleration) activities are provided. The Teacher can easily individualize their plans by using the Scaffolded Instruction Guide located in each scope to guide instruction based on student data."
- Materials include teacher guidance and resources for Intervention and Acceleration for students who have demonstrated proficiency in grade–level content and skills. For example, the *Scaffolded Instruction Guide* has a section for each Texas Essential Knowledge and Skills (TEKS) covered for students scoring 80%–100% on the Measures of Academic Progress Growth (MAP) assessment. It provides guidance and suggested resources for extending the grade level for students who are "ready to apply their knowledge of the content to a variety of activities."

Supports for All Learners

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

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

Evidence includes, but is not limited to:

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

- The teacher's directions help teachers use prompts to effectively communicate the concepts to be learned. It provides a step–by–step plan for structuring the lesson. For example, in the "Hook" lesson under "Engage" in the "Graphs of Quadratic Functions" scope, the preparation section includes the following prompts:
  - Plan to show the video.
  - Prepare to project "Graphs of Quadratic Functions" for the whole class to view.
  - Prepare to introduce the scenario and encourage students to think about how to solve it.
  - Be ready to move to the "Explore" activities and then return to the "Hook" activity with newly gained knowledge after completing the Explore activities.
- The teacher's directions help teachers use prompts to effectively explain the concepts to be learned. Additionally, the *teacher directions* contain questions for teachers to use when facilitating discussion which helps students better comprehend the concepts. Sample discussion questions are found in the "Hook" lesson under "Engage" in the "Factors of Polynomials" scope:
  1. How is the 120 broken down (DOK–1)?
  2. Why might it be harder to break down the large polynomial expressions (DOK–1)?
  3. How do you think the mechanic should approach Greg's car (DOK–1)?
- The materials provide prompts and guidance to help the teacher directly and explicitly model and explain the concepts to be learned. For example, in "Explore 2 – Write, Model, and Solve Multi–Step Equations," the "Instructional Supports" detail "how to use the balanced hanger" which is used in the "Student Journal," "Math Chat," and "Exit Ticket." The "Solve Equations

Anchor Chart" helps teachers model and explain how students would use algebra tiles. Additionally, "Virtual Manipulative – Algebra Tiles" includes the "Algebra Tiles Video Tutorial" which outlines the manipulatives, concepts, and language necessary to "reveal the algebraic process for solving equations and inequalities."

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

- Materials include teacher guidance and recommendations for effective lesson delivery. Downloadable from the scope overview, the teacher guide contains detailed facilitation notes throughout and includes a variety of instructional approaches, such as "Exit Tickets," "Math Chats," and "Student Journal." For example, the *Teacher Guide* under "Home" and "Scope Overview" states on page 21, "It may help students to find the vertex of the graph before sketching it. It is recommended that, if needed, students plot the known points and then complete questions 2 and 3 before completing question 1. They should also be able to use the axis of symmetry to plot (–3, 8) if needed."
- Materials include teacher guidance and recommendations for effective lesson delivery using a variety of instructional approaches. Each scope contains a "Scope Overview" found in the "Home" Tab. The *Teacher Guide* can be downloaded from the "Scope Overview" and contains detailed delivery instructions that include various instructional approaches, including "Exit Tickets," "Math Chats," and "Student Journal." In the "Graphs of Quadratic Functions" scope, the "Procedure and Facilitation Points" state that the teacher should read the scenario, give each student a student journal, explain that they will work in groups to analyze the scenario, and use the details to sketch the parabola on the grid. In step 4, a list of twelve "Depth of Knowledge" (DOK)–leveled questions are included to prompt students while working. "Describe the direction the intern's parabola opens. What ordered pairs would represent where the left and right sides of the tunnel meet the ground if it is centered at x=0? Describe how to determine the output of the associate's model for a given input. How can the roots/zeros/x–intercepts be used to write the linear factors?"

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.

- Materials support a variety of practice types and include guidance for teachers as well as recommended structures for effective implementation. During the "Engage" component, teachers address the students either as a whole group or individually. For the "Solve Quadratics" scope, the teacher is instructed to have students independently complete an agree or disagree activity. Upon completion, students are directed to stand up and find a partner using a high–five structure explained by the teacher. Partners then discuss their answers and justifications together for a few minutes before changing partners. After the partner portion, the teacher leads a whole group discussion, where students share their thoughts as well as those of their partners.

- Materials include prompts to support the teacher in communicating the concept(s) to be learned directly and explicitly in the *teacher directions*. The *teacher directions* provide questions for teachers to ask that guide the discussion and help students better understand the concepts. In the lessons, there are DOK–type discussion questions like the following:
    - DOK–1: How is the 120 broken down?
    - DOK–2 What does it mean when we have an exponent to an exponent?
    - DOK–1: How do you think the mechanic should approach Greg's car?
- Materials include teacher guidance that supports effective implementation. For example, in the *Teacher Guide under Home and Scope Overview for the Exponential Functions and Models scope,* the section "Exponential Functions, Explore 2—Domain and Range," guidance for teachers states, "Separate the class into groups of 2 or 3 students, print a Student Journal and Exit Ticket for each student, and print a set of School Bacteria Cards for each student group."

Supports for All Learners

3.3	Supports for Emergent Bilingual Students	11/11
3.3a	Materials include teacher guidance on providing linguistic accommodations for various levels of language proficiency [as defined by the English Language Proficiency Standards (ELPS)], which are designed to engage students in using increasingly more academic language.	2/2
3.3b	Materials include implementation guidance to support teachers in effectively using the materials in state–approved bilingual/ESL programs.	1/1
3.3c	Materials include embedded guidance for teachers to support emergent bilingual students in developing academic vocabulary, increasing comprehension, building background knowledge, and making cross–linguistic connections through oral and written discourse.	8/8
3.3d	If designed for dual language immersion (DLI) programs, materials include resources that outline opportunities to address metalinguistic transfer from English to the partner language.	Not scored

The materials include teacher guidance on providing linguistic accommodations for various levels of language proficiency [as defined by the English Language Proficiency Standards (ELPS)], which are designed to engage students in using increasingly more academic language. Materials include implementation guidance to support teachers in effectively using the materials in state–approved bilingual/ESL programs. Materials include embedded guidance for teachers to support emergent bilingual students in developing academic vocabulary, increasing comprehension, building background knowledge, and making cross–linguistic connections through oral and written discourse.

Evidence includes, but is not limited to:

Materials include teacher guidance on providing linguistic accommodations for various levels of language proficiency [as defined by the English Language Proficiency Standards (ELPS)], which are designed to engage students in using increasingly more academic language.

- Materials include teacher guidance on providing linguistic accommodations for language proficiency in each "Explain" lesson tab under the "Language Connections" heading in the drop-down. A table provides teacher prompts for beginner, intermediate, and advanced students for each category: listening, speaking, writing, and reading. For the "Exponential Functions and Models" scope, listening and speaking guidance are paired together.
- Materials include teacher guidance on providing linguistic accommodations for various language proficiency levels, designed to engage students in increasingly more academic language. The "Language Connection" section under the "Explain" tab in every scope includes teacher guidance under "Procedures and Facilitation" Points. This section shows teachers a chart for each level of proficiency (beginner, intermediate, advanced) for listening and speaking, reading, and writing. Each level in the chart calls for different teacher actions depending on the level. Teachers are guided to read prompts for listening and speaking for all

levels, echo–read for beginners, and choral–reading for intermediate and advanced students in the reading and writing sections.

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

- Materials include implementation guidance to support teachers in effectively using the materials in state–approved bilingual/ESL programs. Under the "Explain" tab in every scope, the "Language Connections" section includes procedure and facilitation points that guide teachers on the effective use of materials. For the "Exponential Functions and Models" scope, in the "Language Connections" sections, teachers are guided to "determine each student's English proficiency level, print a student handout for each student and their English proficiency level, and allow students to have access to the Picture Vocabulary for this scope."
- Materials provide guidance for teachers to use resources and tools that support a linguistically diverse classroom. In the online Teacher Toolbox, the Multilingual Learners tab" provides "Proficiency Levels by Domain," Working on Words," "Sentence Stems/Frames," and other supports for language acquisition. For example, sentence stems are provided to support language learners in communicating with their peers in the classroom. Additionally, these sentence stems support students "to explain," "to agree," "to disagree," "to ask for clarification," or to "add on."

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.

- Materials include embedded guidance for teachers to support emergent bilingual students in increasing comprehension through oral and written discourse. In the "Properties of Functions' scope, in the Language Supports section of 'Explore 2: Evaluating Functions,' the teacher." The teacher is directed to support emergent bilingual students by providing "illustrations or examples of words and phrases from the "Explore: Sea Turtles and Migration." Model correct pronunciation of each phrase, and have students repeat as needed. Ask students to speak softly to themselves as they write things using function notation so they can practice reading the notation correctly. For example, f of 5 equals 50. Check for understanding of the following words: function, input, output, and expression."
- In the "Language Supports" section of the "Explore" lessons, materials include embedded guidance for teachers to support emergent bilingual students in making cross-linguistic connections. For example, in "Properties of Functions Explore 3," to promote both oral and written discourse, the teacher is directed to "Collaborate to create a student–made anchor chart that highlights keywords and concepts using visual representations to show the following events: a candy sale, a dunk tank, and an egg launch. Consider adding the words in students' home languages alongside the English words." In the "Graphs of Quadratic Functions" scope, "Explore 4," "Provide word walls and anchor charts depicting the words quadratic equation, vertex form, vertex, distance, and height." Students may use these to self–monitor as they respond to questions or talk with partners. For Spanish or Portuguese–

speaking students, emphasize the similarity between the term "vértice" and the English term "vertex."

- 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 discourse. Every Language Connections section in every scope includes embedded guidance for teachers in the form of prompts to read to students and sentence stems students should use to support their language development. For example, in the scope "Properties of Functions, Language Connections, Listening, and Speaking Chart" for the "Beginning level" under "Procedure and Facilitation Points," teachers are guided to support developing academic vocabulary as they "read the following prompts one at a time.
    - 1) Point to the text at the top of the page.
    - 2) Point to the words as I read them.
    - 3) What is a function?
    - 4) Have students use the following sentence stem: A Function is____."

  Additionally, teachers are guided to increase student comprehension and build background knowledge through repetition and rewording, using provided sentence stems.

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

- The *Course Implementation Guide* states, "STEMscopes math is a research– and standard-based, objective-driven, data-driven, and rigorous curriculum that is well suited for use in a dual language immersion classroom." "All of our student-facing materials are available in both English and Spanish versions. This allows educators in the DLI programs to provide opportunities for students to use their entire linguistic repertoire and plan for explicit language–bridging opportunities within the classroom."

Depth and Coherence of Key Concepts

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

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.

- Practice opportunities over the course of a lesson require students to demonstrate a depth of understanding aligned with the TEKS. For example, the *Teacher Guide* found in the "Scope Overview" for "Explore 1" in the scope "Exponential Functions and Models" contains leveled DOK questions for the teacher to ask as the students work through "Part 1." Students are presented with a scenario, and the teacher is prompted to use the provided series of guiding questions with them while they work through the task.
- Practice opportunities, including assessments, require students to demonstrate the depth of understanding aligned to the TEKS. The "Standards-Based Assessment" found in the "Evaluate" tab is an end–of–lesson assessment that contains TEKS–aligned questions at varying complexity levels. For example, the "Standards–Based Assessment" for the "Exponential Functions and Models" scope contains questions at DOK levels 1 and 2 over TEKS A.9A, B, C, D, and E. The corresponding guiding questions found in the Scope Overview Teacher Guide are: "DOK–1: Does each graph have an x-intercept? DOK–2: What do you notice about the shape of each graph? DOK–3: What is the pattern seen in the y values for microbe A? DOK–3: What is the pattern seen in the y values for microbe B? How could you use the table or graph to solve $4^x = 16$, and what does it mean in context?"
- The "Evaluate" tab in each unit of the online resource offers practice opportunities for instructional assessments aligned with the TEKS. The "Skills Quiz" in each unit includes open-ended and equation–editor questions. Standards-based assessments in the online version feature multiple–choice, multiple–select, and open-ended equation editor questions. The technology-enhanced questions section may include multiple–answer, sequence, Griddable, fill–in–the–blank, sorting, and bar graph questions.

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

- Tasks progressively increase in rigor and complexity, leading to grade–level proficiency in mathematics standards. In the "Evaluate" tab, a "Mathematical Modeling Task'' is included for each scope (unit.) In the "Properties of Functions'' scope, the "Golf Ball Gig" task provides a scenario and has three parts with a variety of open-ended questions for students to respond to.
    - Part 1 asks students if they would "expect the data to describe a relation or a function. Explain your reasoning."
    - Part 2 adds to the scenario and directs students to graph the new function on an interactive coordinate grid, and then asks, "Is it appropriate to show the profit data as discrete points or as a continuous function? Why?"
    - Part 3 directs students to "Give an example of data he might record and analyze to improve his sales efforts. Would the domain be discrete or continuous?"

  The Mathematical Modeling Task leads to grade–level proficiency in TEKS A.2A, A,12A, and A.12B.
- Questions progressively increase in rigor and complexity, leading to grade–level proficiency in the mathematics standards. Guiding Questions under Teacher "Procedure and Facilitation Points" in each explore include Depth–of–Knowledge (DOK) labels to denote the rigor and complexity of such questions. For example, "Scope Properties of Functions, Explore 1–Relations and Functions'' contains questions that increase in rigor and complexity defined using DOK, such as:
    - DOK–1: "What is meant by the term input?" and "What is meant by the term output?"
    - DOK–2: "What patterns can you identify in the machines that are working correctly?", and
    - DOK–3: "How might you determine whether a graph or mapping represents a function or nonfunction?"

  Some Explores, like "Explore 3 Domain and Range in scope Properties of Functions'' include DOK–4 questions at the end of the lesson, such as "How do we determine the domains and ranges of functions, and how does this differ in discrete and continuous situations? Can you provide examples to illustrate these differences?"

Depth and Coherence of Key Concepts

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

The materials demonstrate coherence across 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.

- Materials demonstrate coherence across course and grade bands through a connected scope and sequence. In the online resources, lessons within each scope (unit) are ordered logically outlined in the *Teacher Guide* on the "Scope Overview" page. This guide provides a "Scope Summary" and sequences the individual lessons through the 5E model while providing background knowledge and future expectations for the current course and future courses. For the "Arithmetic and Geometric Sequences" scope, the "Background Knowledge" states, "In previous grades, students wrote equations in slope-intercept form to represent linear relationships given multiple representations and they have already solved linear equations in two variables and found slopes of linear representations."
- Materials demonstrate coherence across course bands through a logically sequenced and connected scope and sequence. The vertical alignment section of the *Teacher Guide* has a background knowledge note and future expectations. For example, in the lesson "Properties of Exponents and Radicals," the background knowledge states, "In previous grades, students work[ed] with whole number exponents and square roots of whole numbers. Students also simplify expressions involving exponents." The Future Expectations states, "In Algebra 2, students continue to build on this knowledge by solving equations involving rational exponents and rewriting radical expressions that contain variables in equivalent forms."

- Materials demonstrate coherence across courses/grade bands through a connected scope and sequence. The "Vertical Alignment Chart Grades 6–Algebra 2 in the Teacher Toolbox" document provides evidence of a scope and sequence connected within the course and between the courses and grade levels. Throughout the rest of the document, the materials make the connection between strands in the grade levels and courses. For example, the TEKS covered in grade 6 and grade 7 math are shown under the strand Number and Operations whereas the TEKS covered in Algebra I and Algebra 2 are shown under the "Number and Algebraic" methods. The materials demonstrate logical sequencing, whereas grade 6 students multiply and divide positive rational numbers fluently (6.3E), add, subtract, multiply, and divide rational numbers fluently (7.3A), multiply polynomials of degree one and degree two (A.10B), and add and subtract, and multiply complex numbers (2A.7A) and polynomials (2A.7B).

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

- Materials demonstrate coherence across units by explicitly connecting patterns between mathematical concepts in the "Teacher Guide," which is in the Scope Overview under the "Home" tab. Across units, "students will make connections between patterns noticed in modeling and algebraic methods. Students will see repeated calculations and look for generalizations and shortcuts." For the quadratic units, students find patterns between distribution and factoring as they did with multiplying and factoring polynomials. In the "Solve Quadratic" lesson, students had to solve $4x^2 + 20x + 24 = 0$ equation, similar to what they did in the unit Factoring Polynomials $4x^2 + 20x + 24$ expression.
- Materials found in the online resource materials demonstrate coherence across units by explicitly connecting big ideas. The *Teacher Guide* explicitly points out the big idea connections between the concepts by providing "Facilitation Tips." For instance, in "Explore 3 – Simple and Compound Interest," the facilitation tip directs teachers to connect the current "Explore" activity to what students already know from the previous activity and consider if a recursive equation could represent the scenario.
- Materials demonstrate coherence across units by explicitly connecting big relationships between mathematical concepts. For example, the scope "Graphs of Quadratic Functions" includes TEKS A.6A – determine the domain and range of quadratic functions, and the connecting standard TEKS A.2A – determine the domain and range of a linear function. One of the "Key Concepts" is "I can determine the domain and range of quadratic functions." The mathematical concept of domain and range is used to connect the big ideas of linear relationships and quadratic relationships in the course.

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 across units by connecting the content learned in previous courses and to content learned in the current course. In the online resources, each scope

(unit) contains a "Content Support" page in the "Home" tab. This page includes a video that includes three topics: "Background Knowledge," "Current Scope," and "Looking Ahead," as "Background Knowledge" connects content from previous grade levels, as well as earlier Algebra 1 course components, to what will be covered in the current scope. In the "Solve Equations" scope, "Background Knowledge" highlighted is from grade 8 and reviews solving equations with variables on both sides, the simple interest formula, and evaluating functions given the value of one variable from previous Algebra 1 scopes.

- The materials ensure students understand how the current course connects to what they've previously learned. In the "Properties of Functions" lesson, students expand their understanding of functions by identifying input and output sets, creating examples of functions using different representations, and interpreting the meaning of function notation in real–world situations.
- Materials demonstrate coherence across units by connecting the content learned in previous courses/grade levels to the content to be learned in the current course/grade level. Every Scope includes "Background Knowledge" in the "Teacher Guide." For example, "Background Knowledge" in the *Teacher Guide* for scope "Arithmetic and Geometric Sequences" states, "In previous grades, students wrote equations in slope–intercept form to represent linear relationships given multiple representations. Students…explored the concept of proportional relationships." Additionally, the "Scope Summary" states, "In this grade level…students will be expected to identify arithmetic sequences and make connections between those sequences and linear equations. In both, there is a constant difference with every subsequent integer."

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.

- Materials demonstrate coherence at the lesson level by connecting students' prior knowledge of concepts from the current and prior grade level(s) to new mathematical knowledge and skills in the content. This section provides the implications of instruction teachers use to build student understanding. For example, in the lesson "Solve Equations," "In previous grade levels, students represented and solved problems that involved proportional relationships. This included finding the constant of proportionality. In this grade level, students should be able to explain the reasonableness of their solution. Students will be able to use models, construct arguments for equality, and explain why an equation or model is equivalent when performing operations to isolate a variable."
- Materials demonstrate coherence at the lesson level by connecting students' prior knowledge of concepts and procedures from the prior grade level to new mathematical knowledge and skills. In the online resources, the "Engage" portion of each scope (unit) includes "Foundation Builder" that addresses concepts from grade 6 through grade 8. In the "Solve Quadratics" scope, "Foundation Builder" directs students to order a set of equation cards to show the progression of the solution process. Two of the three card sets only have a variable on one side of the equation with each step presented as separate equations that students solve as part of the process. "Card set C" starts with the equation $8(x + 2) – 7 = 41$. Teacher guidance for students who struggle with this prerequisite skill is to "Remind students that the variables that

are like terms can be combined in the same way numbers can be combined. Encourage students to model solving equations with algebra tiles to create a concrete understanding of isolating variables."

Depth and Coherence of Key Concepts

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

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

Evidence includes, but is not limited to:

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

- Materials provide spaced retrieval opportunities with previously learned concepts across lessons and units. Scope documents are found on the online platform for *STEMScopes*. Each scope (unit) begins with an "Engage" that has students building the foundation and accessing prior knowledge for the upcoming scope. In the scope "Graphs of Quadratic Functions," the "Foundation Builder" is an activity that has students match input and output values for linear equations and the graphs of those equations. The "Accessing Prior Knowledge" activity focuses on key features of linear functions such as x and y intercepts, and slope. The "Interactive Notebook" component of the scope directs students to identify a reasonable domain and range for the quadratic scenario. Domain and range were covered in the prior scope (unit.)
- Materials provide spaced retrieval opportunities with previously learned skills and concepts across units. The "Elaborate" tab of every scope(unit) includes a section called "Spiraled Review." The general description for the "Spiraled Review" section says, "Students will review concepts and material from previous math classes and scopes to help support their work in the current scope and strengthen the skills that will be needed for later scopes." For example, in scope "Exponential Functions and Models Spiraled Review," students solve a linear equation requiring distribution with variables on both sides, use a graph to estimate the solution to a system of equations, write an inequality given a scenario, and write and solve a system of equations.
- Materials provide spaced retrieval opportunities with previously learned skills and concepts across lessons. For example, the section "Accessing Prior Knowledge" section of every scope reviews standards learned in previous lessons in preparation for the current lesson. In scope "Systems of Equations" section "Accessing Prior Knowledge," the description states, "Students examine a series of tables based on the prior standard and determine which option does not belong with the group."

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

- Materials provide spaced interleaved practice opportunities with previously learned skills across lessons and units. In the online resources, each scope (unit) begins with an "Engage" that has a "Foundation Builder" and "Accessing Prior Knowledge" components for the upcoming scope. In the scope of "Quadratic Extensions," the "Accessing Prior Knowledge" activity highlights the skills of eighth graders in performing and identifying transformations on a coordinate grid before they begin transformations on the quadratic parent function. The "Foundation Builder" contains a true or false slide show where students determine if transformations represent reflections, translations, and rotations.
- Materials provide spaced interleaved practice opportunities with previously learned concepts across lessons and units. Scope documents are all found in the online platform for *STEMscopes*, and each scope (unit) contains a "Spiraled Review" component in the "Elaborate" tab, which contains a scenario paired with four questions covering various concepts. In the "Quadratic Extensions'' scope, the four questions cover the current content by directing students to identify the vertex of a graphed quadratic equation, identify the range of a linear equation, solve equations that involve the distributive property and solve a system of linear equations all connected to the scenario presented at the beginning of the activity.
- Materials provide interleaved practice opportunities with previously learned skills and concepts across units. For example, students have opportunities to find domain and range in scopes "Properties of Functions (A.2A)," "Exponential Functions and Models (A.9A)," and "Graphs of Quadratic Functions (A.6A)."
- Materials provide interleaved practice opportunities with previously learned skills and concepts across lessons. For example, in the scope "Solve Quadratics," students learn to solve quadratic by factoring in "Explore 1," by square roots in "Explore 2," by completing the square in "Explore 3," and by using the quadratic formula in "Explore 4." In each "Explore," students are specifically asked to solve the quadratic equations by the method studied in the "Explore." In the "Skills Quiz" and the "Standards-based assessment" in the Evaluate section for the scope (unit), students are asked, for example, "What is the solution set for the function below?," students are provided a quadratic equation, and students must make their own decision on the best method to use to solve the provided quadratic equation without any prompting from the question itself.

Balance of Conceptual and Procedural Understanding

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

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

Evidence includes, but is not limited to:

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

- Questions require students to interpret, analyze, and evaluate a variety of models and representations for mathematical concepts and situations. The questions in the "Evaluate" tab of the online "Standards-Based Assessment" require students to interpret, analyze, and evaluate various mathematical models and representations. "Online Scope Linear Functions and Models, Mathematical Modeling Task–No Money, More Problems" under the "Evaluate" tab requires students to analyze a graph, interpret the y- and x-intercepts in the context of the problems, and evaluate the slope of a graph to answer a question.
- Tasks require students to interpret, analyze, and evaluate a variety of models and representations for mathematical concepts and situations. In the "Explore" section of the online content for the "Quadratic Extensions" scope, students analyze two graphs of data and complete a table to explore further the patterns appearing in the graphs. Next, they "Analyze the animal populations and describe any trends in the changes in populations. Determine which function type best models each change in population." Part 2 asks, "Analyze the animal population data on the Population Cards to determine which function type best models the change over time. Use the model to make predictions." They then select a model for the data: "Based on the Population Cards, which animal populations are best represented by quadratic functions?" The last step in the process is to determine the usefulness of the models and answer, "Are these models useful for making predictions of animal populations in 10 years? How about 20 years? How about 100 years? Why or why not?"
- Questions require students to interpret, analyze, and evaluate a variety of models and representations of mathematical concepts. In the online content for "Parallel and Perpendicular Lines," one of the activities students complete to show what they know during "Explain, Show What You Know – Part 5 Perpendicular Lines" requires them to review a graph

and answer questions "Why is this not how the stitches turned out? What would the equations of the two lines in this graph be? How are the slopes of the first and second lines related? How is this different for them to be perpendicular lines?"

- Tasks require students to interpret, analyze, and evaluate a variety of models and representations of mathematical concepts. In the online content for "Solve Quadratics," students are required as part of the "Evaluate: Standard-Based Assessment" to interpret, analyze and evaluate a situation, and equations. Students determine solutions of quadratic equations, use discriminants to determine which equations have only one solution, and analyze real-world situations to determine "how long is the ball in the air?"

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

- Questions require students to create a variety of models to represent mathematical situations with students regularly using algebra tiles to create models. For example, in "Explore 2" of the "Solve Equations" scope, the print material "Student Journal" provides students with a partially completed key to show the value of the 1 (unit) algebra tile as it relates to a word problem. It directs them to define the value of the x tile, then instructs students to "Write an equation" to represent the situation, and then "Model the problem using the balanced hanger."
- Questions that require students to create a variety of models to represent mathematical situations under the "Explore" section in the online resource. In "Arithmetic and Geometric Sequences," under the "Explore" section, students are to determine the type of sequence given certain information. For example, in the "Print Files" of "Explore 2: Create Recursive and Explicit Equations," students are to "analyze the vegetable graphs and answer the questions to determine if they will grow enough tomatoes and green beans for their grandma's casserole."
- Tasks require students to create a variety of models to represent mathematical situations. The "Show What You Know in the Explain tab" formative task in the online "Solve Equations" materials includes components such as matching algebraic equations with their corresponding algebra tile representations and creating balanced algebra tile equations. Part 4 of the "Show What You Know" activity requires students to "Use the key to model the equations." The given equations for this activity are $4x - 5 = 7$ and $3x + 6 = 4x + 4$.
- Tasks that require students to create a variety of models to represent mathematical situations under the "Evaluate" section in the online resource. In "Arithmetic and Geometric Sequences," the "Mathematical Modeling Task" has students "using mathematical tools and methods to answer questions about real-world situations." For example, "Part 2I, question 1" has students "create a scenario for Ajani's South African trip that an arithmetic sequence could represent. Use the information provided if you desire."

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

- Questions provide opportunities for students to apply conceptual understanding to new problem situations and contexts. In the online materials, teachers are provided with questions in the "Procedure and Facilitation Points" of each unit to help students apply their

understanding of concepts to new problems and situations. The questions in the "Explore" portion of the lesson cover a range of difficulties from DOK level 1 to DOK level 3, engaging students in discussions about familiar content and applying it to new ideas or contexts. For instance, in the "Properties of Exponents and Radicals" unit, the "Explore 1 – Multiplication and Division with Exponents" starts with guiding questions related to zero power, positive and negative exponents, numeric expressions, and the relationship between negative exponents and the reciprocal of a fraction.

- Questions provide opportunities for students to apply conceptual understanding to new problem situations and contexts. "Explain" activity on "Solve Quadratics, Show What You Know – Part 3: Solve Quadratics by Completing the Square" provides students with opportunities to solve quadratic equations, explain how they got two solutions, use equations to identify key characteristics of quadratic equations, and by the end of the activity, students are answering questions such as, "how do you determine which of the two solutions to each equation represented the time for the feather to hit the ground" and "what might be the reason that one feather took longer to fall than the other?"
- Tasks provide opportunities for students to apply conceptual understanding to new problem situations and contexts. "Properties of Exponents and Radicals, Explore 1 – Multiplication and Division with Exponents" in the online materials engages students with a discovery task in which they explore different exponent values and determine the law that unites all exponents. Although they are familiar with exponents from grades 6 to 8, this is their first experience with defining the laws of exponents. The task includes a table that students complete as they become more familiar with the patterns and discover a formal law that applies to all exponents. Guiding questions are also provided to teachers in the "Procedure and Facilitation Points" section of the task. "Will adding the exponents also work when multiplying with like bases, for example, $a \cdot a^4$? For question 1, what's similar about each of the expressions in the Expression 1 column? When multiplying like bases, what shortcut strategy did we discover we can do? In your own words, what rule can you create and use when multiplying like bases?"

Balance of Conceptual and Procedural Understanding

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

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

Evidence includes, but is not limited to:

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

- Materials provide tasks that are designed to build student fluency necessary to complete grade-level tasks. Found in the Teacher Toolbox under the "Essentials Tab, Curriculum Design," "STEMscopes Mathematics Instructional Philosophy" states, "The Fluency Builder activities engage students in practice through games or independent activities. Students can continue to practice skills throughout the year using the Spiraled Review."
- Materials provide tasks that promote automaticity and fluency with addition, subtraction, multiplication, and division of decimals, fractions, and integers. As addressed in the online materials, the purpose behind these activities is that "According to standards, students should be fluent in all operations with rational numbers. By using these standards as the foundation of the program, we ensure automaticity. Students progress naturally toward having a deep and intrinsic understanding of how to apply the fact strategies. Fluency – Being able to recall basic math facts accurately and efficiently without a time restraint." For example, the "Mathematical Fluency: Operations with Integers" activity has students matching expressions, e.g., 12(–6), –9 x 4, 2(–10), –8 x 7, with equivalent values in a dominoes game.

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 practice the application of efficient mathematical procedures within the lesson and/or throughout a unit in the "Evaluate Section" in the online resource. In the "Evaluate Section" of the lesson, "Solve Equations," the curriculum provides a skill quiz that teachers use for "a short, standards-based assessment to determine student's ability to compute efficiently."
- Materials provide opportunities for students to practice the application of flexible mathematical procedures within the lesson and/or throughout a unit in the "Explore Section" in the online resource. In the "Explore Section" of the lesson, "Solve Equations," the curriculum provides various lessons that teachers use to "help students explore concepts." For example, in this lesson, teachers have four explore activities over direct variation that is used to allow students to "collaborate to build understanding and reason mathematically."
- Materials provide opportunities for students to practice the application of accurate mathematical procedures within the lesson and/or throughout a unit in the "Explain Section" in the online resource. In the "Explain Section" of the lesson, "Solve Equations," teachers have four "Show What You Know" activities that provide "independent practice that gives students the opportunity to demonstrate their learning."
- Materials provide opportunities for students to practice the application of efficient, flexible, and accurate mathematical procedures within the lesson and/or throughout a unit. "STEMscopes Mathematics Instructional Philosophy" found in the Teacher Toolbox under the "Essentials Tab, Curriculum Design" option states, "In the Explore activities, students develop strategies and processes for solving problems. Over time, students evaluate these processes for efficiency and practice them in order to develop greater flexibility and accuracy."
- Materials provide opportunities for students to practice the application of efficient, flexible, and accurate mathematical procedures within the lesson and/or throughout a unit. "Scope Daily Numeracy: Algebra I, Teacher Toolbox, Header What is Daily Numeracy" describes, "The goal of Daily Numeracy is to empower students to reason with numbers in an accurate, efficient, and flexible way."

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

- Materials provide opportunities for students to evaluate procedures, processes, and solutions for efficiency and accuracy within the lesson. The "Explain" section of the 5E lesson model allows students to evaluate and justify procedures used by fictional students, as well as determine accuracy and efficiency. In "Properties of Exponents and Radicals, Show What You Know – Part 2: Power of a Power Law" students are asked, "Noah is trying to convince Charlie that in the power of powers law, the order of the exponents does not matter. Expand the following expressions to see if Noah is right."
- Materials provide opportunities for students to evaluate procedures, processes, and solutions for efficiency, flexibility, and accuracy within the lesson. In the online material for "Solve Quadratics, Explain – Show What You Know – Part 2: Solve by Taking Square Roots" students are provided steps that must be correctly organized for solving a quadratic equation.

Additionally, to encourage evaluation of procedures and processes when solving quadratic equations, questions posed to students include "Which of the following equations cannot be solved using the perfect square principle and inverse operation? Why not? Select all that apply."

- Materials provide opportunities for students to practice the application of efficient, flexible, and accurate mathematical procedures throughout a unit. The "Daily Numeracy" scope (unit) found in the online materials is intended to be used each week throughout the school year as a "no longer than a 15–minute meeting of the minds to share connections and mental strategies." The goal of Daily Numeracy is to empower students to reason with numbers in an accurate, efficient, and flexible way. We have included carefully crafted, purposeful activities that are designed to help students build their thinking and reasoning around relationships and connections."

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

- The online materials contain embedded supports for teachers to guide students towards more efficient approaches. The "Math Chat" in every scope provides support for teachers to guide students towards deeper understanding and approach efficiency, such as identifying restrictions on domain or range.
- Materials embed teacher supports for guiding students toward increasingly efficient approaches. For example, "Scope Arithmetic and Geometric Sequences Teacher Guide," found in the "Scope Overview" option of the "Essentials" tab, includes embedded supports for teachers to guide students toward the rationale for writing explicit arithmetic or geometric sequence equations as more efficient ways than writing recursive sequences when asked to calculate the 100th term of a sequence.
- Materials guide students towards increasingly efficient approaches with embedded teacher supports. In the online materials, "Explore 1 – Multiplication and Division with Exponents" the "Properties of Exponents and Radicals" scope states, "Students look for patterns in multiplication and division expressions with exponents with the same bases. Students discover rules to efficiently simplify numeric and algebraic expressions." From the "Math Chat" for this scope, the embedded teacher support asks, "Why are these generalizations about multiplying and dividing exponential expressions with common bases helpful compared to expanding every single term?"

Balance of Conceptual and Procedural Understanding

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

The materials explicitly state how the conceptual and procedural emphasis of the TEKS are addressed. Questions and tasks that 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/numerical/algorithmic) concepts.

Evidence includes, but is not limited to:

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

- Materials explicitly state how the conceptual and procedural emphasis of the TEKS are addressed. The *Math Implementation Guide* in the "Teacher Toolbox," under the "Essentials" tab, curriculum design option, states that "STEMscopes Math balances conceptual and procedural knowledge by emphasizing mental model creation, practice of mathematical procedures, and equal focus on conceptual and procedural knowledge for students and teachers."
- Materials explicitly outline how they address the conceptual and procedural focus of the TEKS. The "STEMscopes Mathematics Instructional Philosophy" describes how it tackles the understanding of the conceptual and procedural aspects of the TEKS. It highlights the significance of grasping concepts, which helps in developing a sense of numbers. The "Explore" activities give priority to conceptual understanding before delving into abstract representations and processes.
- Materials state how the conceptual and procedural emphasis of the TEKS are addressed. Each unit's *Teacher Guide* lists the TEKS to be addressed within the unit. The lesson outlines explain the concepts covered and relate them to the expected math skills. For example, "Explore 1" involves examining graphs of exponential functions and identifying key features, using knowledge from linear graphs, and working with provided equations for microbe growth. Students conclude with an "Exit Ticket" after completing the activity.

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

- Questions and tasks include the use of concrete models and manipulatives as appropriate for the content and grade level. The *Teacher Guide* found in the online materials, "Scope Overview" section, includes directions for the teacher to support students with concrete manipulatives, i.e., algebra tiles, in the "Engage" portion of the lesson: "If students are struggling with the abstract algebraic representations, provide algebra tiles for students to model solving."
- Questions and tasks include the use of pictorial representations and abstract representations as appropriate for the content and grade level. "Show What You Know – Part 2: Write, Model, and Solve Multi–Step Equations" is a formative task for the "Solve Equations" unit, involving matching algebraic equations with the correct algebra tile representation and creating a balanced algebra tile equation. "Show What You Know – Part 3: Solve Multistep Equations" progresses the students through the CRA model by having them solve the equations algebraically (abstractly) without manipulatives or representations. These problems range from simply solving equations to evaluating solution processes by others. Question 4 of this task asks students, "Sultan was solving an equation but did not get the right answer. Examine his work and find his errors. Show him how to do the problem correctly. Lim and Niko both solved the same equation. They compared their work, and although they both got the same solution, they went about it in different ways. Did Lim or Niko do the problem incorrectly?"
- Questions and tasks include the use of concrete models and manipulatives, pictorial representation (figures/drawings), and abstract representations, as appropriate for the content and grade level. "Scope Solve Equations, Virtual Manipulative–Algebra Tiles under the Explore tab" provides students and teachers with a video tutorial on using the Algebra tile workspace to model solving equations.

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

- Materials include support for students in connecting and creating concrete models to abstract concepts. The "Explore" portion of the 5E lesson from the online materials introduces students to concrete models. It guides them to make connections, define, and create their own models while explaining the meaning of each component. For example, in the "Polynomial Operations" scope (unit) the first Explore lesson "Explore 1: Like and Unlike Terms" the teacher guides students in defining the algebra tiles and explaining each component through a series of questions. "What does the small square represent? How can you represent 2? How can you represent 2x? How could you represent negatives using the tiles? What happens mathematically when you combine a non–shaded and a shaded tile of the same size (for example, a non–shaded and shaded rectangle or a non–shaded and shaded square)?"
- Materials include support for students in connecting, creating, defining, and explaining representational models to abstract concepts. The "Explore" portion of the 5E lesson from the online materials has students draw connections between the representational models and guides them to make connections, define, and create their models while explaining the

meaning of each component. For example, in the "Polynomial Operations" scope the "Student Journal" activity has students draw a model of the addition problem and identify the components of the expression (terms, coefficients, variables, and constants.) Part 2 of the activity moves to purely algebraic representations of combining like terms, as in the expression "−3.75x + 9 – 6x + 1.25x – 12."

- Materials include support for students in connecting, creating, defining, and explaining concrete and representational models to abstract (symbolic/numeric/algorithmic) concepts. The "Explore 1 – Key Features and Attributes" of the online material for "Graphs of Quadratic Functions" has students determining, "What letter represents the peak of Amari's jump? How can the maximum point be used to determine points A and E? If a quadratic function was described by a table of ordered pairs, describe what that table might look like?"
- Materials include support for students in connecting, creating, defining, and explaining concrete and representational models to abstract (symbolic/numeric/algorithmic) concepts. The "Evaluate – Graphs of Quadratic Functions" and the online material for "Graphs of Quadratic Functions" has students practice problems involving graphs, real-life situations, and equations that push them to make connections between different models to further their conceptual understanding of the materials covered. The "Fundamental Questions" covered involve the following questions:
    1. How can key attributes of quadratic functions be identified?
    2. How can the domain and range of quadratic functions be determined, and their reasonableness be evaluated?
    3. How can roots, zeros, x-intercepts, and solutions be found given a function?
    4. How can quadratic functions be written given a graph or zeros?
    5. How can quadratic functions be written given the vertex and another point?
    6. How can quadratic functions be rewritten from vertex to standard form?

Balance of Conceptual and Procedural Understanding

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

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

Evidence includes, but is not limited to:

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

- The online materials provide two vocabulary support resources under the "Explain" tab. The "Picture Vocabulary" includes labeled images with definitions, while the "Interactive Vocabulary" offers a student handout with instructions for group work and class discussions to formulate a class definition with examples.
- Materials provide opportunities for students to develop an academic mathematical language using visuals and other language development strategies. Every scope includes a "Picture Vocabulary" section in the "Explain" tab. For example, in the online platform "Scope Exponential Functions and Models, Picture Vocabulary, Header Description" states, "Students build academic vocabulary and connect vocabulary to their experiences." In the online resource, "Properties of Functions, Explain, Picture Vocabulary", the picture vocabulary handout can be used in tandem with the explore activities embedded to support students to "build academic vocabulary and connect vocabulary to their experiences".
- Materials provide opportunities for students to develop academic mathematical language using manipulatives. "Scope Solve Equations, Intervention tab, section Supplemental Aids–Algebra Tiles" includes a file under "Print Files" for algebra tiles that can be printed and cut out

to support students to "reinforce the following concepts: creating equivalent expressions, equations, and inequalities, combining like terms in expressions, equations, and inequalities, solving equations and inequalities." The section instructions state, "Actual algebra tiles may also be used in its place." Digital algebra tiles are also available under the section "Virtual Manipulative–Algebra Tiles" in the "Explore" tab. The "Solve Equations" Anchor Chart uses algebra tiles as an opportunity for students to develop their academic mathematical language, including equations, inverse operations, variables, constants, and isolate.

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 addressing scaffolding student development and use of academic mathematical vocabulary in context. The online materials contain directions for the "Interactive Notebook" in the "Explain" tab of each scope that highlights vocabulary terms and connects their meanings to mathematics. For example, in the "Polynomial Operations" scope the "Student Handout" for the "Interactive Notebook" includes an interactive component with the terms monomial, binomial, trinomial, and distributive property. Students cut flaps for each term so that glued examples as well as the definition can be later lifted to support student development and use of vocabulary in context. Additionally, the definitions and examples provide space for students to create their own examples. Next, students interact with the vocabulary by answering "What are like terms? What is the coefficient of the x term? What is the constant? What is the degree of the polynomial?"
- Materials include embedded guidance for the teacher addressing supporting student development and use of academic mathematical vocabulary in context. The online materials contain an "Interactive Vocabulary" in the "Explain" tab of each scope (unit). The teacher guidance that supports student development in the "Procedure and Facilitation Points" states "Meet as a whole class to share student thinking and to clarify any misconceptions. Use student ideas to formulate a class definition with examples. The class definition may be posted as part of a word wall or anchor chart. Tips for use include the following: Students can reference Interactive Vocabulary when reviewing content, to assist with precision when verbally communicating their mathematical thinking during group work and Math Chats, and when writing about their mathematical thinking. [...] Students may take their Interactive Vocabulary home at the end of the year as a record of their learning."
- Materials include embedded guidance for the teacher addressing scaffolding and supporting student development, and use of academic mathematical vocabulary in context. For example, "Graphs of Quadratic Functions" guides teachers to encourage students to describe the shape of graphs before naming it as a parabola. Also, "Scope Parallel and Perpendicular lines" guides teachers to provide equation words to support students in writing about parallel and perpendicular equations.

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.

- Materials include embedded guidance for the teacher to support the application of appropriate mathematical language to include vocabulary, and syntax, 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. The online materials contain a "Picture Vocabulary" in the "Explain" tab of each scope (unit). The teacher guidance in the "Procedure and Facilitation Points" guides teachers in leading a class discussion by asking, "How can you connect this word to your work in the Explore? How would you rephrase the definition in your own words? What do you picture in your mind when you hear this word?"
- Materials include embedded guidance for the teacher to support the application of appropriate mathematical language to include 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 "Explore" tab of each scope (unit) contains activities and teacher guidance to lead students in a "Math Chat" after the task or activity is completed. The fourth "Explore" activity in the "Polynomial Operations" scope contains questions and exemplar student responses for class discourse: "Q: Do you think the polynomial long division is limited to only having monomials for the divisor? No, polynomial long division can have multiple terms for the divisor; it is not limited to monomials. Q: In relation to the dividend, how high can the degree of the polynomial in the divisor be? A: The degree of the divisor can be up to the same degree of the dividend but no higher."
- Materials include embedded guidance for the teacher to support the application of appropriate mathematical language to include vocabulary, syntax, and discourse to support mathematical conversations. The "Structured Conversations" section in the "Essentials" tab in the Teacher Toolbox on the online platform provides teachers guidance to "provide a question or prompt for students to discuss. Choose one of the given routines to facilitate the conversation." The "Print Files" section on the right of the page includes an accountability rubric teachers can use to guide students to "use precise mathematical language" and "provide evidence that is complete, accurate, and fully supports thinking."

Balance of Conceptual and Procedural Understanding

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

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

Evidence includes, but is not limited to:

Process standards are integrated appropriately into the materials.

- Process standards are integrated appropriately into the materials. The online materials contain a Teacher Toolbox scope, which contains a "Curriculum Design and Lesson Structure" document found in the "Essentials'' tab. This document states, "The mathematical process standards are woven throughout our curriculum with the goal of building foundational skills that create effective thinkers in math. These standards are the bridge between knowing the content and knowing how and when to use it."
- In the online materials, the "Home" tab contains a dropdown "Content Support" page. This page gives teacher guidance on the TEKS as well as the process standards. For example, in the "Quadratic Extensions" scope, each process standard is listed with the activities or lessons that connect to that standard. "A.1A – Students will determine models for real-world data and use them to make predictions. A.1B – Students will analyze whether their data model provides reasonable predictions of the future or not even if it closely matches the given data. A.1C – Students will use graphing calculators to calculate regression equations for lines of best fit."
- The "Algebra I Scope and Sequence Document" in the Teacher Toolbox, Curriculum Design option of the Essentials tab includes a table with the Scope Name and the included mathematical process standards for each scope and Explore section. For example, "Scope Properties of Functions, Explore 2–Evaluate Functions" includes Mathematical Process Standards (MPS) C, D, E, F, G referring to A.1C – A.1G.

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

- Materials include a description of how process standards are connected throughout the course. In the online materials, the Teacher Toolbox scope for all grades K–Algebra 1 contains a "Process Standards" tab. The big idea for process standards is listed individually in a separate drop-down. Each drop-down contains a list of the skills or activities that are contained in various scopes from K–Algebra 1 that align with the process standards associated with that big idea. For example, the first drop down is "Analyze Relationships to Communicate Ideas'' and identifies two process standards within that big idea topic. "The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to: (A) Apply mathematics to problems arising in everyday life, society, and the workplace, (F) Analyze mathematical relationships to connect and communicate mathematical ideas." Scrolling down to the Algebra 1 section, the scopes are listed with the activities associated with those process standards. "Graphs of Quadratic Functions: Parabolas are explored, investigated, and analyzed through discussions, models, and problems. Students use their knowledge of symmetry to develop an intuition about the graphs of quadratic functions. Students will examine relationships that both increase and decrease at different intervals, so they need to be modeled with a quadratic function. Students will have the opportunity to explore new vocabulary of the vertex and axis of symmetry in context. Example: Students explain what the vertex represents in a scenario like a rocket launch.
- The "Mathematics Course *Implementation Guide*, Section Curriculum Design and Lesson Structure, Header Mathematical Process Standards" states, "The mathematical process standards are woven throughout our curriculum with the goal of building foundational skills that create effective thinkers in math. These standards are the bridge between knowing the content and knowing how and when to use it. Research in problem–solving behavior indicates that effective thinkers practice identifiable habits when they encounter a problem and don't know the answer. The goal of these process standards should be to develop the good habits of a mathematician. We framed our lessons following the habits of effective thinkers in math.
- Materials include a description of how process standards are incorporated throughout the course. The "Process Standards" tab in the Teacher Toolbox in the online platform includes all the process standards and descriptions of what the process standards look like in action throughout various units of the course. For example, the section "Process Standards–Intentional Selection of Tools and Techniques to Solve Problems" lists A.1A and A.1C as standards aligned to Systems of Equations, Solve Quadratics, and The Quadratic Formula, and provides examples of these standards incorporated in each of those topics.

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

- Materials include a description for each unit of how process standards are incorporated throughout the unit in the "Content Support" section of each scope(unit) under the Essentials tab. For example, "Exponential Functions and Models, Content Support section, Header Applying Mathematical Process Standards," lists A.1A, A.1B, A.1C, A.1D, A.1E, A.1F, and A.1G

incorporated throughout the unit(scope). Each process standard is in bold followed by a sentence explaining how the process standard is applied in the unit. For example, A.1A –apply mathematics to problems arising in everyday life, society, and the workplace is accompanied by the sentence, "Students determine models for real-world data and use them to make predictions. Students apply their new mathematical understanding of exponential, linear, and quadratic functions to real-world problems.

- Materials include a description for each unit of how process standards are incorporated and connected throughout the unit. The online platform, "Exponential Functions and Models – Home – Content Support – Applying Mathematical Process Standards" has a list of all the process standards covered and a description of how they are incorporated throughout the scope. For example, for A.1G, "students defend their choices for correlation and analyze the justification of their peers." Within the Teacher Toolbox, the Process Standards describe how the process standards are incorporated and connected to the content standards. Additionally, the Algebra 1 Scope and Sequence in the Teacher Toolbox under Essentials and Curriculum Design connects process standards throughout the scope in the "Included Standards" column.

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

- Materials include an overview of the process standards incorporated into each lesson. In the online materials, the "Explore" portion of the lesson lists out the process standards covered within the 5E lesson under the "Description" of the lesson.
- Materials include an overview of the process standards incorporated into each lesson, such as "Arithmetic and Geometric Sequences" scope (unit) containing two "Explore" lessons. The first lesson "Explore 1–Identify and Construct Arithmetic and Geometric Sequences" includes process standards A.1D, A.1E, and A.1F, while the second lesson "Explore 2–Create Recursive and Explicit Equations" includes process standards A.1C, A.1D, and A.1G. Similarly, in the "Scope Properties of Functions, Explore 1–Relations and Functions," process standards A.1C, A.1D, A.1E, A.1F, and A.1G are listed as included in this lesson.

Productive Struggle

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

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

Evidence includes, but is not limited to:

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

- Materials provide opportunities for students to think mathematically and make sense of mathematics. The online materials contain an "Explore" tab which contains print files such as the "Student Journal." Teachers are directed to have students work together in groups of 3 or 4 to complete the journal, which contains various questions about various stimuli. For example, in the "Slope and Rate of Change" scope, "Explore 1– Slope and Rate of Change Given a Graph" asks students to review a variety of tables and graphs related to a scenario. Questions that highlight mathematical thinking and sense-making as part of the activity include "How many calories are burned in the first hour on a medium trail? How does the rate of change during the first hour compare to the rate of change during any other time? Use similar triangles to explain."
- Materials provide opportunities for students to think mathematically and make sense of mathematics. For example, "*Math Implementation Guide*" found in the "Curriculum Design" option under the "Essentials" tab in the Teacher Toolbox in the "Online Platform" section "Key Features of STEMscopes Math, Productive Struggle" states "STEMscopes Math provides frequent opportunities for students to engage in independent problem solving and supports them in reflecting on, explaining, and justifying multiple approaches and solutions."
- The online materials include a "Evaluate" tab for each scope with a task and "Procedure and Facilitation Notes" for teachers, guiding them to encourage students to persevere through problem–solving. The "*Math Implementation Guide*" in the "Curriculum Design" section emphasizes the support provided to teachers in guiding students through the process of productive struggle, including how to provide explanatory feedback and varied linguistic scaffolds to help them work through anticipated misconceptions.

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

- Materials support students in understanding that there can be multiple ways to solve problems and complete tasks. For example, "*Math Implementation Guide*" found in the "Curriculum Design" option under the "Essentials" tab in the Teacher Toolbox in the "Online Platform" section "Resources and Tools" states "Problem–Based Task/Mathematical Modeling Task: These collaborative elements allow students to solve meaningful problems through real-world contexts. Tasks like these provide students the opportunity to own their learning experience and challenge them to not simply make calculations but also consider problems from various perspectives."
- Materials support students in explaining that there can be multiple ways to solve problems and complete tasks. The "Explore" tab of the online materials contains a "Student Journal." In the "Solve Quadratics" scope, the "Student Journal" for "Explore 4 – Use the Quadratic Formula" poses scenarios such as "The first thought for a way to solve any quadratic was to graph…The development team wants to see which algebraic tools are at their disposal since they will not always be able to graph to solve their quadratics. Two teams focus on different aspects of solving quadratic equations in the form $ax^2 + bx + c = 0$. Team A: factoring, Team B: completing the square. What makes both teams' strategies difficult and not efficient when solving the equation $0 = 2x^2 + 5x + 1$?"
- Materials support students in justifying that there can be multiple ways to solve problems and complete tasks. The online materials state that "Daily Numeracy includes tasks and questions where students practice representing, writing, and discussing their thinking." In the week 19 "Daily Numeracy" lesson, students are asked to discuss guiding questions. "Guiding Questions: Explain the strategy used to get your answer. Is there a different strategy we could use? How are these strategies similar? How are they different?"

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

- Materials are designed to require students to make sense of mathematics through doing math with peers and teachers. In the *Teacher Guide* of the "Scope Overview" under the "Home" tab, teachers guide students throughout the lesson as they complete problems. In "Arithmetic and Geometric Sequences," students are to determine the equation of each sequence given the term, common ratio or denominator, and the formula. For example, the teacher can ask, "What determines whether a sequence is arithmetic or geometric? What do the numbers in each of the equations represent?"
- Materials require students to make sense of mathematics through writing about math with peers and teachers. The online materials contain an "Observation Checklist" in the "Evaluate" tab of each scope. This checklist can be used by students and teachers to "reflect on ways they can demonstrate their understanding and self-assess their progress on each key concept or skill as they work through both whole-group and small-group activities. Students can reflect on their thinking, learning, and work in the scope; identify ways they have improved; and establish new learning goals." The checklist contains each TEKS taught within the scope and

asks students to evaluate their understanding of each concept by checking off the boxes that answer the question "How can you show you know this? Model it. Draw it. Apply it. Talk about it. Write about it."

- Materials are designed to require students to make sense of mathematics through discussing math with peers. For example, "Scope Systems of Equations, Explore 3, Solve Systems by Elimination, Procedure and Facilitation Points" states, "Explain to students that they will work with their groups to determine how much each item costs for the first set of receipts and record their work on their Student Journals." Additionally, "Ask students to share their strategies and encourage them to ask each other questions and make connections. Encourage them to notice the similarities and differences in how they determined the cost of each item."

Productive Struggle

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

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

Evidence includes, but is not limited to:

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

- Materials support teachers in guiding students to share and reflect on their problem–solving approaches, including explanations. Each "Explore" component of the online materials contains a "Student Journal" associated with that Explore. The final component of the "Student Journal" is a reflection piece where students reflect on the learning from the lesson. In the "Solve Equations–Explore 3–Solve Multi Step Equations" the reflection portion prompts students to explain their problem–solving approach while answering, "Andrew is solving an equation with fractions on both sides. Explain what he did to go from step 1 to step 2 and why it was helpful."
- Materials support teachers to guide students to both share and reflect on their problem–solving approaches, including arguments and justifications. In the "Solve Equations–Explore 3–Solve Multi Step Equations" the reflection portion contains the question "Diego says that the equation 2x+10=6x+10 has no solutions. Do you agree with him?" which requires students to argue against Diego's incorrect solution. Additionally, "How many strategies are there for solving equations? How do you know which strategy is best?" necessitating students to justify their problem–solving approaches.
- Materials support teachers in guiding students to share their problem-solving approaches, including explanations, arguments, and justifications. The online platform "Polynomial Operations – Explore – Multiply Polynomials with Models" includes "Math Chat" for students to share their learning, thinking, and observations. Guiding questions to help teachers facilitate the discourse include "Do you think the process would change if we had another row in our area model? How do you know how to set up your area model? Compare and contrast the algebra tile method and the area model method. Describe the process used to figure out what the product would like for the art pieces."

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

- Materials offer prompts and guidance to assist teachers in providing explanatory feedback based on student responses. The online materials contain a printable *Teacher Guide* found in the "Home" tab of each scope. This document outlines student responses and teacher guidance to help develop their understanding. The *Teacher Guide* document also provides "Procedure and Facilitation Points" that provide teachers with prompts and guidance to direct student learning based on student responses. "As students collaborate, monitor their work and use the following guiding questions to assess student understanding: Q–DOK–1 What does it mean when there is an integer exponent? A–When there is an integer exponent, n, we multiply the base by itself n times. Q–DOK–2 What does it mean when we have an exponent to an exponent? A–When we have an exponent raised to an exponent, such as (xa)b, we multiply xa by itself b times."
- Materials offer prompts and guidance to assist teachers in providing explanatory feedback based on student responses. For example, "Online Scope Solve Equations, Teacher Guide, Explore 1 Solve Multi-Step Equations, Part 2 Facilitation Tips" states, "After they answer the question, ask the class for examples of when it would be better to use a fraction to solve an equation. If they are stumped, present scenarios such as one involving cooking measurements."
- Materials offer prompts and guidance to assist teachers in providing explanatory feedback. The scopes found in the online material include an "Accessing Prior Knowledge" activity that contains potential student responses and misconceptions. In the scope "Properties of Exponents and Radicals," the "Procedure and Facilitation Points" include teacher guidance to "Facilitate a discussion about the handout. This provides an opportunity to gather an understanding of prior student knowledge before beginning the lessons. Encourage students to support their answers, and check for understanding and misconceptions. Ask students to justify their choices for the lie. Sample student responses include the following: Slide 1 is incorrect because 4 is not a prime number. The correct prime factorization is 32· 22. Slide 2 is incorrect because 9 is not a prime number. The correct prime factorization is 34." Guidance is also provided on this page to "Identify Misconceptions" such as "Students may struggle to remember that prime factorization means that all of the factors written in the final product must be prime numbers. Students may struggle to remember that prime factorization is written as a product and not a sum of the numbers."